IoE-Driven 'Gallery One' Boosts Attendance and Repeat Business for CMA

EXECUTIVE SUMMARY

Objective

- Leverage Wi-Fi, handheld mobile devices, high-resolution displays, and interactive digital technology to create a vibrant, interactive, and personalized exploration for each museum visitor – and to reach those not typically drawn to museums

Strategy

- To secure buy-in and support, use prototypes to help museum executives and board members understand what the technology could accomplish
- Assemble profiles of museum's current visitors to identify appropriate solution
- Leverage the digital catalog and photography of CMA artworks to build a base for multichannel publishing

Solution

- Technological renovation of museum experience incorporates interactive digital and mobile technology to bring visitor engagement to a new level
- Gallery One offers 10 interactive experiences including the Collection Wall, a 5- by 40-foot multitouch display made up of 125 Christie MicoTiles
- ArtLens mobile app provides visitors with interpretive information about each artwork on view

Impact

- Boosted attendance by 39 percent
- Increased family visitors to 29 percent
- Stronger repeat business to Gallery One

Background

In January 2014, Cisco released the results of an in-depth analysis of the economic benefits of the Internet of Everything (IoE) for the public sector. Cisco's model revealed that some $4.6 trillion in "Value at Stake" would result from the adoption of IoE capabilities across 40 key public sector use cases over the next 10 years, including smart water, smart buildings, smart energy, smart parking, and more (http://bit.ly/1aSGlzn).

As a next phase of its analysis, Cisco engaged Cicero Group, a leading data-driven strategy consulting and research firm, to undertake a global study of IoE capabilities across these 40 use cases – how the best public sector organizations are "connecting the unconnected," as Cisco terms it. To that end, Cicero Group conducted interviews with dozens of leading public sector jurisdictions – federal, state, and local governments; healthcare organizations; educational institutions; and non-governmental organizations (NGOs) – to explore how these global leaders are leveraging IoE today.

The research examined real-world projects that are operational today, are being delivered at scale (or through pilots with obvious potential to scale), and that represent the cutting edge of public sector IoE readiness and maturity. The aim of the research was to understand what has changed in terms of the jurisdictions' people, processes, data, and things, and how other public sector organizations can learn from (and replicate) the trail blazed by these global IoE leaders. In many cases, these jurisdictions are Cisco customers; in others, they are not. The focus of these jurisdictional profiles, therefore, is not to tout Cisco's role in these organizations' success, but rather to document IoE excellence, how public sector entities are putting IoE into practice today, and to inform a roadmap for change that will enable the public sector to address pressing challenges on multiple fronts by drawing on best practices from around the globe.

About Cleveland Museum of Art 'Gallery One'

The Cleveland Museum of Art (CMA) recently completed a $320 million renovation project featuring a technological boost to the museum experience, and incorporating interactive digital and mobile technology to bring visitor engagement to a new level. At the entrance to CMA's newest addition, Gallery One, visitors are drawn in by a beacon to a hands-on space with nine interactive experiences, including the Collection Wall. The 5- by 40-foot Christie MicroTile multitouch display features works on view from the museum's permanent collection, and lets patrons create individualized tours of their favorite artworks.

A custom-made app, ArtLens — available for iPad, iPhone, and Android — lets visitors carry their Gallery One experience throughout the rest of the museum. ArtLens engages visitors with multimedia content, providing interpretive information about select pieces of art, as well as descriptions of each artwork on view.

Additional interactives, including three especially for young children, use a gaming approach to engage patrons in exploring the museum's artworks and explaining how and why they were created.

Since its debut, Gallery One has attracted the notice of visitors and museum administrators around the world.

Jane Alexander is chief information officer for the Cleveland Museum of Art. Previously, she worked as the virtual chief technology officer for the Great Lakes Science Center, and as a technology design consultant to Frank Gehry's Peter B. Lewis Campus at Case Western Reserve University.

> The aim of the project was to leverage Wi-Fi, handheld mobile devices, high-resolution displays, and interactive digital technology to create a vibrant, interactive, and personalized exploration for each museum visitor, and to reach those not typically drawn to museums.

Objective

Ms. Alexander led a cross-functional technology team of vendors and staff that developed Gallery One and the ArtLens app for the Cleveland Museum of Art. Fueled by a $10 million grant from the Maltz Family Foundation, a new space came to life within the museum that incorporates cutting-edge technology and art in a way that brings the museum experience to a modern audience. The aim of the project was to leverage Wi-Fi, handheld mobile devices, high-resolution displays, and interactive digital technology to create a vibrant, interactive, and personalized exploration for each museum visitor, and to reach those not typically drawn to museums.

Strategy

Ms. Alexander indicated that the museum has been very open about what it has done. "We believe in sharing information with other museums, and contributing back to that community," she said. "I publish everything. I keep everything open. I let people know exactly how we did it, because we don't need to keep secrets. We're continuing to grow and push and make calculated risks to use innovative technology to serve up the museum experience in multiple ways to multiple types of visitors."

In the initial development phase, prototypes were critical to helping the museum's executives and board members understand what the technology could accomplish, and how visitors would interact with it. This was crucial in getting buy-in and support.

First steps for the project included assembling profiles of the museum's typical visitors, which revealed a desire for more information about the artworks, the need for more children's activities, and a perception of a museum as a "quiet, stuffy place."

Taking advantage of the quality of the museum's collection and its up-to-date digital records, Ms. Alexander's implementation team took advantage of CMA's robust content management system (CMS) and digital asset management (DAM) to track each artwork and its associated information, and to layer all subsequent programs on this platform to "let the collection speak for itself."

The most ambitious interactive in Gallery One is the Collection Wall, a constantly changing 40-foot Christie MicroTile multitouch display featuring art currently on view from the museum's collection.

Solution

Ms. Alexander and her project co-leaders – Caroline Goeser, director of education and interpretation; and Jeffrey Strean, director of design and architecture – oversaw the realization of that vision when Gallery One opened to the public in January 2013. It combines a state-of-the-art orientation center and an educational forum, giving visitors a vibrant introduction to the museum. Gallery One introduces each patron to CMA's excellent collection with nine high-resolution, interactive stations. The ArtLens app then guides them throughout the rest of the galleries via curated tours or custom tours based on the patron's chosen favorites.

The most ambitious interactive in Gallery One is the Collection Wall, a constantly changing 40-foot Christie MicroTile multitouch display featuring art currently on view from the museum's collection. While browsing categories such as genre, medium, or most popular pieces, visitors can choose their favorite artworks, which are then downloaded to their iPad, iPhone, or Android device. Preloaded devices can also be rented from the museum. The project team designed ArtLens to guide visitors to each desired work of art, and to present relevant and interesting information utilizing a Wi-Fi connection. The user can access historical data, interpretive information, and other interesting facts about each piece. Information is delivered in a variety of multimedia formats. Additionally, as they roam the galleries, visitors can scan selected artworks with their device's camera to access further content, including videos and curator talks.

Content and Digital Asset Management

Ms. Alexander found much of what she needed for both the Collection Wall and in the ArtLens application in the museum's existing system of records, a comprehensive compilation of digitized photographs and information on every item in CMA's vast collection. This included descriptive information such as the date of creation, genre, and medium; interesting historical facts, such as cultural influences and accession history; and stunning photography of the artworks.

Wanting to "let the collection speak for itself," Ms. Alexander pushed to leverage the artwork images and descriptions already available in the museum's DAM system, and use that repository as the core of all artwork-related public access. The idea was to "put this work into a digital strategy," she recalled. "Then, whatever the need is, however technology changes going forward, we would be able to publish and share our artwork from a solid base." Videos, slideshows, comparative images, interpretive text, and dozens of predefined tours were loaded into an optimized content management system, which is fully integrated with the core DAM.

Ms. Alexander's decision to use the DAM system as a platform on which to build the remaining information systems was crucial in many ways. One advantage is the way it provides for real-time updating of information across all systems. "Developing content takes a time and intellectual effort," Ms. Alexander explained. "We're using that content in multiple ways. If you create or change something once and it goes to all the other places, you're working smarter. Otherwise, you'll never be able to keep up with all the information out there, and things will be outdated and not current. Visitors need to know they're getting accurate, timely information.

> The team envisioned Gallery One as an orientation center that provides visitors with toolsets that help maximize their museum experience.

"Gallery One became a test bed for our digital strategy that the tech team can log into [from] any machine, from anywhere," she continued. "We do it all the same way — the same way our seminar rooms and our boardroom have been set up — so that you're not switching technology each time you walk into a new space. When we do something big, we know how to change it throughout the entire museum."

Wanting to provide a rich audiovisual experience, one of Ms. Alexander's first steps was hiring an AV integrator to help guide the project, which assisted both the quality of the final product and the bottom line. "I wanted an AV integrator from the beginning," she said, "because I still believe that while designing the technology, you needed to be thinking how you're going to implement this — how the visitor will act and react to it. When designing interactives, you also need to be thinking about the analytics you want to capture, because it costs much more to add analytics tracking afterwards."

Interactives

The team envisioned Gallery One as an orientation center that provides visitors with toolsets that help maximize their museum experience. Gallery One's nine stations incorporate interactive education through a high-resolution visual tour of the museum's extensive collection. Six stations are designed to educate patrons in various aspects of art, such as portraiture, sculpture, symbolism, narrative archetypes, geography, cultural influences, and artistic motivation. Three stations were designed specifically for families with young children, although they have proven widely popular among all ages. "There are many Fridays and Wednesday nights we're open late, and it's only adults there with no kids anywhere in sight," Ms. Alexander noted.

The showpiece of Gallery One is its Collection Wall, which presents an ever-changing display of more than 4,100 works of art in CMA's collection. At 5 by 40 feet, it was the world's largest Christie MicroTile multitouch installation at the time Gallery One opened. The wall is a magnet for visitors, who can interact with the

artwork and easily select their favorites. When they leave the Collection Wall, their favorites are downloaded to the ArtLens application, and their customized, guided tour begins.

ArtLens

In the development of the ArtLens mobile app, Ms. Alexander's media designers conducted significant research to determine popular features from other successful applications. "A seamless-as-possible interface design is really important, using best practices," she said. "We looked at how iTunes did it. We looked at how Facebook mentioned to go to another page. We looked at things that people use all the time to determine the real current practices of how people get in."

One of the first challenges needing to be addressed in the ArtLens development was way-finding: the technology that detects visitors' locations, guides them through the tour, and delivers targeted content. Because much of the Wi-Fi infrastructure within the galleries had been previously installed in a manner not conducive to location tracking, the museum had to find an alternative solution for indoor triangulation technology. The Museum solved this by bringing in an outside partner for a hosted solution. The partner worked closely with the museum and app developers during implementation, and made several customizations to their system to meet the museum's particular needs.

The museum team also requested image-recognition capability within the ArtLens app, both for the "ooo-ahhhh" factor and to make the app an activity. "We've used augmented reality, so that when you see an artwork you like as you're wandering, you just hold up your device and hotspots pop up with information or videos," Ms. Alexander said. Users may also choose from dozens of curated tours that highlight prominent artworks and themes.

Although the Christie MicroTile wall and other software is Windows-based, Ms. Alexander selected Apple hardware as the platform of choice for the initial rollout of the ArtLens application, both for the high-resolution display and because research indicated that up to half of the museum's patrons were likely to own Apple products. "Your iPad, iPhone — and now, your Android device — connects to the collection wall through RFID," she explained. "When you come to the museum for the first time, we give you RFID capability for free, and we set up your device. It takes only two minutes. Then every time you come, you can connect to the wall and keep exploring."

Estimating that 20 to 25 percent of visitors would arrive with their own device, Ms. Alexander authorized the purchase of enough iPads to rent to remaining visitors. The museum's research team discovered that more than 55 percent arrived with their own devices. The tech-desk ran out of RFID tags much faster than rentable iPads. "People were actually buying an iPad before they came, just to do the experience from their own device," said Ms. Alexander. "We did notice that people are comfortable with their own device. When the phone versions rolled out, our budget for RFID tags really jumped because people really want to use their own devices."

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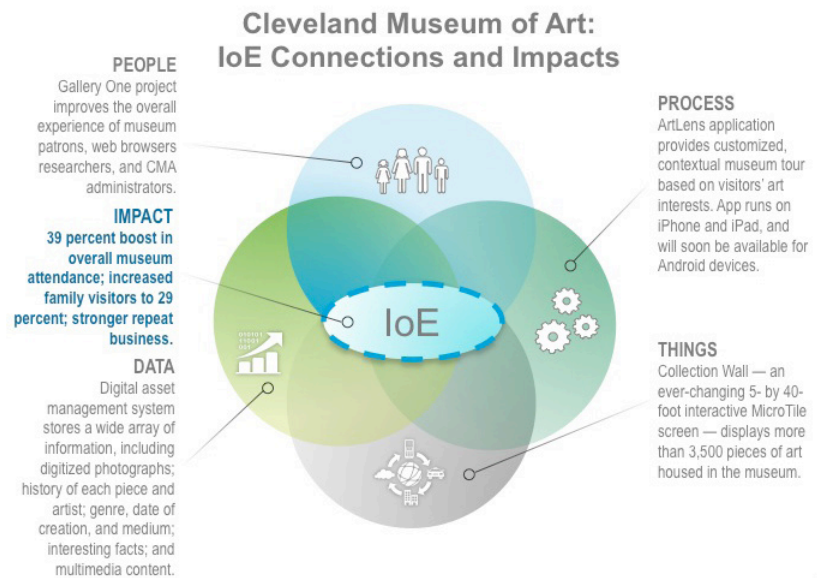Chief Information Officer,
Cleveland Museum of Art

Another aspect of the ArtLens design is the ease and security with which guests can share the experience with friends. Research suggests that 70 percent of museum visitors are likely to take and share pictures of art, and themselves with art. This activity continues to be very popular, particularly among guests with their own hardware. "People love doing that, having a way to share art easily from their own device," said Ms. Alexander. "People don't like to log in to their social media or to give you a personalized email or anything; they're cautious. We wanted to let you get into the interactive without having to provide any of that."

Website

Ms. Alexander made an early decision to change the platform of the museum's website to an open-source option, after finding the previous platform to be insufficiently customizable. "It did not take into account the dynamic collection," she said, "so we migrated the entire site to provide a flexible and extensible platform for development and integration." The website had to show the same artworks on view as the Collection Wall and ArtLens, and had to provide an online "landing" site for visitors to share favorite artworks with friends. The information for ArtLens' calendar of the day's events comes directly from the public website, but with its own look.

In each of her technological choices, Ms. Alexander kept this long-term perspective by selecting those she felt would be easily maintained and upgraded. "You don't want to have something that feels dated – or, worse yet, broken – as soon as you roll it out. Our back end is both scalable and sustainable. That was a huge part of it. Every piece of hardware in Gallery One can be replaced within a minute. For example, you don't have to turn off the wall just to replace a blown MicroTile."

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> Jane Alexander,
> Chief Information Officer,
> Cleveland Museum of Art

Figure 1.   Cleveland Museum of Art: New and Better Connections.

Cleveland Museum of Art: IoE Connections and Impacts

PEOPLE
Gallery One project improves the overall experience of museum patrons, web browsers researchers, and CMA administrators.

IMPACT
39 percent boost in overall museum attendance; increased family visitors to 29 percent; stronger repeat business.

DATA
Digital asset management system stores a wide array of information, including digitized photographs; history of each piece and artist; genre, date of creation, and medium; interesting facts; and multimedia content.

IoE

PROCESS
ArtLens application provides customized, contextual museum tour based on visitors' art interests. App runs on iPhone and iPad, and will soon be available for Android devices.

THINGS
Collection Wall — an ever-changing 5- by 40-foot interactive MicroTile screen — displays more than 3,500 pieces of art housed in the museum.

Source: Cisco Consulting Services, 2014

Impact

The debut of Gallery One had an immediate impact on both the local public and the larger museum community, according to Ms. Alexander, positioning the Cleveland Museum of Art as a must-see destination for those visiting the area. "It's been very well received, more than I think anyone ever thought it would be," she said. Since it opened to the public in January 2013, attendance has risen 39 percent, with family visitors increasing to 29 percent, and repeat business for Gallery One is robust.

"It seems like it's a commercial in that space all the time, with kids running to the wall and saying, 'Mom, you're right, museums aren't boring!'" Ms. Alexander said. "I think people are engaged — it does encourage people. Every time I'm down there, someone's telling me how much they love it."

The project has garnered the museum official recognition, including four MUSE awards for Gallery One's outstanding interactive experiences. Local and national press, and those in the museum industry, visit the museum regularly to see the experience for themselves and learn more.

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Lessons Learned / Next Steps

Just a year after its debut, Gallery One is still widely examined by both CMA leadership and the museum community in general to determine why it works so well. Ms. Alexander remains watchful for ways to improve, and mindful of the big picture. "CMA is doing a huge evaluation on the whole experience now, and I've been putting my energy into codifying a museum-wide digital strategy," she said.

For other museums hoping to create a similar experience, Ms. Alexander advises the creation of hubs that allow easy exchange of data across various software systems. "There's no system that's going to do everything for everyone, so looking at designing systems that can easily talk to each other, open architecture is key. We're working right now on a project that pulls together information from our donors and members, our ticketing, our parking kiosks, and our store, so that each of these different venues can easily see comprehensive information on our member-visitors that they couldn't get otherwise because they're using their own software."

Ms. Alexander also has ideas for an application that allows a similarly smooth exchange of information among museums. "I want my data out there to always be current. [The challenge is] figuring out a back end, so that when there's an exhibition that travels from the Getty to Cleveland to the Met, the audio guide is replaced with this app that can pull information from all three different museums easily. It's a sort of standardization. The other thing that I see happening more is location — I mean, everyone is doing Big Data and the Internet of Things, but it's about how you manage all this data through all these different devices, and how information, depending on where you are, will be brought up to you."

In addition to examining the way art information is offered to the visitor, CMA's research department also collects and analyzes data on the visitors themselves, and continues to look for creative sensors to collect this data. "I think that's really important — understanding exactly where visitors are going," she explained. "We're

Ms. Alexander encourages museums seeking to produce a similar in-house app to consider the way worldwide access might affect its distribution.

doing it through studies, and we have little video cams with people, where they're going and how they're using their app and things like that. In looking in the whole Internet of Things approach, it's really the sensors, mobile devices, and where they are that is going to be really important to getting the right information to people and changing the experience."

When Ms. Alexander studied download data for the ArtLens app, she was surprised at its worldwide popularity and felt the app was unprepared for this. "When we were designing ArtLens, we decided we were designing it for the in-house experience," Ms. Alexander said. "But when we looked at the analytics, about 65 percent of the people that download ArtLens are nowhere near Cleveland, and most likely are not coming to Cleveland. We have it so that the person who's coming here can do stuff at home and then come the next day, but we didn't think about the person who's never coming here."

Ms. Alexander encourages museums seeking to produce a similar in-house app to consider the way worldwide access might affect its distribution. "You might make decisions, but you have to think about [the possibility that] the audience might choose not to use it that way. Even with language, we decided, Cleveland is not a global tourist destination yet. We don't need to worry about other languages. But 35 percent of the people [downloading ArtLens] are across the world, and maybe we should think about other languages." The issue, then, is which languages?"

More Information

For more information, please visit http://www.clevelandart.org/gallery-one