Microsoft

EDU
day
LIVE!

# La Digital Transformation nei Musei

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#LASCUOLANONSIFERMA

ICOM international council of museums Italia

Per ripensare in chiave strategica i beni culturali non bastano le tecnologie, serve una cultura digitale che abbracci tutte le attività del Museo
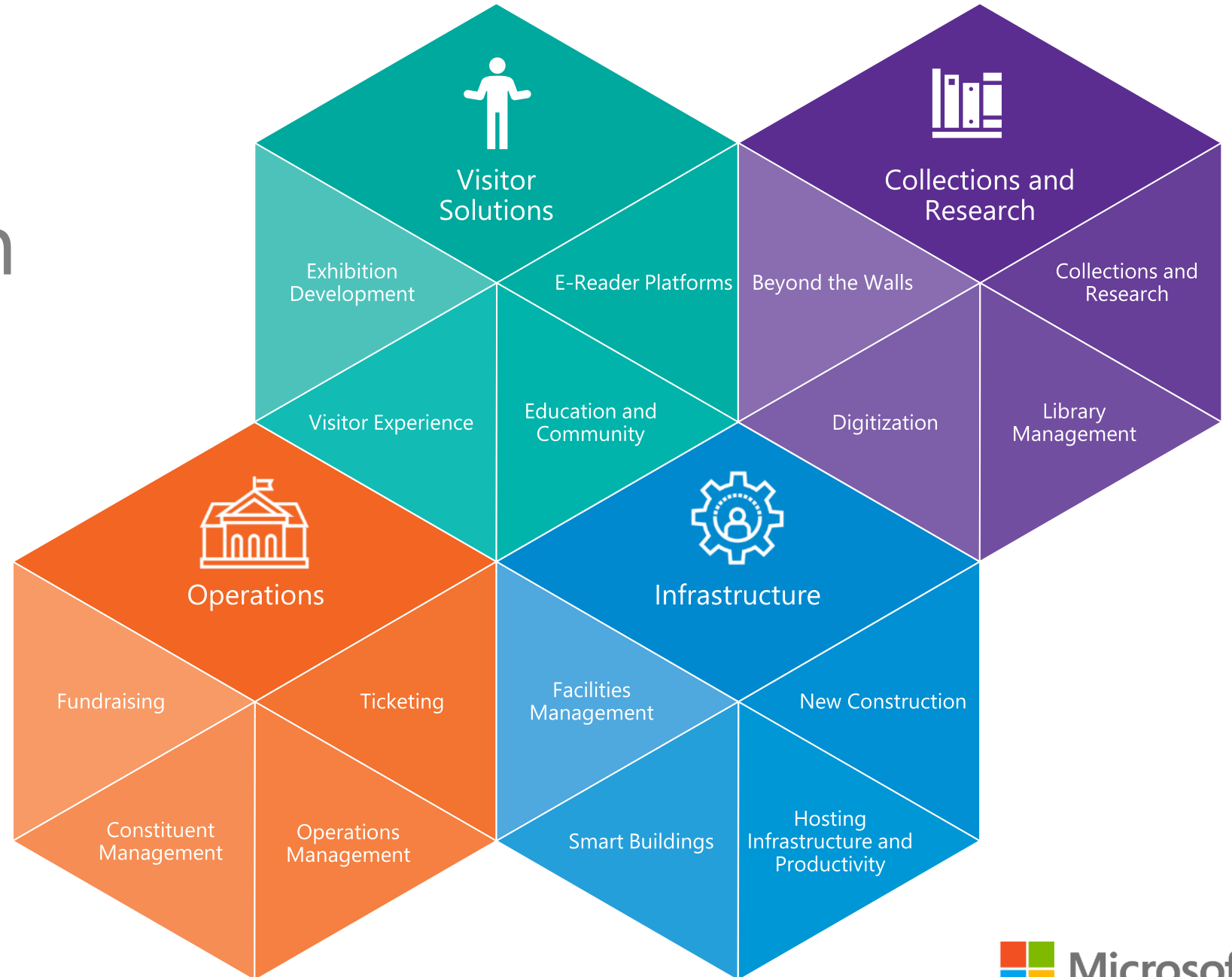
# OUR MISSION

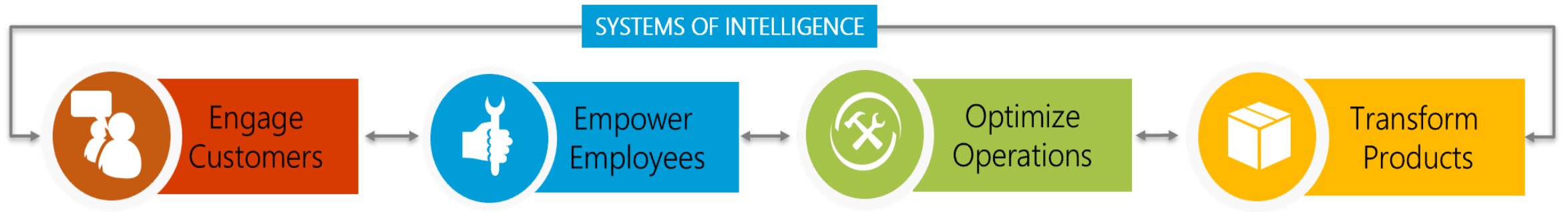**Aiutare ogni Biblioteca e Museo a esprimere tutto il proprio potenziale, ispirando il cambiamento attraverso una strategia di Digital Transformation**

- Inspire Change
- Influence Ideas
- Advocate for the industry
- Support Digital Transformation
- Elevating available solutions and technologies

# Digital Transformation Framework



**Visitor Solutions**
- Exhibition Development
- E-Reader Platforms
- Visitor Experience
- Education and Community

**Collections and Research**
- Beyond the Walls
- Collections and Research
- Digitization
- Library Management

**Operations**
- Fundraising
- Ticketing
- Constituent Management
- Operations Management

**Infrastructure**
- Facilities Management
- New Construction
- Smart Buildings
- Hosting Infrastructure and Productivity

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# Digital Transformation Framework



SYSTEMS OF INTELLIGENCE

Engage Customers

Empower Employees

Optimize Operations

Transform Products

# Potential Focus Areas

For Digital Transformation

- Infrastructure and Productivity
- Collections and Research
- Education and Learning Tools
- Operational Effectiveness

- New Buildings and Construction
- Data-Driven Decision Making
- Visitor Engagement and Connected Experience
- Pan Institutional Collaboration and Aggregation

- Beyond the Walls
- Smart Buildings and Security

# Infrastructure and Productivity

**Creating Modern Workplace**
Introducing collaborative anytime anywhere working environments

**Utilizing Devices**
Driving staff efficiency and productivity

**Leveraging the Power of the Cloud Technologies**
Moving away from on-premises computing

# Utilizing Devices + Cloud

# Collections and Research

**Managing collections inventory and storage**
Understanding, building, tracking and enabling access to relevant collections, even when not on display

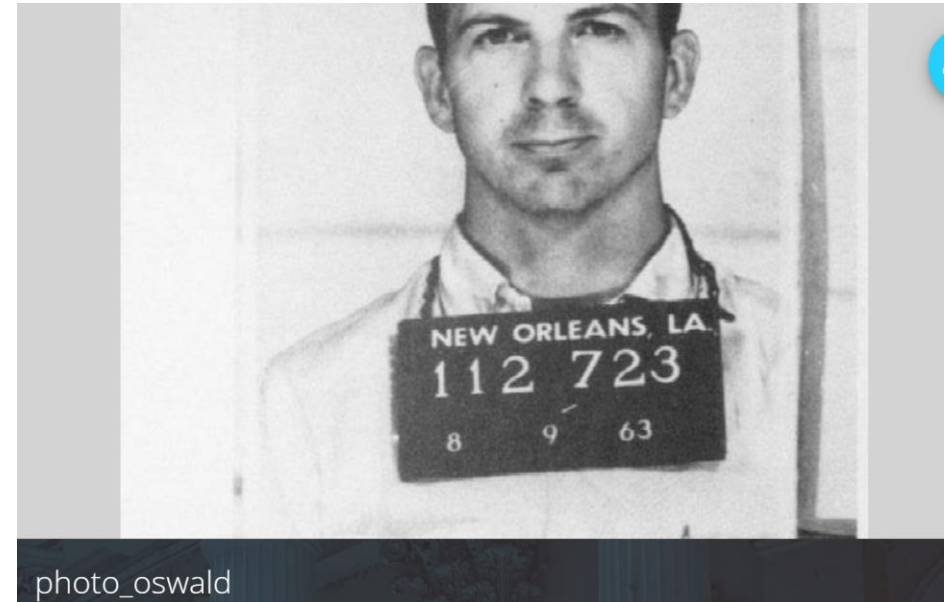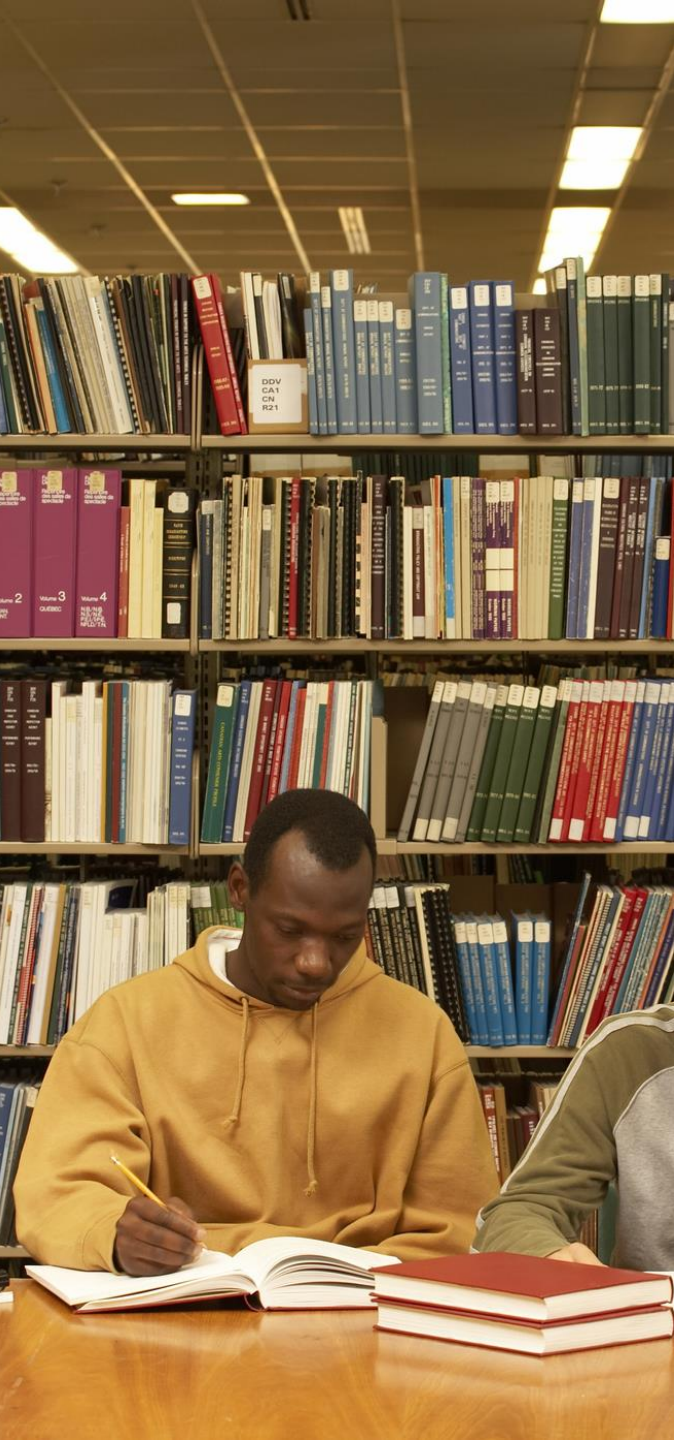**Supporting researchers everywhere**
Enabling access to faculty, professional and amateur researchers alike

**Creating digitized modern experiences**
Supporting AI based tagging, digitizing and imaging of museums and library assets

# Cognitive Search



Documents revealed.
Let's find out what happened that day.



photo_oswald

# Hololens application, designed by users



**RIJKS MUSEUM**

# Education and Learning Tools

➤ **Develop strong workforce development programs with technology leaders**
Provide your constituents with latest learning programs and curriculum developed by the industry leaders, including AI and Data Science

➤ **Create unparalleled learning experiences**
Reach and engage audiences in new ways utilizing modern digital technologies

➤ **Leverage state of the art technology platforms instead of creating expensive custom solutions**
Expand your reach and re-use content across institutions thus optimizing your resources

# SnapGuide is a brand new free education tool
## on your smartphone for secondary education students
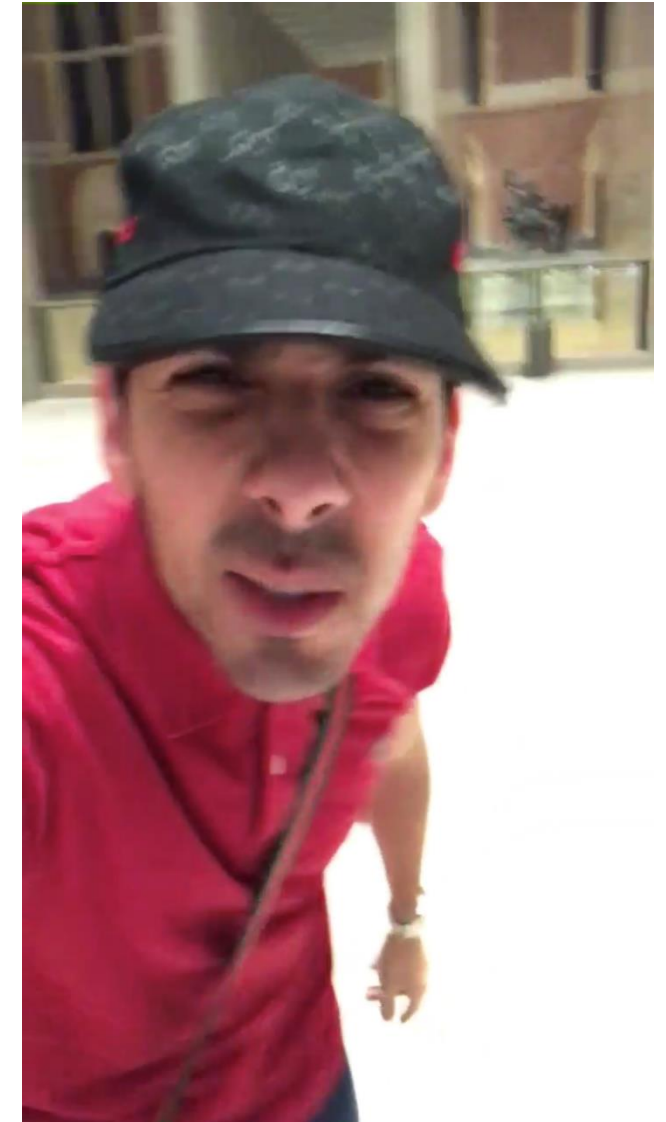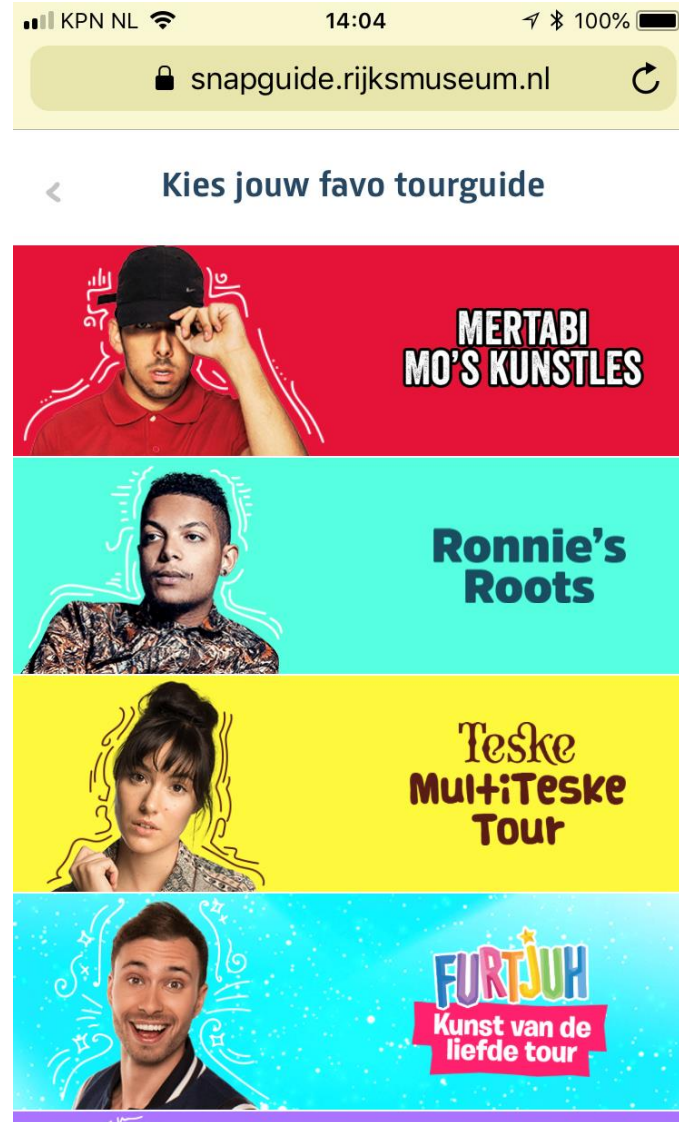
# CHE COSA É MINECRAFT?

Minecraft è...

Pensate ai Lego.

Digitali.

Con infiniti pezzi.

In un infinito spazio.

"Bring children and schools in your museum through gamification"

Marco Vigelini, *Maker camp*

https://www.makercamp.it/

https://www.raffaelloinminecraft.it/

# Operational Effectiveness

**Modernize Workflow Management**
Ensure key institutional management systems are running effectively, talk to each other and yield new insights and efficiencies

**Optimize Finance / HR / Marketing**
Leverage existing platforms and best practices across other industries to help you manage day-to-day operational functions

**Streamline Fundraising and Grant Management**
Optimize capital campaigns, donor programs and manage grants through latest relationship management tools

**Update Ticketing and Lending Experiences**
Empower visitors and constituents with self-serve options, recommendation engines and integrated experiences

# Beyond the Walls

**Find new ways to engage new audiences**
Dramatically expand your audiences and engagements by reaching people who may not be able to visit your building

**Establish new engagement experiences and channels**
Leverage emerging technologies to enable a multi-channel visitor or constituent experiences

**Build new Business Models**
Reinvent how constituent engage with the museum.  Build new virtual reality experiences that maximize collections and wow and inspire beyond the limitations of the size of your building or visitor's geographic locations

# MET+
# MIT+
# MICROSOFT

## Open Access Platform (2017)



*Siamo nel bel mezzo di un rinascimento in questo momento, con l'IA che unisce arte e scienza in un modo che permetterà ai visitatori online di sviluppare una connessione più profonda e più personalmente rilevante con l'arte.*

**Maria Kessler,** Senior Program Manager per le partnership digitali, The Met "

# MY LIFE, MY MET



## My Life, My Met

My Life, My Met turns an Instagram feed into a work of art. Still in development, the concept is to have AI analyze Instagram posts and substitute the closest matching artworks from The Met's Open Access collection.

See the concept ›

# CMA
# Cleveland Museum of Art

Open Access



*"With Open Access, the museum makes its collection of art from all periods and parts of the world easier to access and more relevant to the public".*

William Griswold, Director, Cleveland Museum of Art

# Smart Buildings and Security

**Safety and Security**
Ensuring security of visitors, staff and collections

**Energy Management and Collections Maintenance**
Managing energy consumption and maintaining optimal exhibit/collections environments

**Traffic Flow Management**
Moving crowds efficiently and creatively

# Traffic Flow Management



Visitor Path Color Coding Scheme

Rarely Used Path — Frequently Used Path

Heatmap Color Coding Scheme

0 Interactions — 28.692 Interactions
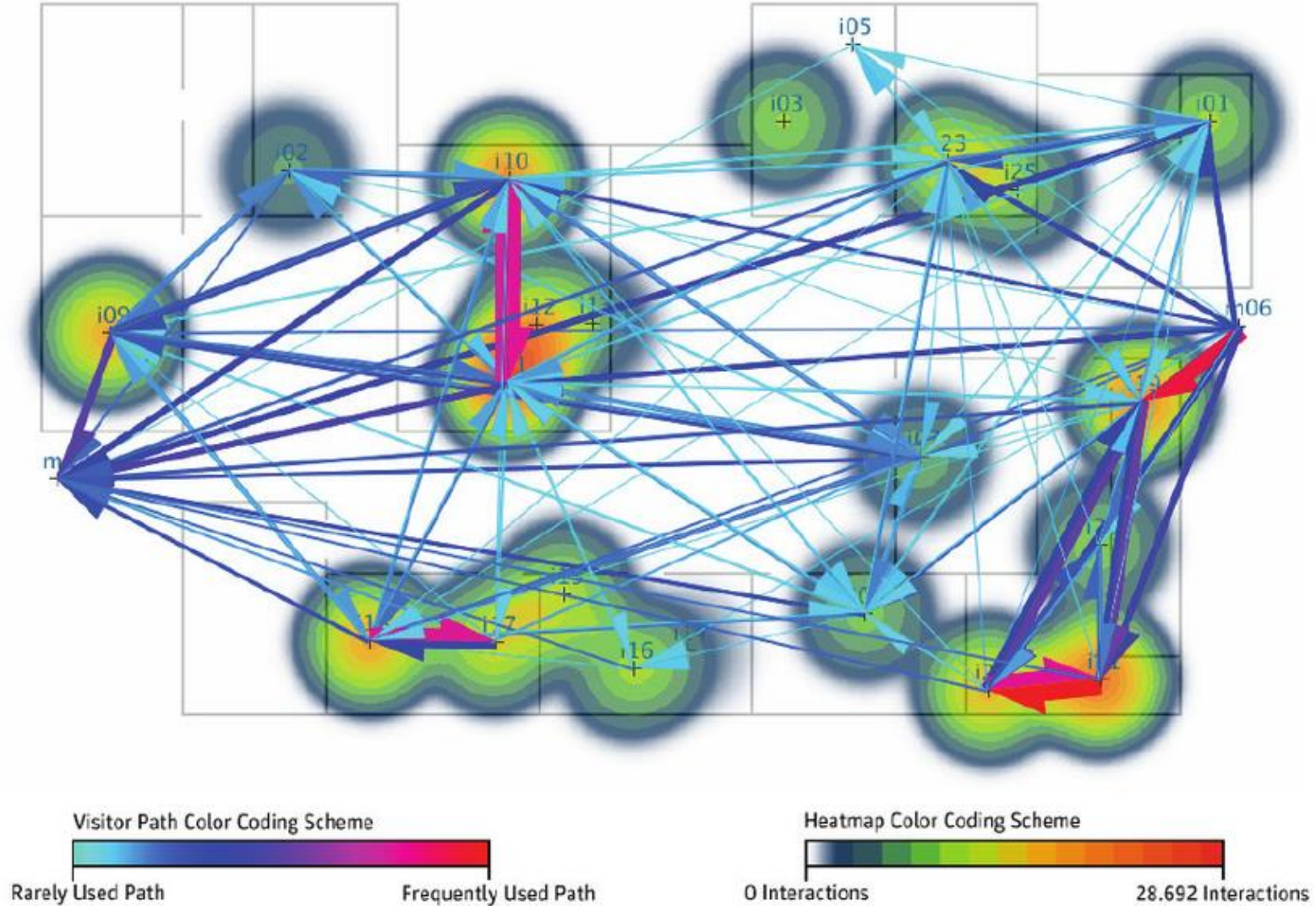
# New Buildings and Construction

## Optimize Building Design and Management
Generate and manage digital representations of the building and processes as you plan, design, construct, operate and maintain new buildings and spaces

## Infuse Emerging Technologies
Begin with the future-ready technologies such as VR/XR/MR, voice, motion detection, touchable interactives, holograms and fully immersive personalized displays

## Build with Efficiency and Sustainability in Mind
Reduce the overall impact on the environment on human health, natural environment, reduce waste and improve employee productivity

# Data-Driven Decision Making

**Become more informed**
Make decisions and driving strategy based on data to augment your cultural experience

**Leverage Data Lakes**
Aggrege data from multiple inputs across both, physical and digital channels

**Take business intelligence to the next level**
Begin with basic dashboarding tools and expand into sophisticated data analysis that drives deep insights

# British Museum harnesses big data to analyse visitor trends

By Sean Dudley on 13 July 2017



"...in partnership with Microsoft, the British Museum is now using big data analysis to provide its visitors with pertinent information in the right place at the right time, and in the right language."

# Visitor Engagement and Connected Experience

**Build connected physical/digital multi-channel experiences**
Incorporate wayfinding, digital and personalized experiences and social media interactions for your visitors and constituents

**Leverage technology for exhibition development**
Gain insights into decision making about building, scheduling and sharing collections and exhibits

**Provide powerful e-reader solutions**
Expand the reach and engagement via digital platforms and improve the flexibility in relationships between libraries and publishers

# Visitor Centered approach

Key touchpoints for digitally transforming the museum visit experience.

## Part 1: Planning a Visit

1. Getting Information
2. Planning a Tour
3. Planning Logistics
4. Purchasing a Ticket
5. Arrival in Museum

## Part 2: Museum lounge

1. Receive Audio/Visual Support
2. Start Tour
3. View planned program
4. Adjust for New Exhibition
5. Purchase products

## Part 3: Post Visit

1. Review Media experience
2. Share Experience with Others
3. Share Feedback on Tour

Origin    Arrival in Museum    Tour    Destination

T-1 month    T-1 day    T-3 hours    T-1 hour    Takeoff    T+1 hour    T+6 hours    T+1 day
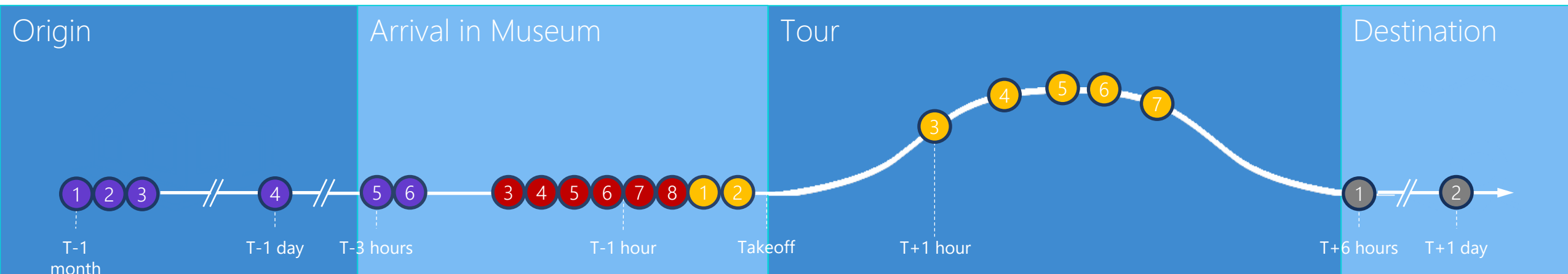
# Chatbot per far parlare il Museo o la Storia
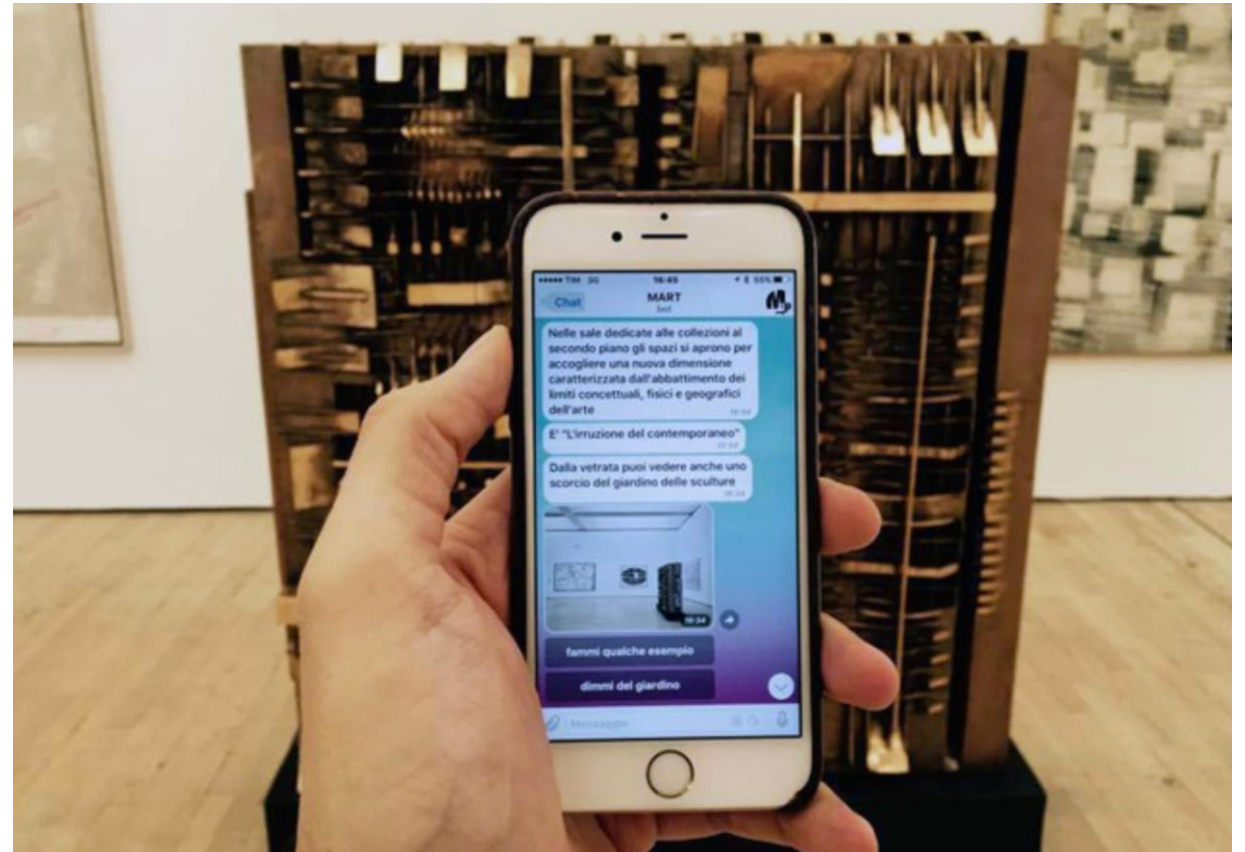
# Mixed Reality Museum in Kyoto: A unique insight into centuries-old Japanese artwork

10th million visitor – spent the night in the Night Watch Gallery

RIJKS MUSEUM

# Pan Institutional Collaboration and Aggregation

**Aggregate data and collections across museums and branches**
Enable collaboration across locations, branches or entities

**Manage user identities**
Securely enable and manage access to relevant parties

**Share relevant data securely (or don't)**
Decides who needs access to what data

# MICROSOFT TECHNOLOGY IN DIGITAL TRANSFORMATION

Museums and Libraries

# The AI Transformation
Applicable in Museums and Libraries Scenarios
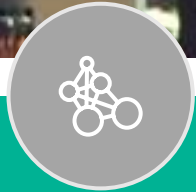
**Digital Agents**

Transform your engagement with customers and employees
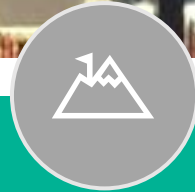
**Intelligent Apps**

Leverage AI to create the future business applications
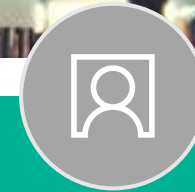
**Business processes**

Transform critical business processes with AI

# Digital Transformation Framework

SYSTEMS OF INTELLIGENCE

Engage Customers ⟷ Empower Employees ⟷ Optimize Operations ⟷ Transform Products
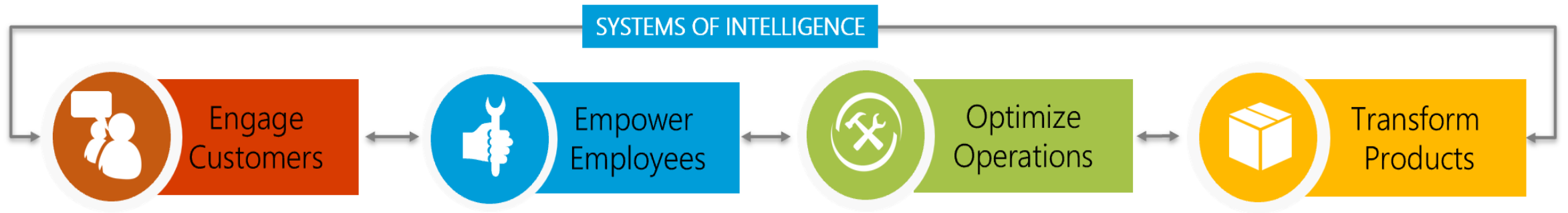
# Industry Trends*

## Engage Customers

- **Infotainment** ( apps , omni channel access for ticketing , check main attractions and events.
- **Visit Personalization tools for** the museum visit experience allowing visitors to plan journey through exhibits to their preferences.
- **VR/AR and Wearables** for allowing museum visitors to interact with their environment and exhibits more naturally as well as create **virtual tours & guides**
- **iBeacon** based indoor navigation through mobile devices.
- **Social media integration** and sentiment analysis.
- **Post visit consumer engagement** with content and offers for repeat visits.
- **Live stream events** to generate new audiences by intrigued them with viewing performances online beforehand.

## Empower Employees

- **CRM integration for marketing** – run analytics on visitor data to arrive at visitor trends , New vs returning, age group, gender, visitor interest areas.
- **Analytics for exhibit performance evaluation** based on sentiment analysis of customers visiting the museum based on the social feeds.
- **Big Data for exhibit planning** analyzing dwell times, movement, visitor reactions.
- **Wearable based employee tracking** with a real time dashboard based on the smart band details from each employee using the GPS in the band.
- **AI based Image recognition to** recognize crowds near exhibits and make real time crowd management recommendations.

## Optimize Operations

- **AI based security and monitoring** extensive areas and galleries through image processing and pattern recognition.
- **IoT based condition monitoring** of temperature and humidity near sensitive exhibits like paintings.
- **Collection digitization** to prove ownership in case of theft.
- **AI can keep track of and interpret mass amounts of information** in a way that is useful to modern museums as archives expand.

## Transform Products

- **Crowdsource community ideas** to involve audiences with the exhibit , tour and events panning .
- Special immersive tours like Bronze age immersion - **through VR headsets,** as well as virtual lectures from professors and historians.
- **Experiential marketing** for bringing the whole museum experience to life
- **"Chatbots of historical figures, primed by published writings, archives, and oral histories** could engage with visitors inside the museum, and reach outside the museum to put history in the hands anyone who owns a smartphone."

## DIGITAL TRANSFORMATION

Museums are embracing new technologies to better understand their audience and create a broader, more engaged customer base.

# *Fonti

**INSEAD Knowledge - The Digital Transformation of Museums**
https://knowledge.insead.edu/blog/insead-blog/the-digital-transformation-of-museums-6851#swGSs2WmSOJsE51U.99

**The status of digital transformation in the museum industry**
https://alm.axiell.com/digital-transformation-museum-industry/

**Digital Transformation in the Museum Industry – Museums and Galleries of NSW**
https://mgnsw.org.au/sector/resources/online-resources/digital/digital-transformation-museum-industry/

**Digital Transformation in the Museum Industry MUSEUMS REPORT 2016**
https://alm.axiell.com/wp-content/uploads/2016/07/Axiell-ALM-Digitise-Museums-Report.pdf

# Envisioning Future Scenarios - Museums

| | Engage Customers | Empower Employees | Optimize Operations | Transform Products |
|---|---|---|---|---|

**Priorities**

**Engage Customers**
- Increase visitor footfall and return frequency.
- Deliver immersive experiences and engage with knowledge.
- Adapt to newer consumer expectations.

**Empower Employees**
- Enable employees to better plan exhibits
- Manage information for museum exhibits and collections.
- Ability to share and communicate across extensive museum locations.

**Optimize Operations**
- Manage priceless collections and exhibits
- Optimize datacenter and Infrastructure costs.
- Plan and expanding exhibits as per current trends.

**Transform Products**
- Position Museums as learning and recreation pioneers.
- Being relevant in the information age.

**Scenarios to focus by Museums**

**Engage Customers**
- Virtual, Augmented and Mixed reality systems create an immersive digital learning experience for visitors to travel to exhibits in time and immerse themselves in the subjects
- AI based Personalization tools for visitors to plan journey through exhibits to their preferences.
- iBeacon based navigation and alerts and notifications pointing to rich multimedia content for interested visitors near an exhibit .
- Use Analytics for Visitor experience management/exhibit planning/tours planning by understanding dwell times , reactions , comments and debates.

**Empower Employees**
- 360 degree visitor view with Facebook registration , social sentiment , purchase histories, trip details to gain the voice of the customer for optimized marketing efforts and spends.
- Analytics for exhibit performance evaluation based on sentiment analysis of customers visiting the museum based on the social feeds
- AI based Image recognition to recognize crowds near exhibits and make real time crowd management recommendations
- Wearable based employee tracking with a real time dashboard based on the smart band details from each employee using the GPS in the band.

**Optimize Operations**
- Information and collection curation using ML. Machine vision adds metadata to identify and tag images, and an algorithm maps the collections.
- Transition the institutes to modern cloud management to a faster, secure and more innovative environment
- IoT based condition monitoring of temperature and humidity near sensitive exhibits like paintings.
- AI based security and monitoring extensive areas and galleries through image processing and pattern recognition.

**Transform Products**
- Create a digital platform for Crowdsource community ideas to involve audiences with the exhibit , tour and events panning .
- Special immersive tours like Bronze age immersion - through VR headsets, as well as virtual lectures from professors and historians.
- AI to track and interpret mass amounts of information in a way that is useful to modern museums as archives expand. It can also authenticate museum contents by identifying fakes and forgeries.

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Modern Workplace    Business Applications    Applications & Infrastructure    Data and AI
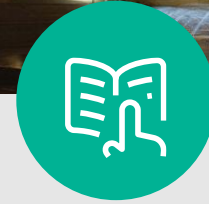
# CASE STUDIES

Enabled by our partners, our customers are doing amazing things around the world. Here are just a few examples of how museums and libraries and embracing technology to drive Digital Transformation, empower their employees and delight their custoemrs.

**Grand Egyptian Museum**

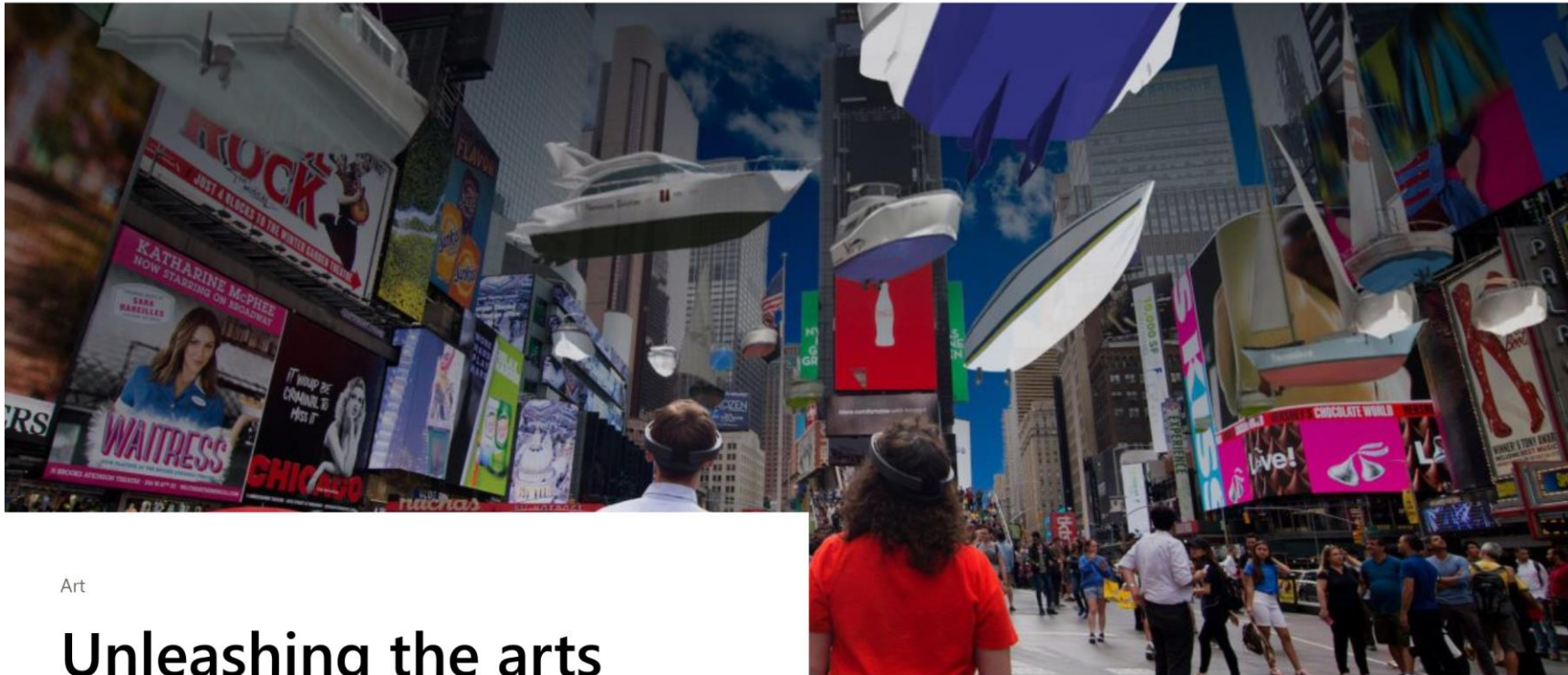**Cleveland Museum of Art**

**Metropolitan Museum of Art**

**British Library**

# Microsoft in Culture

https://www.microsoft.com/inculture/

# AI for Cultural Heritage

https://www.microsoft.com/en-us/ai/ai-for-cultural-heritage
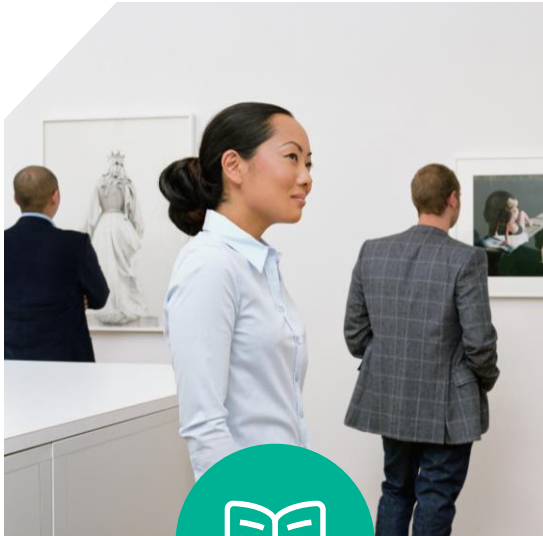
**Announcing AI for Cultural Heritage**

AI for Cultural Heritage leverages the power of AI to empower people and organizations dedicated to the preservation and enrichment of cultural heritage.
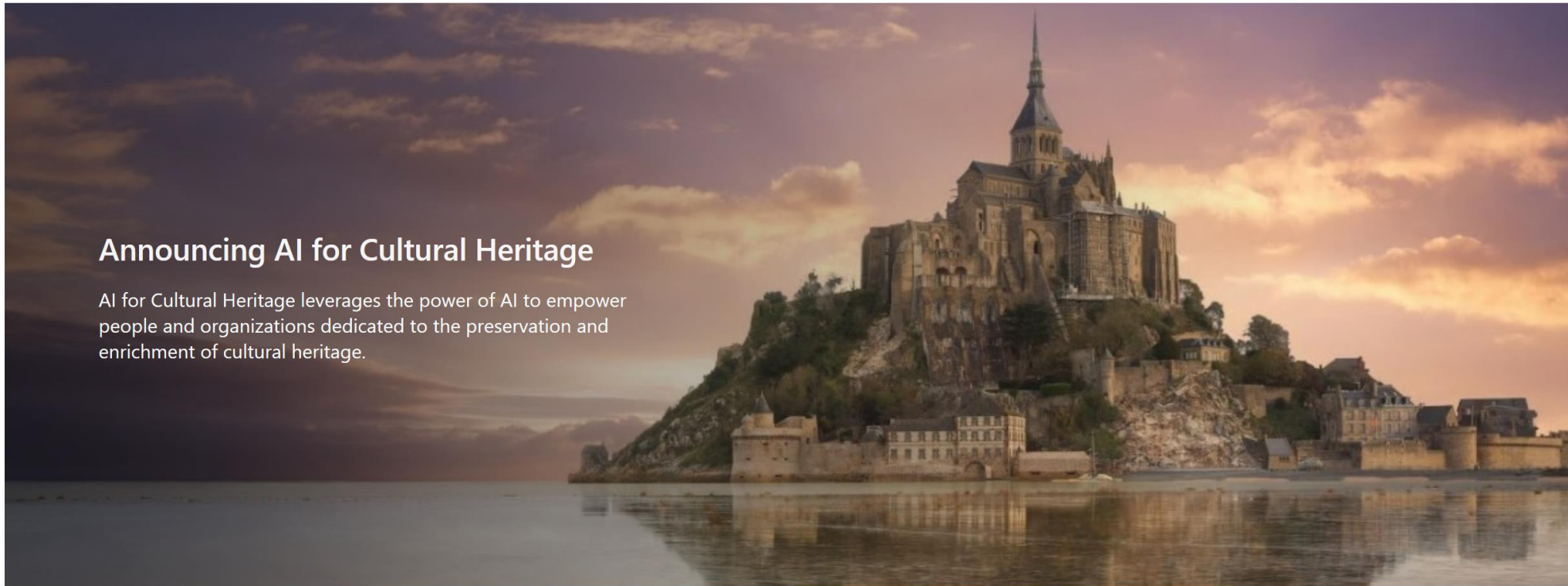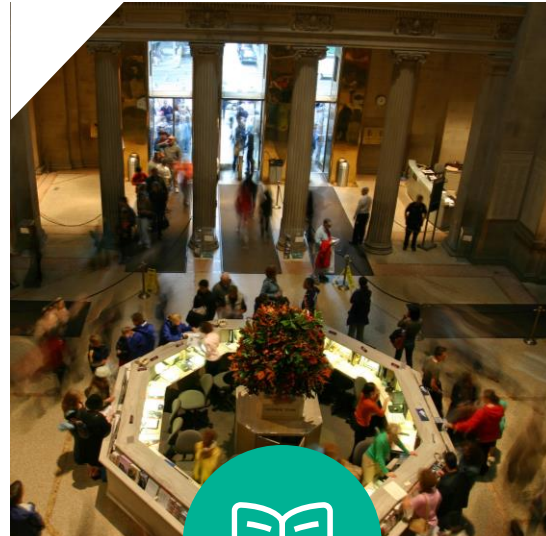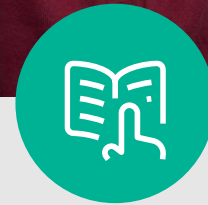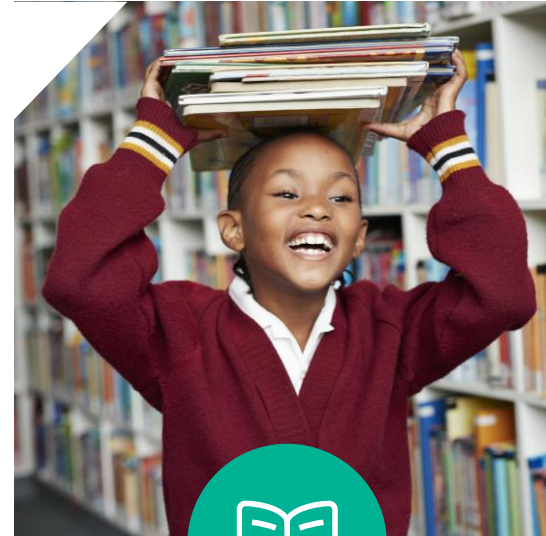
# 10M$ in 5 years

to use artificial intelligence to tackle some of society's biggest challenges

People

Places

Languages

Historical Artifacts

# GRAZIE!