Galileo's World: Driving Library Exhibitions to New Heights with State-of-the-art Technology

Carl Grant
Associate Dean, Knowledge Services and Chief Technology Officer

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Agenda

1. Introduction - University of Oklahoma Libraries
2. Creating an exhibition without walls
    a. Physical
        i. Bridging locations to underscore “Intellectual Crossroads”
        ii. Building an attractive exhibition space
    b. Virtual
        i. Digitization
        ii. Repository
        iii. Website
        iv. Virtual Reality / Timeline / Semantic Web
        v. NavApp
        vi. Tablet Displays
        vii. E-books
        viii. Hackathons
3. Lessons learned?

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An Exhibition without Walls

20 Exhibits • 7 Locations • 3 Campuses

THE 125th ANNIVERSARY

LIVE ON, UNIVERSITY

CAMPAIGN FOR THE UNIVERSITY OF OKLAHOMA

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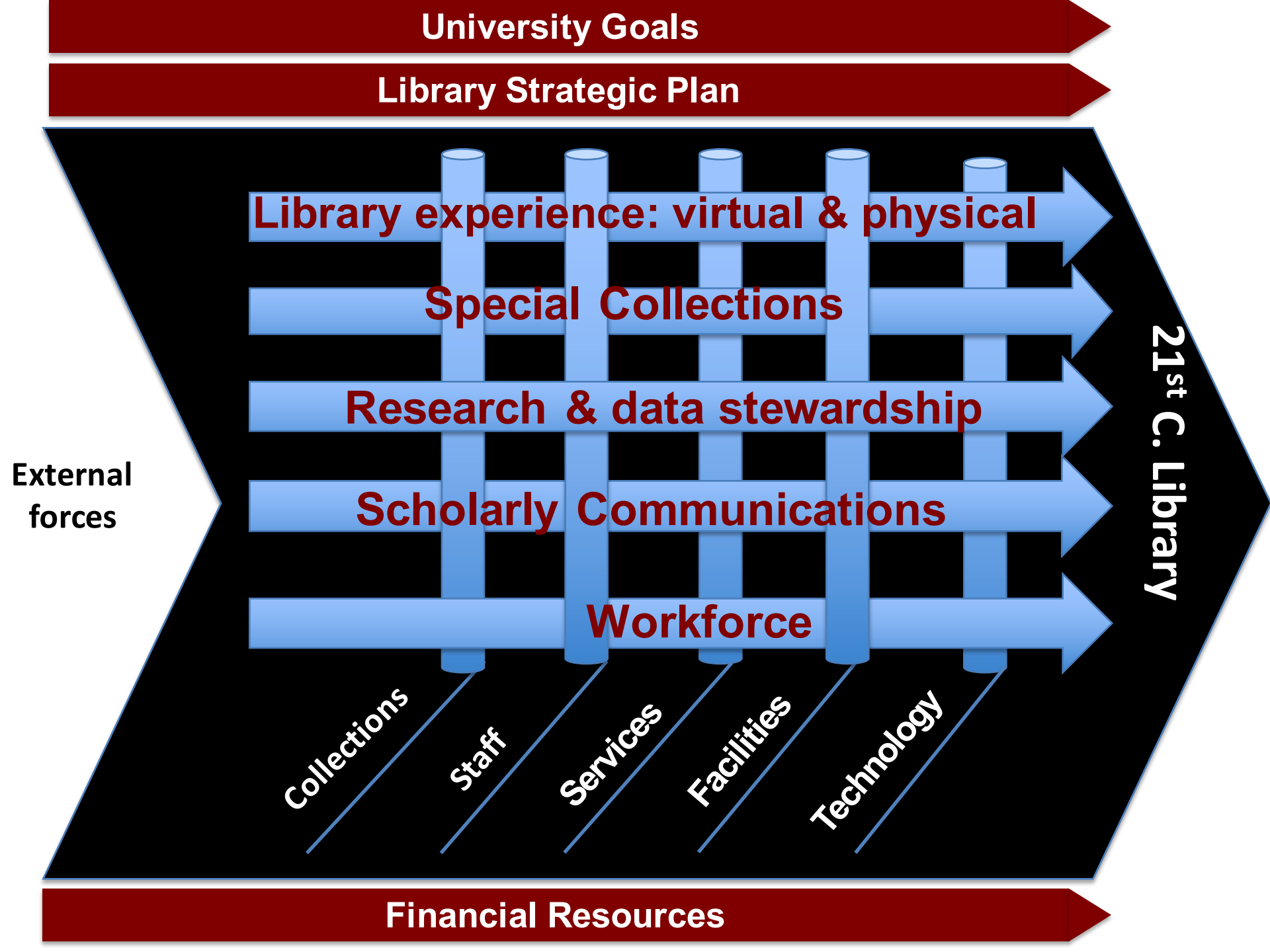

University Goals
Library Strategic Plan
Library experience: virtual & physical
Special Collections
Research & data stewardship
Scholarly Communications
Workforce
External forces
21st C. Library
Collections
Staff
Services
Facilities
Technology
Financial Resources

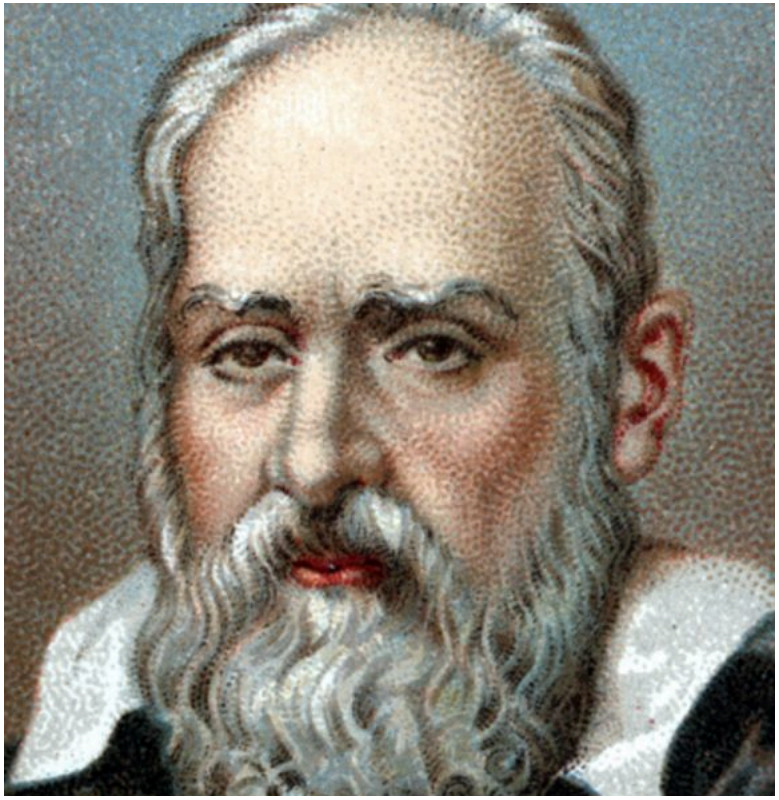
Education
Honors
ROTC
Outreach
Graduate
Liberal Studies
Law
Fine Arts
Architecture
Engineering
International Studies
Earth & Energy
Business
Intellectual
Commons
Journalism & Mass Communication
Arts & Sciences
University College
Atmospheric and Geographic Sciences

OU Libraries

Crossroads of the University

Galileo? Why do I care?

Born: Feb 15, 1564, in Pisa, Italy, Galileo Galilei was a mathematics professor who made pioneering observations of nature with long-lasting implications for the study of physics. He also constructed a telescope and supported the Copernican theory, which supports a sun-centered solar system. Galileo was accused twice of heresy by the church for his beliefs, and wrote books on his ideas. He died in Italy, on January 8, 1642.



http://www.biography.com/people/galileo-9305220

Major goals of G.W. Exhibition:

- Celebrate the 125 anniversary of the University.
- Emphasize the library as the intellectual crossroad, bring the University together around the exhibit
- All should be able to go and see it (physically or virtually)
- Make it appealing to scholars, public & youth
- Show the importance of science and that knowledge builds on knowledge

Why are Libraries, like OU, engaging in exhibitions?

Exhibit Program Guidelines

The NCSU Libraries' exhibition program emphasizes the creation of temporary, museum-quality exhibits and related materials in support of the Libraries' mission. Specific goals for the exhibition program include:

- sharing and interpreting library collections and promoting their scholarly use;
- supporting the Libraries' role as an intellectual center of the university;
- providing a gathering place for the university to educate, enrich, and interact with the community; and
- fostering relationships between the NCSU Libraries and NC State students, faculty, staff, alumni, and visitors.

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Major Special Collections @ OU

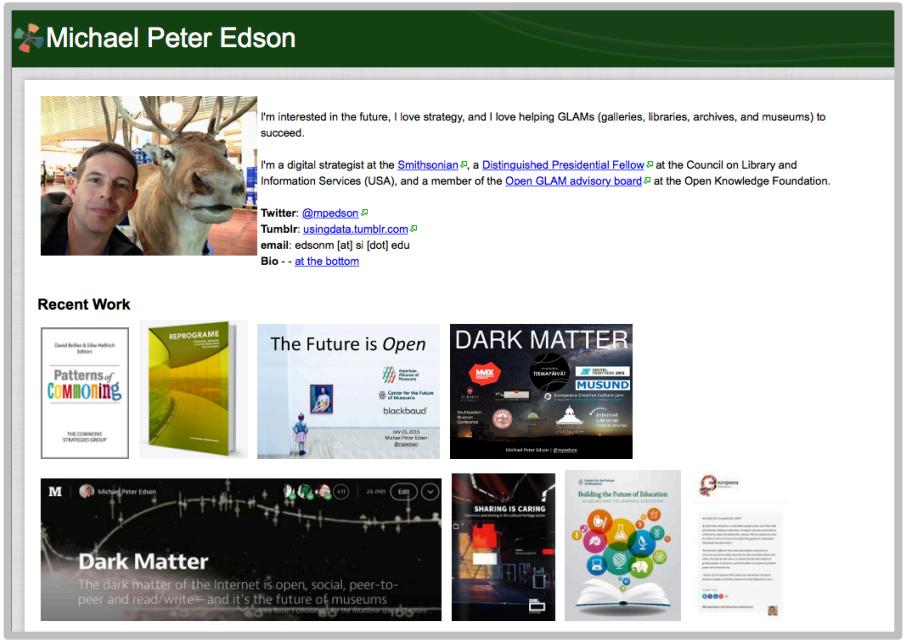
- Bizzell Bible Collection
- Harry W. Bass Business History Collection
- History of Science Collection
- Johan and Mary Nichols Rare Books and Special Collections
- Western History Collections
- Daniel and Ruth Boorstin Collection

GALILEO'S WORLD

An Exhibition without Walls

20 Exhibits • 7 Locations • 3 Campuses

Consulted with:



http://michaelpeteredson.wikispaces.com

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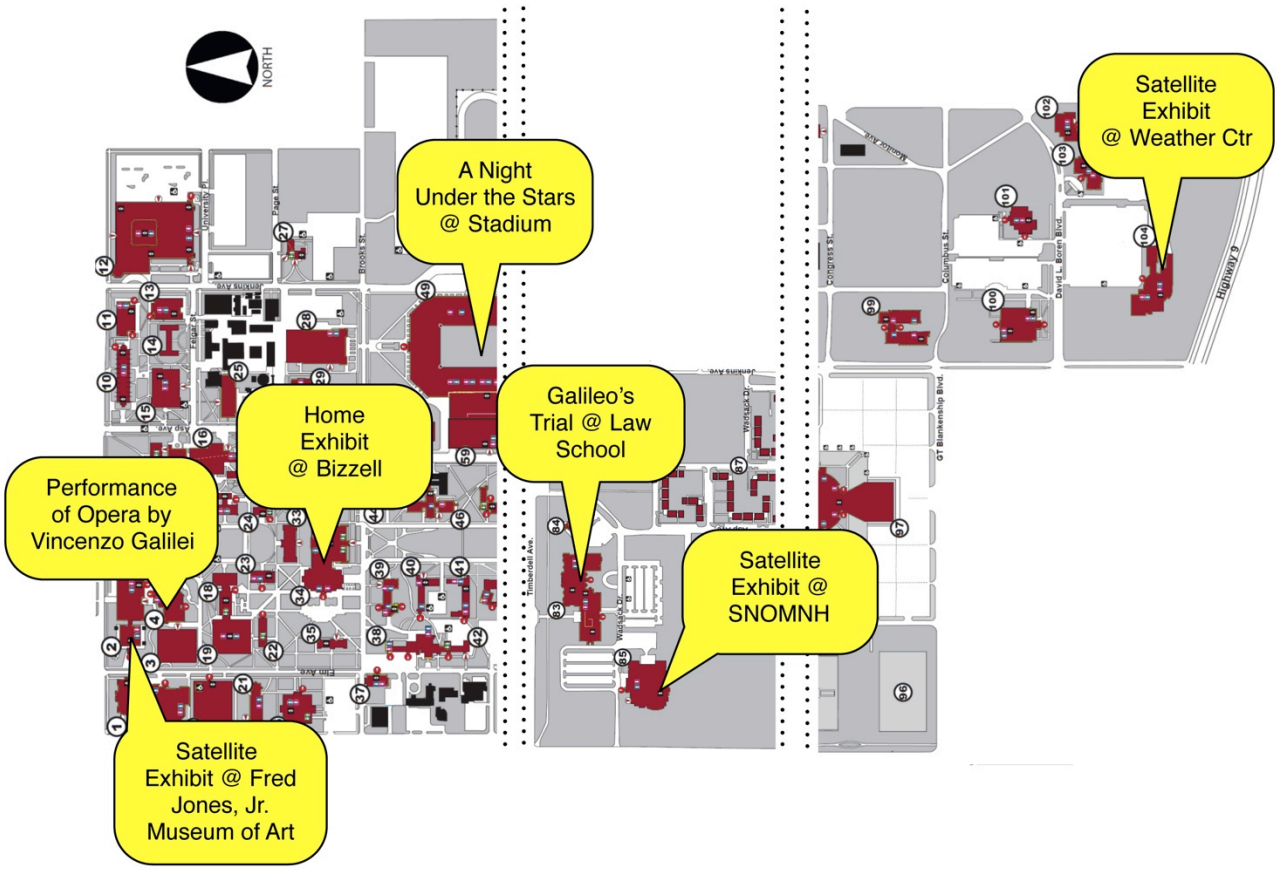

Bizzell Memorial Library
Exhibit Info

Fred Jones Jr. Museum of Art
Exhibit Info

Headington Hall
Exhibit Info

National Weather Center
Exhibit Info

Robert M. Bird Health Sciences Library
Exhibit Info

Sam Noble Museum
Exhibit Info

Schusterman Library
Exhibit Info

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G.W. Exhibition brings together a total of:

- 3 Campuses
- 7 Different Locations
- All linked together and supported by technology, programs, website and resources

Supporting the theme:
"Crossroads of the University"

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Featured in main lobby of Library:

- 20 foot replica of Tower of Pisa
  - Built by College of Engineering
  - Operating ball drop simulating Galileo's reported test
  - Speeds calculated and reported to user

GALILEO'S WORLD

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Digital Tech Square, Main Floor – Bizzell Memorial Library

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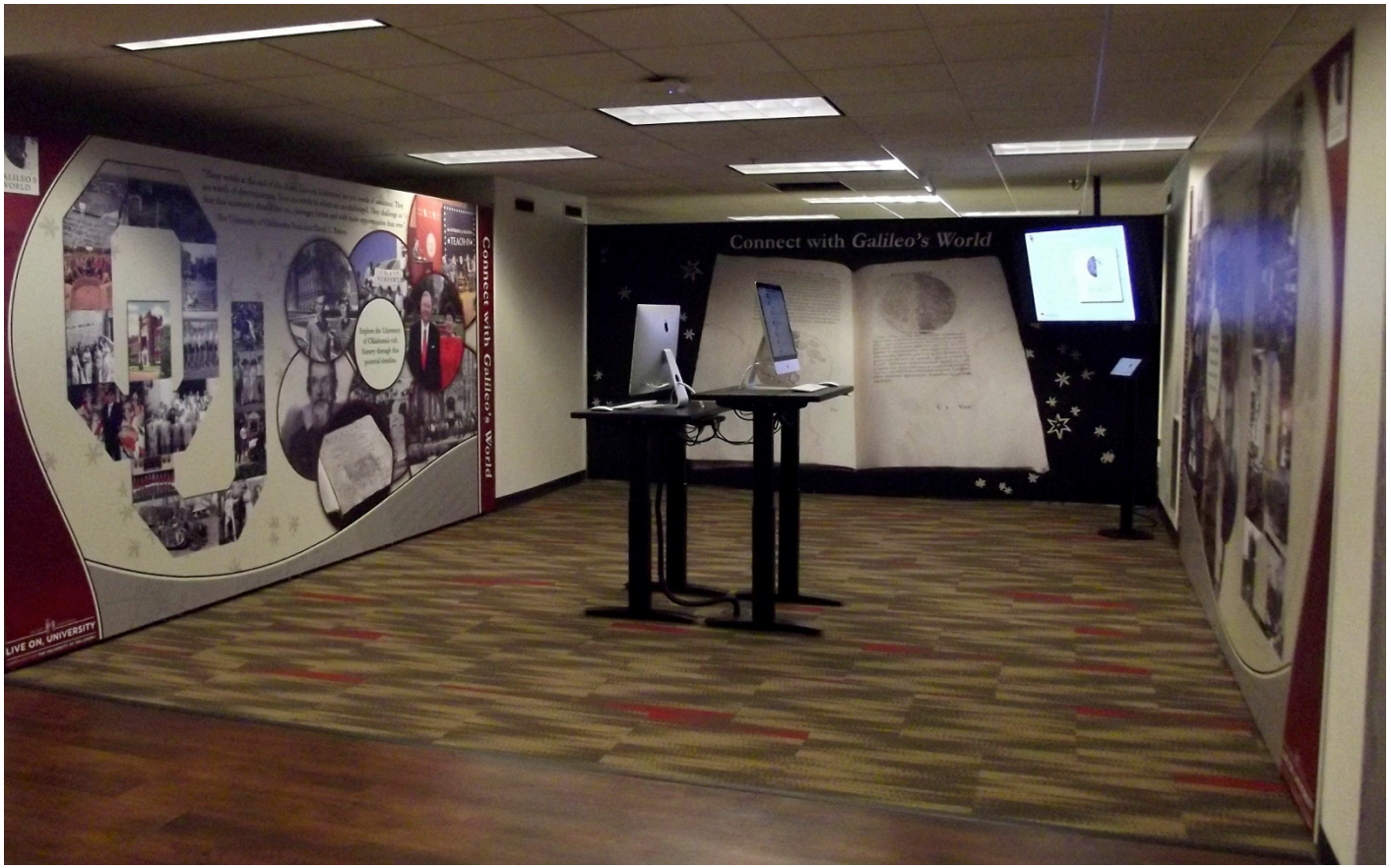

Digital Tech Square, Main Floor – Bizzell Memorial Library

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5th Floor – Special Collections – Bizzell Memorial Library

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Lower Level 1 – HCLC – Bizzell Memorial Library

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Total Physical Exhibition Visitors

- August - 433
- September – 1,468
- October – 1,633
- November – 1,521


GALILEO'S WORLD
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COMING IN 2016
Sam Noble Museum | National Weather Center | Fred Jones Jr. Museum of Art
Jan. 21 Galileo's World: An Artful Observation of the Cosmos
Fred Jones Jr. Museum of Art
Feb. 6 Through the Eyes of the Lynx: Galileo and the Microscope
Sam Noble Museum
Feb. 25 Symposium
Sam Noble Museum
Apr. 15 Visiting Author, Dava Sobel
Aug. 28 Stadium Under the Stars
Sept. 10 Galileo's Torch
Events are subject to change. Please visit galileo.ou.edu for more information.
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Digitization

Over 250 books & maps (~108,000 pages) were digitized in their entirety to support exhibition.

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DigiLab @ University of Oklahoma Libraries

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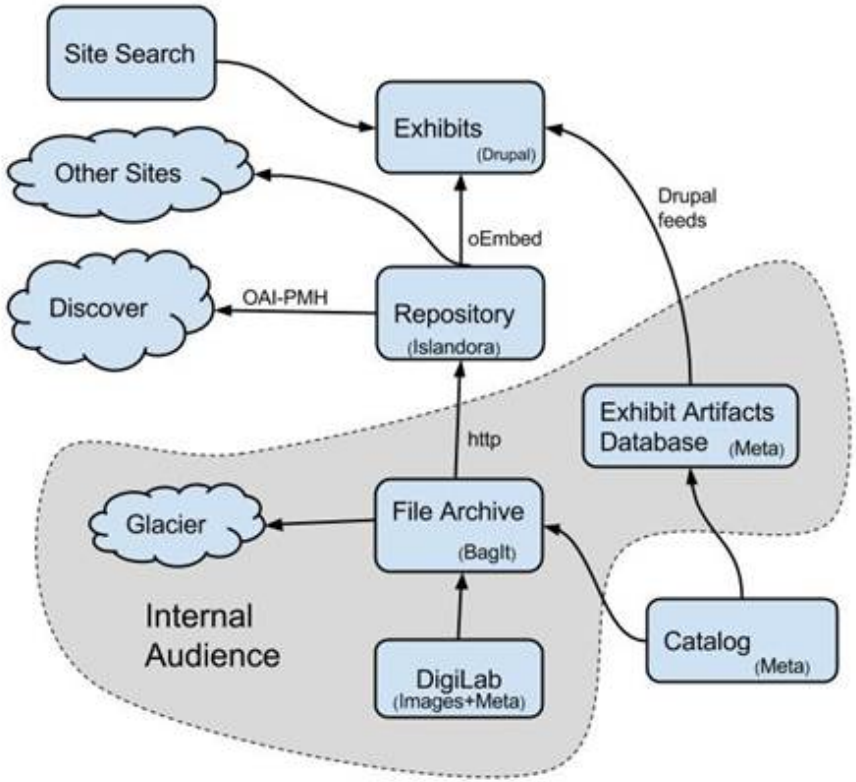
Repository

Installed Fedora repository with an Islandora interface and launched it, with content, for opening of Galileo's World.



Item Content Flow

GALILEO'S WORLD

An Exhibition without Walls

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Visitor Site

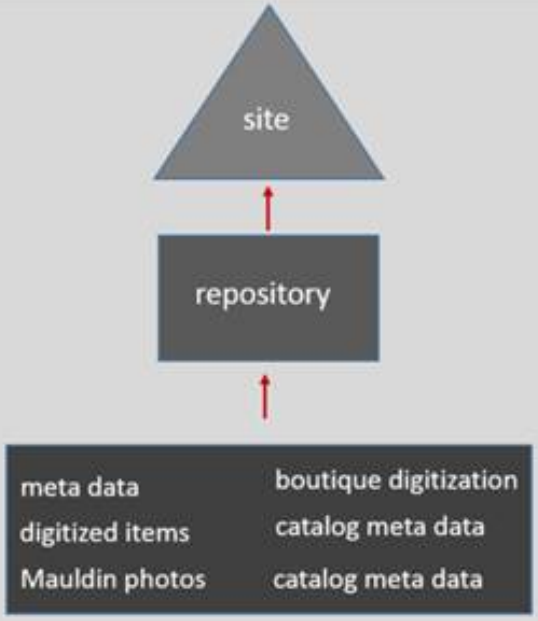
Deadline: June 1st

The definitive place for visitor information about the exhibits, locations, events.

Virtual Exhibit

Deadline: July 1st

Everything on physical display will be on virtual display as well.



Supplemental

Deadline: Ongoing

Home for open educational resources developed.

- Lesson plans
- Podcasts
- Videos
- OERs
- Reading groups

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Website

http://galileo.ou.edu

Drupal based website developed

- Descriptions from the Curator
- Images of every item in exhibit
- Embedded book viewer for most works
- Information on all exhibits, events, programs, educational resources.
- Links to social media.

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Sample Webpage

HOME EXHIBITS LOCATIONS EVENTS VISITORS EDUCATORS NEWS

CONTROVERSY OVER THE COMETS

What does it mean to say that mathematics is the language of nature?

EXHIBIT SECTIONS

Comets

Since antiquity, comets had posed an enigma. They appear without warning. They do not stay within the Zodiac like the planets. They come from different directions. Their speed and brightness change radically. Their tails always point away from the Sun. Parallax was observed for the Moon but not for comets, which implied that comets are farther away than the Moon, contrary to Aristotle's argument that comets are fiery vapors in the upper atmosphere.

Controversy

While mathematicians defied the attempts of physicists and theologians to discount their conclusions, mathematical methods alone were not able to explain the appearance of comets, parallax, and diverse systems of the world. Galileo advocated for the Copernican theory of the universe, while disregarding the system of Tycho Brahe.

Systems of the Universe

Earth-centered models of the universe, geocentric, and sun-centered models of the universe, heliocentric, equally predicted the position and movement of the planets. Given that the competing systems produced identical planetary predictions, astronomers searched for other kinds of observations that might decide between them. Comets seemed to cross through multiple spheres. The spheres of Mars and the Sun seemed likely to intersect. Several systems predicted that Venus might show phases. The Copernican system predicted stellar parallax, that stars should appear to slightly shift in position, which was not observed. Definitive evidence that could decide the true system of the universe proved elusive.

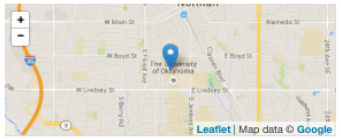
CONTROVERSY OVER THE COMETS

Aug 19, 2015 - Aug 31, 2016

Galileo's controversy over the comets illustrates how difficult it can be to implement novel research methods in science.

Galileo believed that mathematics is the language of nature. He challenged the established discipline of natural philosophy, or physics, which used non-mathematical methods.

Galileo's defenses of mathematics as the language of nature occurred in the midst of controversies with fellow mathematicians. Even for mathematicians, mathematical methods alone proved unable to resolve the enigmas they faced.



Bizzell Memorial Library
5th Floor Special Collections

Add Exhibit to Itinerary

Gallery Guide

Download a guide for this gallery.

Format

- iBook
- PDF Version

Exhibit Highlights

Essential items for a core understanding

- Tycho Brahe, *Instruments for the Restoration of Astronomy* (Nuremberg, 1602)
- Johann Hevelius, *On Comets* (Gdansk, 1668)
- Galileo , *The Assayer, early state* (Rome, 1623)
- Oratio Grassi, *Treatise on the Sphere* (Rome, 1623)

Explore the Topic

Supplemental resources for a rich educational experience

Copernican System — Add to Favorites
Learn more about the Copernican system in which the Sun is immobile at the center of the universe.

Tycho Brahe's System — Add to Favorites
Learn more about Tycho Brahe, who built the large astronomical observatory of Uraniborg in Hveen.

Virtual Browse

Browse exhibit books on display

Nicolaus Reimarus Ursus, *Astronomical Foundation* (Strassburg, 1588)

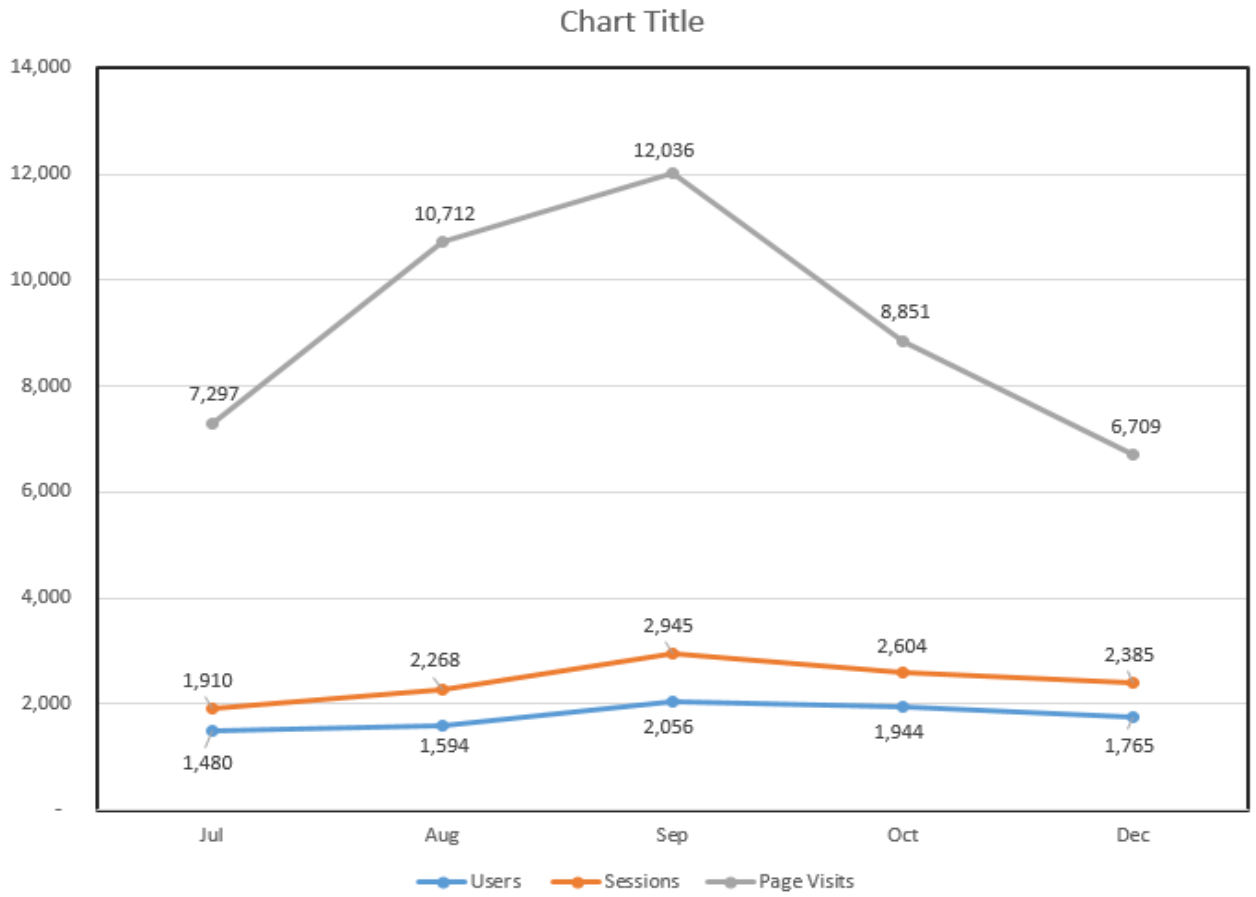
Tycho Brahe, *Astronomical Letters* (Uraniborg, 1596)

Christoph Clavius, *Commentary on the Sphere of Sacrobosco* (Rome, 1570)

Tycho Brahe, *Complete Works* (Frankfurt, 1648)

prev next

Total Website (w/o Walls) Exhibition Visitors



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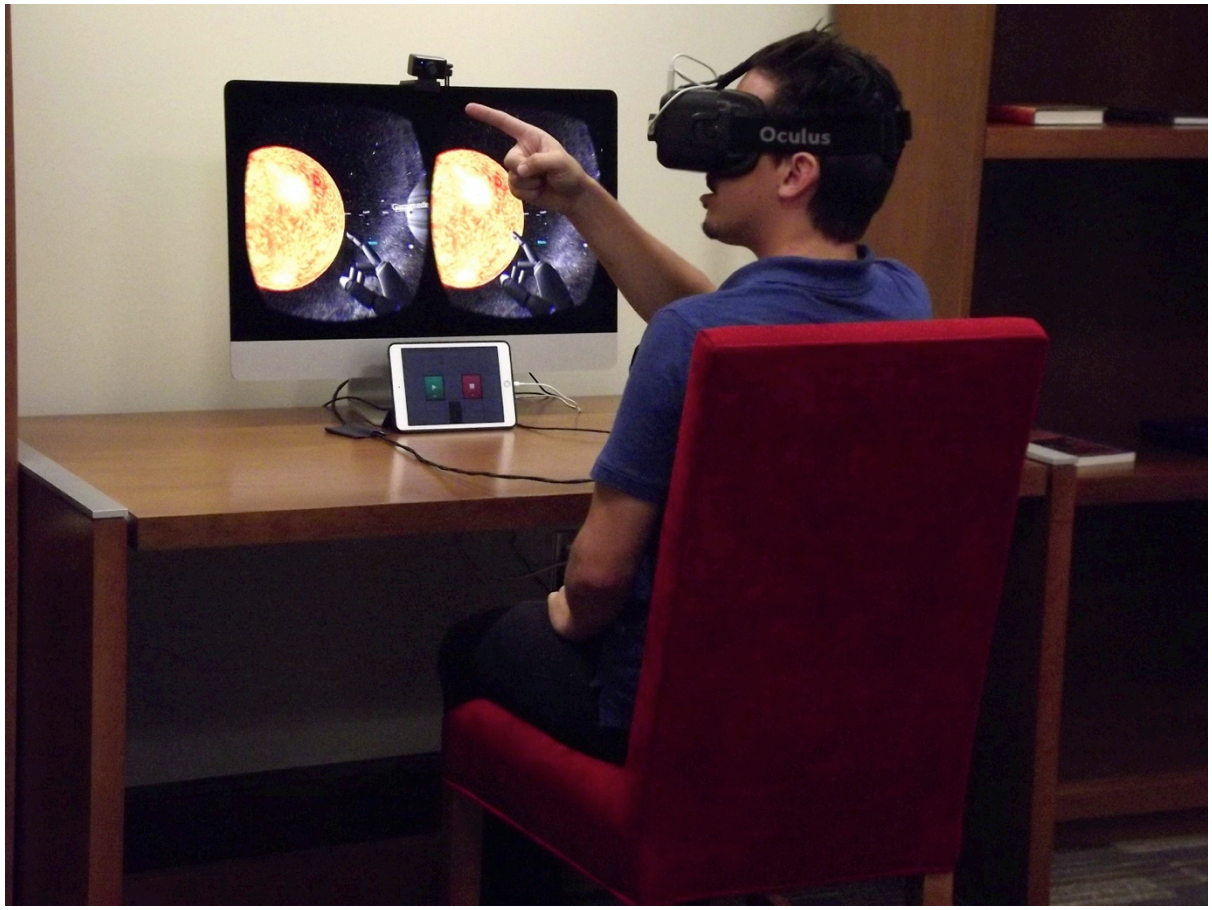

Virtual Reality

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Virtual Reality

Galileo's World

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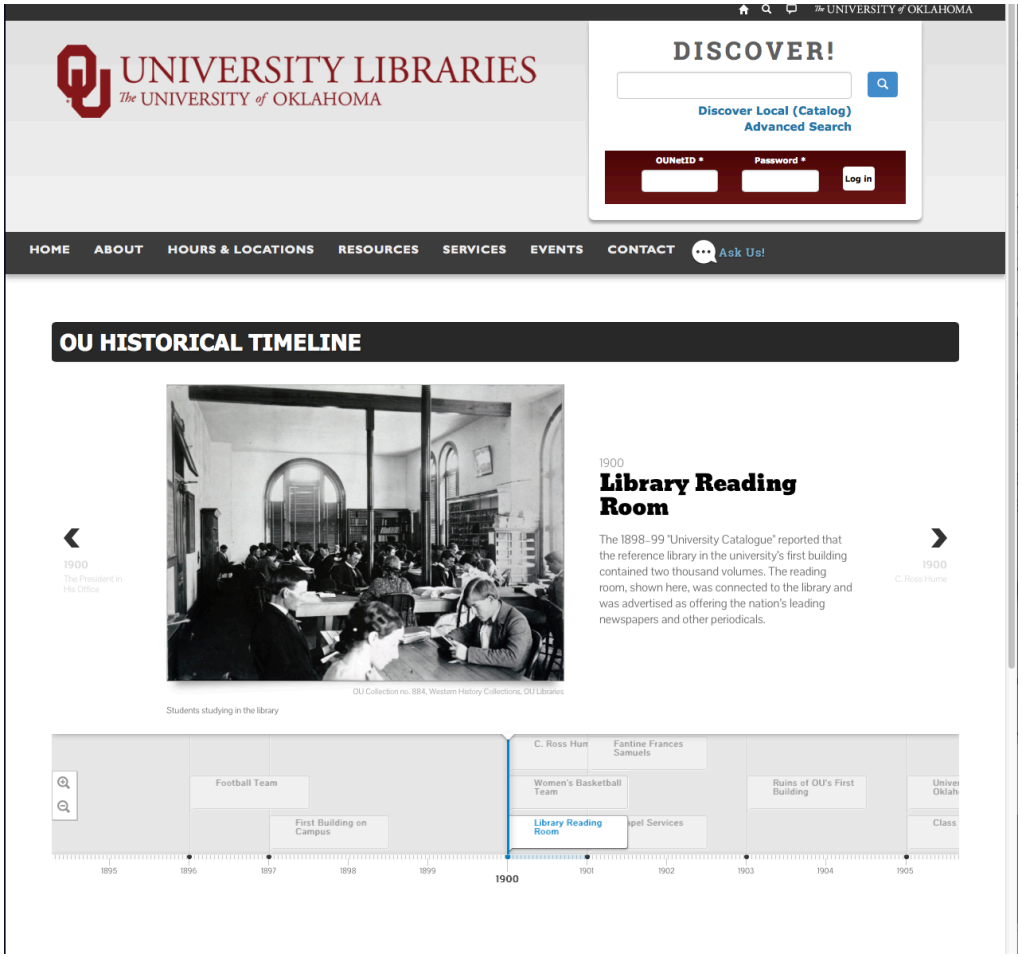

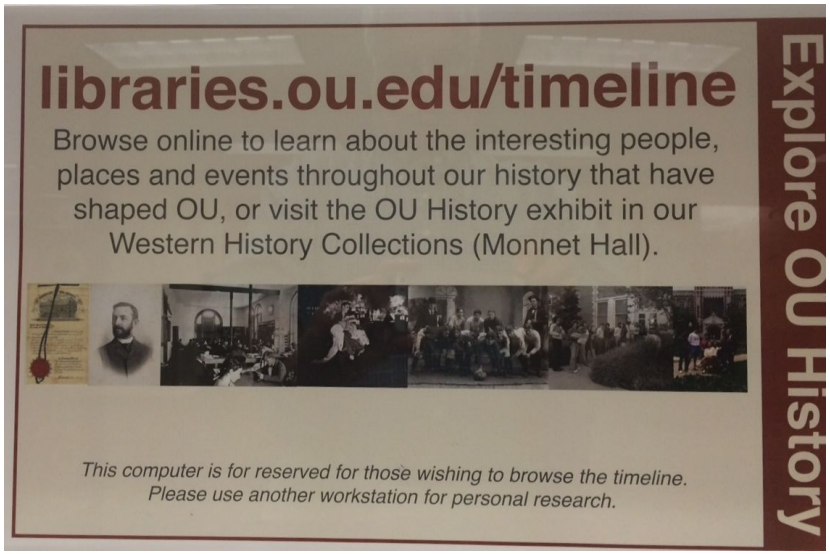

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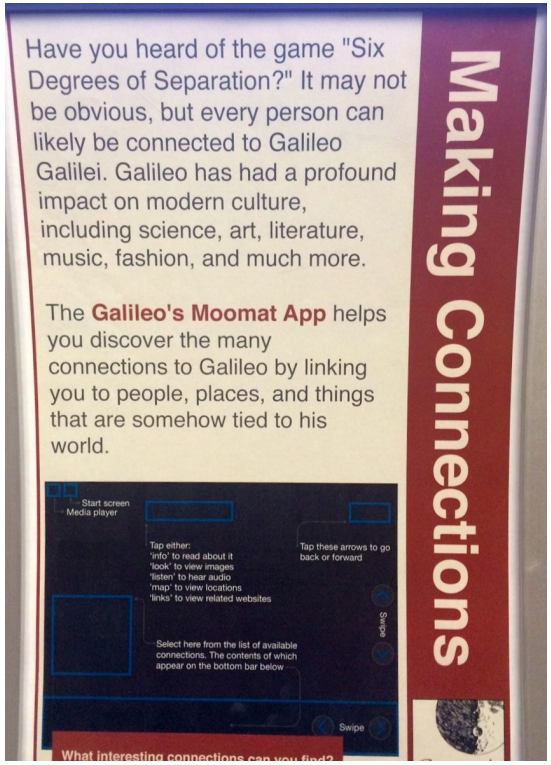
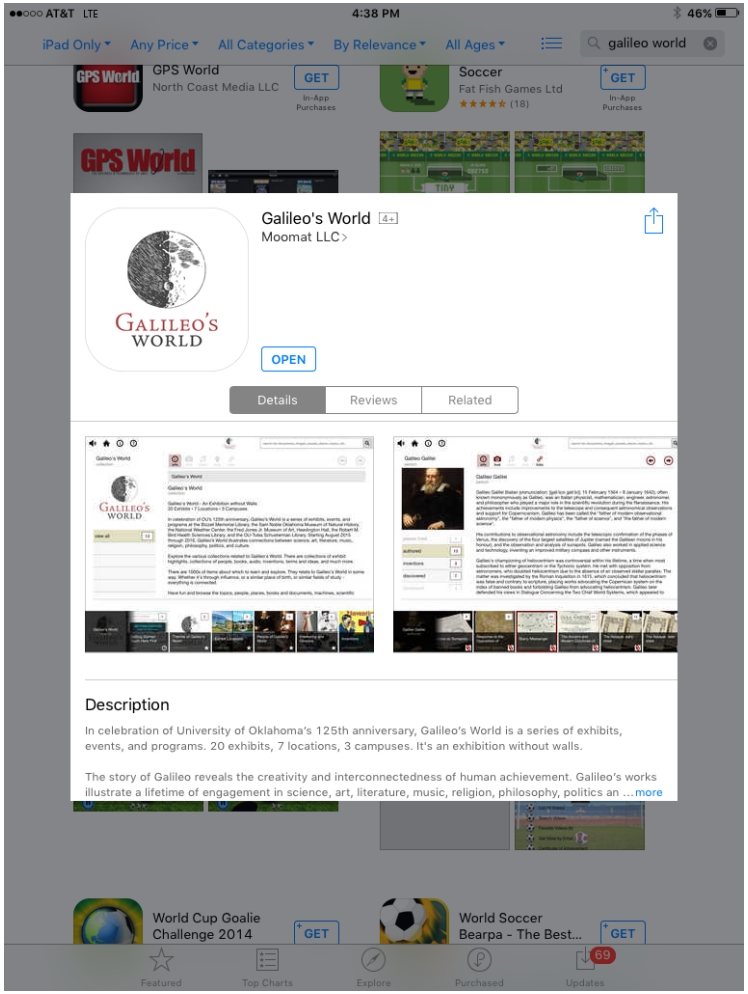
MooMat's CultureScout implementation of Galileo's World is downloadable from the App Store





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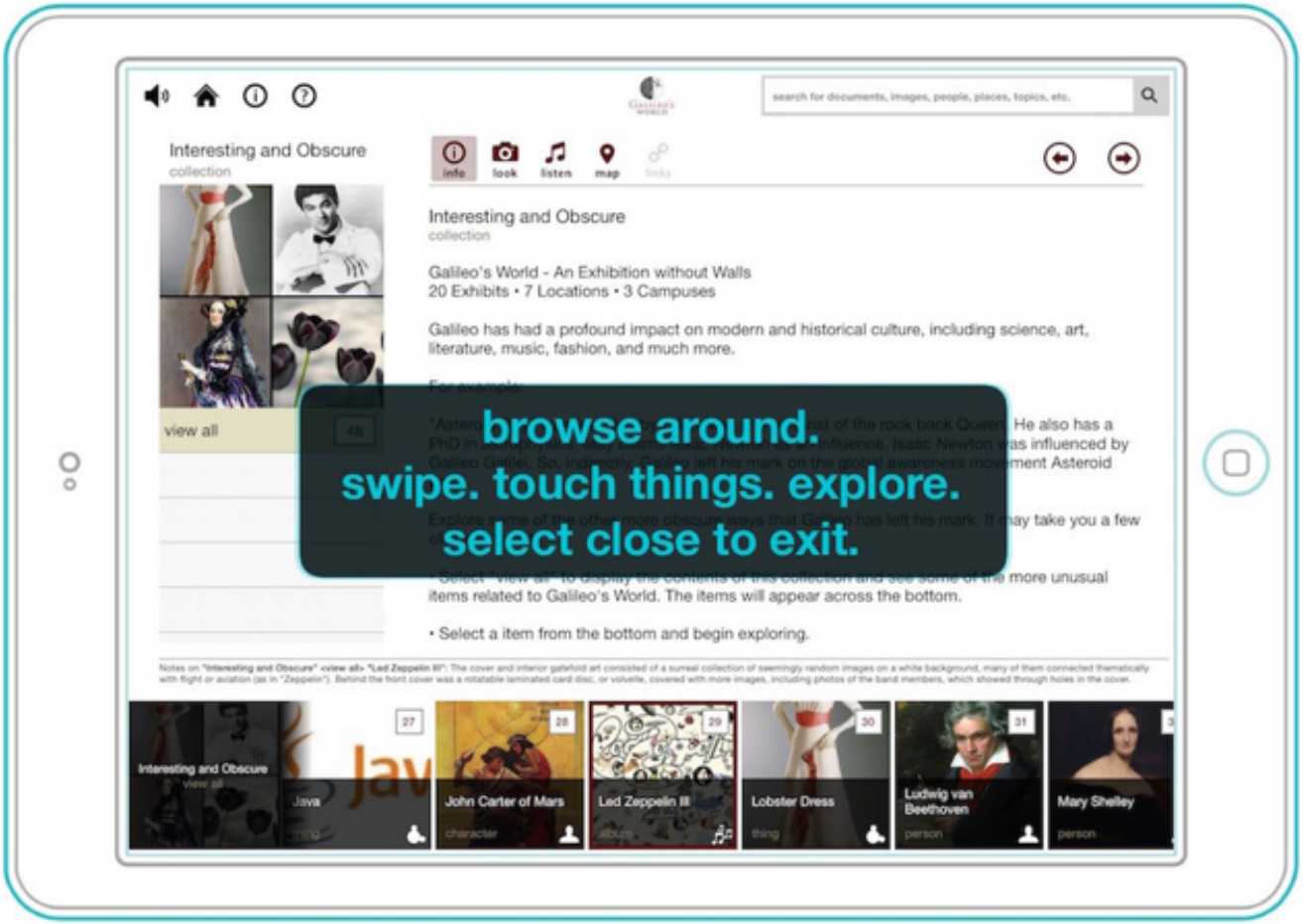

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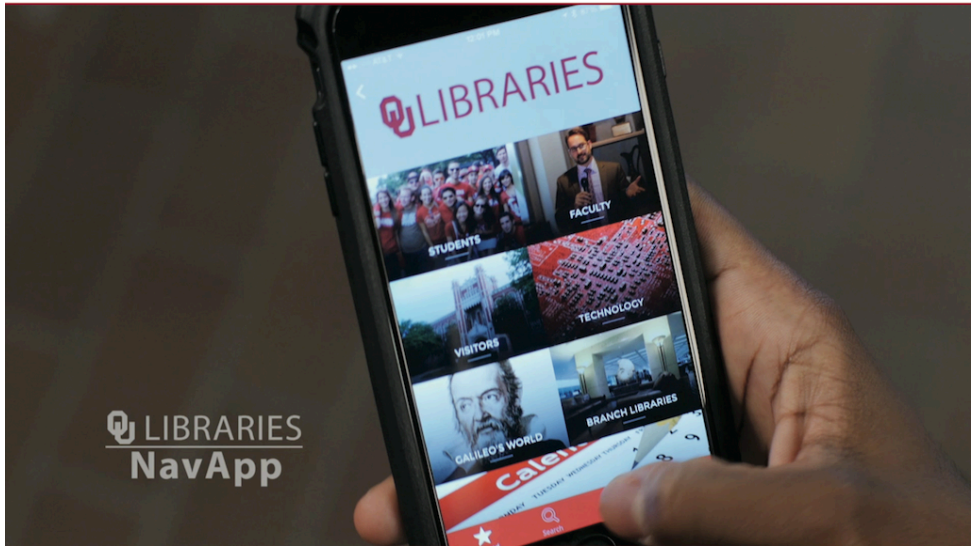
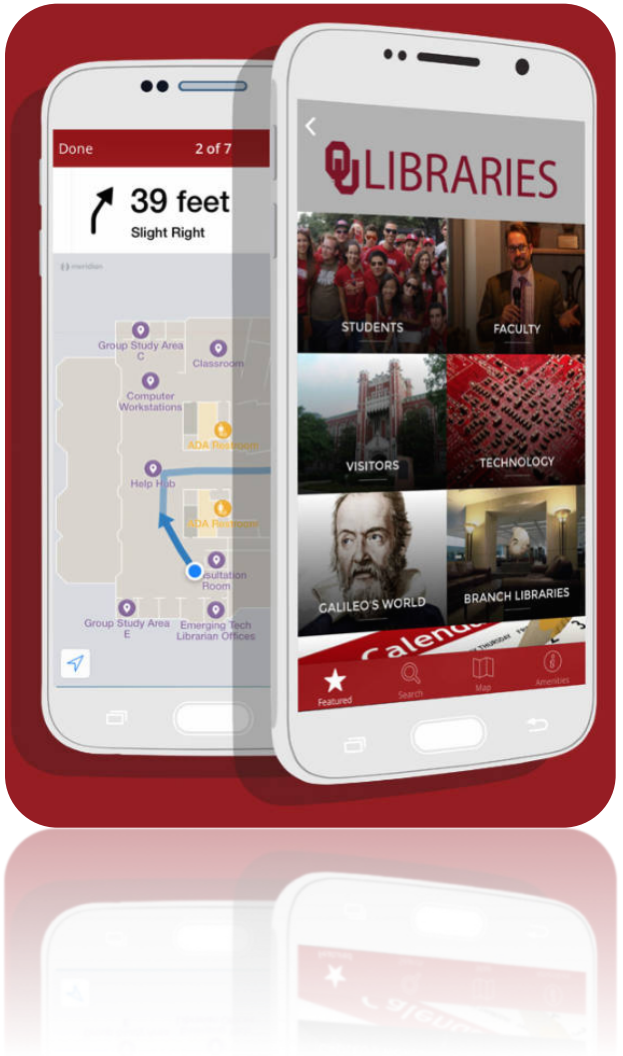


OU Libraries developed its first mobile app, OU Libraries NavApp

- For iOS and Android
- Provides Bluetooth-beacon-based indoor navigation in OU's main library (Bizzell), exhibit case-specific content and,
- GPS-based outdoor navigation across the OU Norman campus

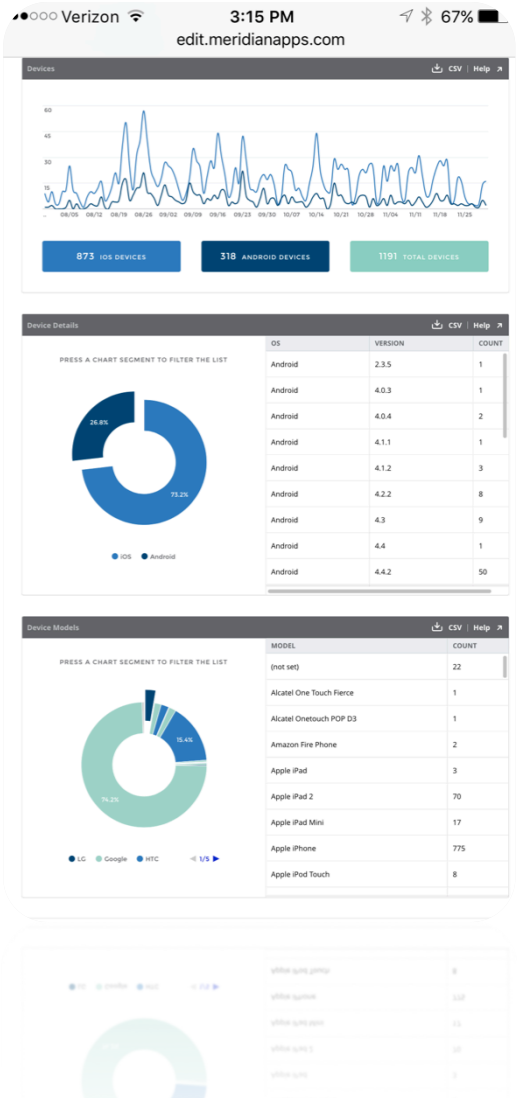
Goals of NavApp?

- Unify digital/physical campus resources
- Simplify complex indoor (and outdoor) environments
- Support Galileo's World exhibition across campus
- Generate campus-wide interest in innovative tool
- Feed useful content based on location and user type
- Provide analytics for gauging resource usage throughout campus



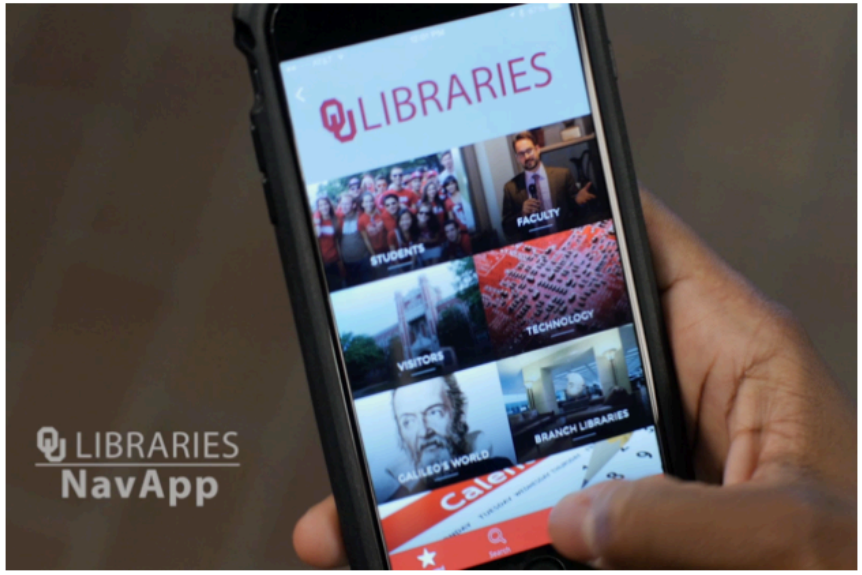
Usage of NavApp (2 Months)

- Unique Users: 1,200
  - ~900 iOS
    - 775 iPhones alone
  - ~300 Android
- Screen Views: 19,673
  - Per visitor: 16.5*
- Buildings Covered: 4 + Campus
  - Beacons Deployed: 400
  - Outdoor, campus map includes *all* major campus buildings + collections



NEWS

Oklahoma Sooners use beacons, sens rooms on massive campus



The University of Oklahoma has created an app that students can use to navigate to group meeting rooms and other locations on campus using Aruba beacons and sensors. Credit: Aruba

Beacon technology still in early-adopter stage, analysts report

By Matt Hamblen FOLLOW
Computerworld | Dec 2, 2015 3:00 AM PT

RELATED TOPICS

Wireless Networking

Mobile & Wireless

The University of Oklahoma has begun rolling out beacon technology to help students find study rooms and class inform central library and other buildings by using their smartphones about the vast campus in Norman, Okla.

Cooking up Faster Mobile Image Processing
Study: Millennials Spend More Than 3 Hours a Day on Mobile Phones

G+1 0 Tweet Share 15 Share 0
Printable Format
E-Mail this page

Mobile

U Oklahoma Libraries Launches Navigation App

By Rhea Kelly | 08/25/15

Patrons at the University of Oklahoma Libraries can now navigate the system's collections, exhibits and campus landmarks via smartphone. The university has deployed Aruba Beacons and the Aruba Meridian Mobile App Platform to create the OU NavApp, a mobile app that provides turn-by-turn directions, location-based information and educational content to help students, faculty and visitors find their way through the seven-floor, 400,000-square-foot library system.

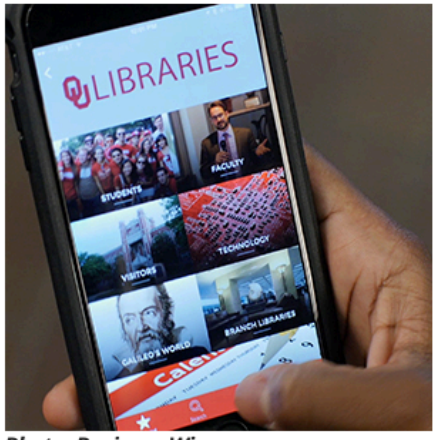


Photo: Business Wire

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      ii. Building an attractive exhibition space
   b. Virtual
      i. Digitization
      ii. Repository
      iii. Website
      iv. Virtual Reality / Timeline / Semantic Web
      v. NavApp
      vi. Tablet Displays
      vii. E-books
      viii. Hackathons
3. Lessons learned?

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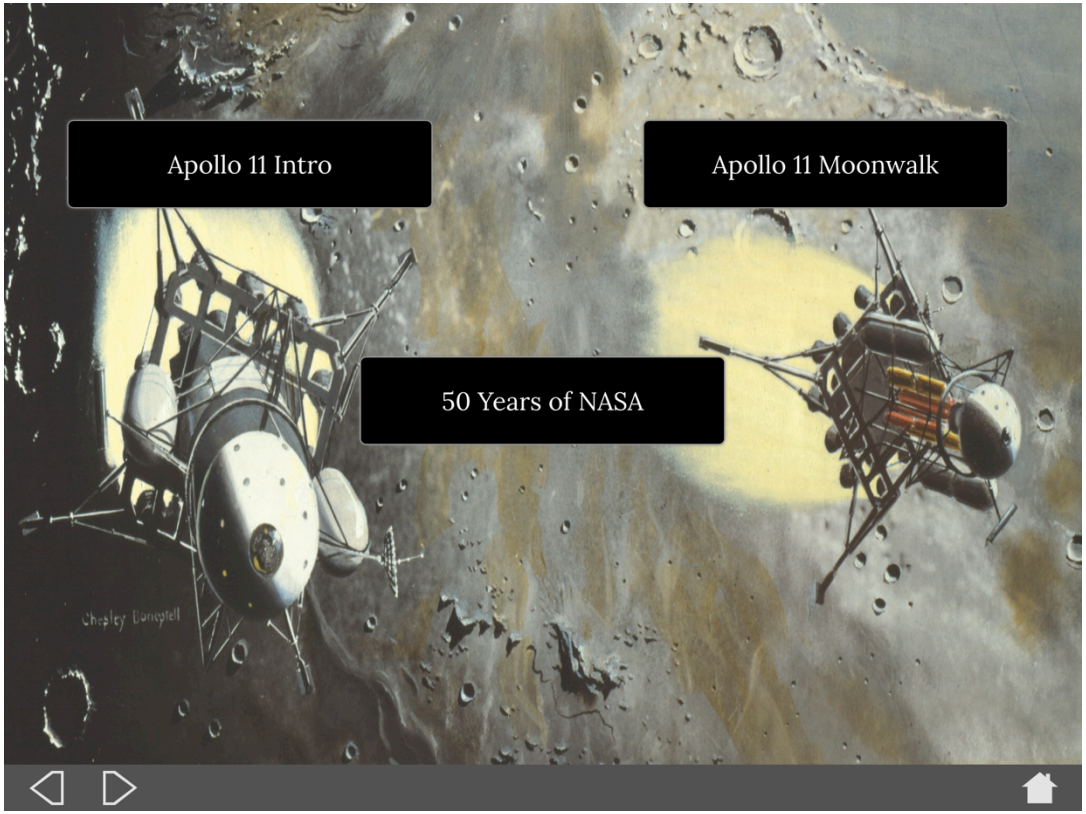
Tablet Displays

Developed a separate app for each nook in Digital Technology Square, including:

1. Dawn of Space Age
2. Mars and the Imagination
3. Quest of Other Worlds



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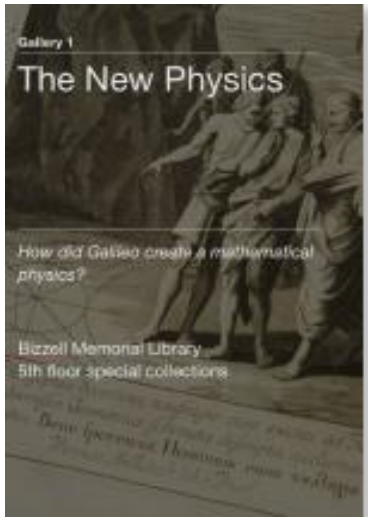
GALILEO'S WORLD

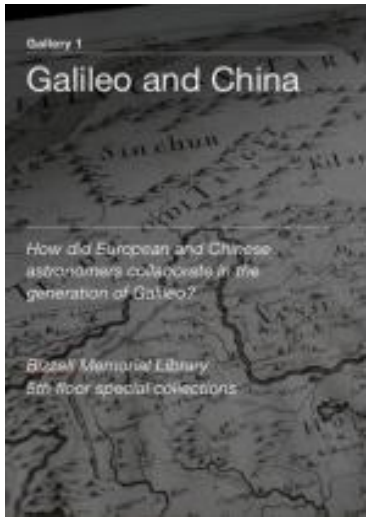
An Exhibition without Walls

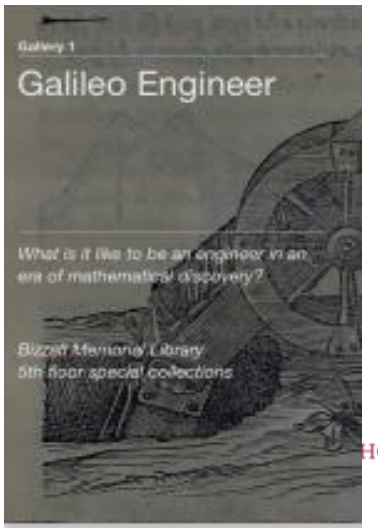
20 Exhibits • 7 Locations • 3 Campuses

E-Books

- Created "Gallery Guides" using iBook Author
- Done for the 5th floor exhibits only
- Offered 2 versions:
  - PDF for people w/o iPads
  - iBook version (fully interactive)







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Hackathons

- One U Cup - working on a Galileo's World VR session with Verizon
- Digirlz session, - working on a session with Microsoft

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Lessons Learned?

- Know, and share widely, the vision/objectives of the exhibit
  - Do they support the larger organizational objectives?
  - What should the end-user experience be? Develop user stories
- Define the scope of the exhibit
  - Document and define in an MOU w/all parties. Signed!
  - Include counts, timelines, milestones, desired impacts & measures
- "ADBD" – Always Digitize Before Display
  - Ensure legal permissions are in place

Lessons Learned?

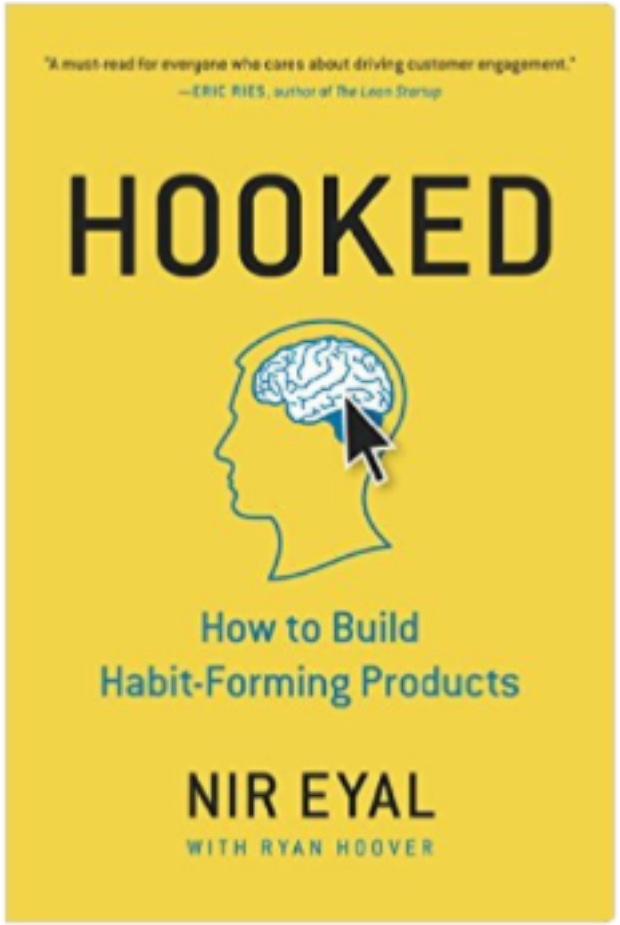
- Apply project management techniques
  - Ensure all parties are present at all stages of creation of the plan
  - Develop and share critical paths also Plans "B" & "C"
  - Know order lead and delivery times on technology components. Is this in the project plan?
  - What are the quality checks? By who? When? How often?
- Use agile techniques and break down silos that might exist between the teams
- Plan the promotion/marketing well ahead
  - Don't forget social media promotion plan!

Future Plans?

- Implement support of IIIF
- Support more hack-a-thons & events, i.e. “Stadium under the Stars” event in the OU Football stadium
- Moving to a “DevOps” approach to future exhibitions
- Implement website ideas described in this book…

Recommendation

Read and use this book's ideas in your exhibition websites



Q & A

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