Technologies/Innovation ...

To Watch in 2016/7
Agenda

• Discover what groundbreaking technologies and innovative people to watch in 2016 and beyond.

• We will also discuss as a group how all these advancements can fit into a variety of libraries to make them shine a bright light into the future.
"Every age thinks it's the modern age, but this one really is."

Tom Stoppard from 'The Invention of Love'
Technology is interwoven into everything!
1. What’s Next for E-books?
2. A New Librarian of Congress?
3. Amid Unrest, Heroic Work in Baltimore
4. Google Wins... Again
5. Did Tide Turn in the GSU E-reserves Case?
6. The Carnegie Medals Yield “the Best Book Award Acceptance Speech Ever.”
7. Seattle’s Failed Rebranding Effort
8. An Independent Copyright Office?
9. Mergers and Acquisitions
10. We Need to Talk About Reference

Source: http://goo.gl/SMY3xB
Are we STILL talking about e-books?
Library Stories of 2015

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Source: http://goo.gl/SMY3xB
“Stop thinking of the future, and anchor yourself in the present.”

~ Darth Plagueis
Haptoclone. Wait ... what?

More info: http://goo.gl/00kQTE
Deep learning - brain-inspired systems capable of translating pixels into English.

Smart virtual personal assistants - semantic and natural language processing; data mined from our calendars, email, and contact lists; and the last few minutes of our behavior to anticipate the next 10 seconds of our thinking.

“It’s like Uber for ____” – the simple app connecting drivers to passengers is now worth more than Halliburton Corporation, Aetna, General Mills, Delta Airlines, Kraft Foods, and Charles Schwab.

Oversight for algorithms - Time to discuss how to include accountability systems for algorithms.

Data privacy - people are increasingly concerned about their privacy, and they’re pointing the finger at business, not maleficent hackers.

Block chain technology – the transaction database that’s shared by everyone participating in bitcoin’s digital system.

Source: [http://goo.gl/Vo338Z](http://goo.gl/Vo338Z)
Google’s Deep Dream
An intellectually refreshing list of technology trends to watch for in 2015 that we should continue to watch for in 2016!

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Source: [http://goo.gl/Vo338Z](http://goo.gl/Vo338Z)
I hear the secrets that you keep when you're talking in your sleep.

Digital Assistants

Image source: http://goo.gl/obFOfu
## Virtual Assistant Jeopardy

See how four digital helpers performed when asked trivia from the official 'Jeopardy' practice test:

<table>
<thead>
<tr>
<th>Virtual Assistant (Score out of 20)</th>
<th>Alexa (5)</th>
<th>Siri (17)</th>
<th>Cortana (16)</th>
<th>Google Now (16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;What is atomic number 98?&quot;</td>
<td>Says: &quot;Hmmm, I can’t find the answer to the question I heard.&quot;</td>
<td>Shows a periodic table illustration of Californium.</td>
<td>Bing search results include Californium Wikipedia entry, if you scroll down a screen. No point scored.</td>
<td>Says: &quot;...Californium is a radioactive metallic chemical element with symbol Cf and atomic number 98.&quot;</td>
</tr>
<tr>
<td>&quot;What was the name of Mozart’s last symphony?&quot;</td>
<td>Gives the wrong answer: &quot;Symphony No. 49 in D Major.&quot;</td>
<td>Shows search results, the first of which is &quot;Mozart’s Last Symphony: The Giant Jupiter.&quot;</td>
<td>Shows search results, the first of which is &quot;Mozart’s Last Symphony: The Giant Jupiter.&quot;</td>
<td>Says: &quot;...the work is nicknamed the Jupiter Symphony.&quot;</td>
</tr>
<tr>
<td>&quot;Who played Daisy in the movie &quot;The Curious Case of Benjamin Button&quot;?&quot;</td>
<td>Says: &quot;Benjamin Button’s actors are Brad Pitt and Cate Blanchett.&quot;</td>
<td>Says: &quot;The Curious Case of Benjamin Button’ stars Brad Pitt, Cate Blanchett and Taraji Henson.&quot;</td>
<td>Bing search results includes Cate Blanchett link...way way down the list. No point scored.</td>
<td>Says: &quot;...Cate Blanchett, who plays Daisy, Benjamin’s great love.&quot;</td>
</tr>
</tbody>
</table>

More info: [http://goo.gl/xxZQgX](http://goo.gl/xxZQgX)
Natural Language Processing

• Car User Interface (CUI?)
• Voice biometrics
• How do we interact with connected devices?
• How **WILL** we interact with connected devices?
  – App based? Too many apps for one device (e.g., Philips Hue)
  – Sentient?
  – Hello Natural Language!
• Internet of Things (IoT) will capture, track, and share data
• Artificial Intelligence
  – Turing Test
Internet of things

noun

a proposed development of the Internet in which everyday objects have network connectivity, allowing them to send and receive data.
"if one thing can prevent the Internet of things from transforming the way we live and work, it will be a breakdown in security"

Source: Google
Smart Cement
Create a Recipe

if this then that
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Source: http://goo.gl/Vo338Z
Uber wants to feed you all kinds of content during your next ride

*Entertainment:* 10 minute playlists for a 10 minute trip

*News:* A five minute news update for a five minute trip

Source: [http://goo.gl/yNv1RE](http://goo.gl/yNv1RE)
Research while driving?

Image source: http://goo.gl/oU1o9D
Are people researching on their wearable computers yet? ;-}
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Are social networks REALLY about connecting with people? Are we presenting anything meaningful or is the general public becoming mindless automatons reposting the “news” over and over again? Are we being pulled into “like behavior?” Pretty soon we’ll have thought bubbles floating over our head and there will be no mystery to our lives.
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Source: [http://goo.gl/Vo338Z](http://goo.gl/Vo338Z)
Turn on a light and have data transmission more than 100 times faster than traditional WiFi!
By 2019 more than ten billion mobile devices will exchange 35 quintillion (1 followed by 18 zeros) bytes of information each month — and that’s just mobile devices.

Source: http://goo.gl/cfiS8u
Image source: http://goo.gl/7k4efI
Watch ... Google[x]

https://research.google.com/
Visit a toy store!
Black Mirror is a great TV show that highlights our “collective unease about our modern world.”

Technology is the villain!

When a screen is off it is like a “black mirror”, so perhaps it is a warning?

Funny thing: we are watching the show on our screens!
Topics from the NMC Horizon Report > 2015 Library Edition

Go behind the scenes at [http://library.wiki.nmc.org/](http://library.wiki.nmc.org/)
II. Significant Challenges Impeding Higher Education Technology Adoption

Solvable Challenges: Those which we both understand and know how to solve

- Blending Formal and Informal Learning
- Improving Digital Literacy

Difficult Challenges: Those we understand but for which solutions are elusive

- Competing Models of Education
- Personalizing Learning

Wicked Challenges: Those that are complex to even define, much less address

- Balancing Our Connected and Unconnected Lives
- Keeping Education Relevant

Seems to be a common theme across the board.

Source: http://goo.gl/mJf4a2
10 E-Learning Trends to Watch in 2016

1. Resources not courses
2. Gamification
3. Explosion of devices
4. Responsive design
5. Continued rise of video
6. Authoring in the cloud
7. Tin Can (xAPI)
8. The new blend
9. Invisible LMS
10. The self-directed learner

Source: [http://blog.aurionlearning.com/](http://blog.aurionlearning.com/)
III. Important Developments in Technology for Higher Education

Time-to-Adoption Horizon: One Year or Less
- Bring Your Own Device (BYOD)
- Learning Analytics & Adaptive Learning

Time-to-Adoption Horizon: Two to Three Years
- **Augmented Reality**
- **Makerspaces**

Time-to-Adoption Horizon: Four to Five Years
- Affective Computing
- **Robotics**

Source: [http://goo.gl/mJf4a2](http://goo.gl/mJf4a2)
Libraries: Innovative Spaces to

Dream. Think. Create.

Innovation Lab (Makerspace @ SPC)

/spcilab
“If libraries are no longer storage spaces, I think they become knowledge performance spaces.”

Source: @rmazar
Share your space.
How to Create a Makerspace?
To describe them simply, makerspaces are community centers with tools. Makerspaces combine manufacturing equipment, community, and education for the purposes of enabling community members to design, prototype and create manufactured works that wouldn't be possible to create with the resources available to individuals working alone. These spaces can take the form of loosely-organized individuals sharing space and tools, for-profit companies, non-profit corporations, organizations affiliated with or hosted within schools, universities or libraries, and more. All are united in the purpose of providing access to equipment, community, and education, and all are unique in exactly how they are arranged to fit the purposes of the community they serve.

Makerspaces represent the democratization of design, engineering, fabrication and education. They are a fairly new phenomenon, but are beginning to produce projects with significant national impacts.

Contents:

1. Beginnings: what we’re doing and why; origins of the Maker movement
2. Places: making a space more conducive to a community that makes together
3. Tools & Materials: inventory, budgets, and strategies (see also High School Makerspace Tools & Materials: a companion document detailing the uses and costs of a fully stocked inventory for an in-school Makerspace.)
4. Safety: planning for safety, signage, and common rules
5. Roles: what teachers, students, shop managers, and mentors do in a Makerspace
6. Practices: pedagogical approaches experienced makers use to support emerging makers
7. A Year of Making: teacher Aaron Vanderwerff describes his experience making with students
8. Projects: guiding novice makers as they build their skill set; sources for projects
9. Startup: nuts and bolts of getting involved with the Makerspace network
10. Documenting: sharing projects ... and the stories behind their making
11. Snapshots: four school-based Makerspaces in action
12. Resources: helpful lists, forms, and templates
GRANTS & FUNDING
Resources to help educators find the money they need for their schools

http://renovatedlearning.com/grant-resources
Wish list comes true

3D printer open to all at new St. Pete College lab

The new Innovation Lab Makerspace at St. Petersburg College's Seminole Campus was created as a place where people with common interests like computers, technology, science or digital arts can socialize and collaborate on ideas. CHRIS URSO/STAFF

Read more at: http://goo.gl/mftoH2

By Jerome R. Stockfisch | Tribune Staff
Published: June 3, 2014 | Updated: June 3, 2014 at 06:07 PM
Makerspaces are big in 2016 and will continue doing exciting things!
Why should we do this in our libraries?
Prometheus stole fire from the gods to give it to humanity.
Sisyphus was to roll a large rock up a hill, only to watch it come back down over and over again ...
Wait ... what?!

In Age of Google, Librarians Get Shelved

A library-science degree can’t compete with online search, but we still have a role.

By STEVE BARKER
Jan. 10, 2016 4:34 p.m. ET

The next time you visit a public library and see an older person at the information desk, someone near retirement age, take a good look. You may be seeing the last of a dying breed, the professional librarian.

Lots of good comments at: http://goo.gl/HT2ME5
Most of the Pew Reports state that Americans value the role of libraries in their communities, so I predict libraries will exist well into the future. ;)
Libraries: Innovative Spaces to
Dream. Think. Create.
Innovation Lab (Makerspace @ SPC)
Foster collaboration
Cultivate imagination
Share experiences ...
Prototypes and patents
Playtime!
Facilitate Discovery
Libraries: Innovative Spaces to
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Innovation Lab (Makerspace @ SPC)
An **invention** is the creation of something new.
INNOVATION

... improves on something that already exists.
Ideas for something new? (dreaming part)
It looks like a new grant opportunity will be in the works between the iLab and the Accessibility Services department at SPC to 3D print tactile graphs for blind math students. There are many math applications that are not accessible, so this could be a huge project!
Built our own drone! (making part)

https://youtu.be/RbNcNZc2BH4
3D printing our next 3D printer!

http://reprap.org/
Maker Boot Camp
10 JUL 15 - 7 AUG 15, 1100 - 1300

Learn & Explore
VIDEO GAME DESIGN
BUILD A SYNTHESIZER
3D DESIGN/PRINTING
BASIC ROBOTICS
CIRCUITRY/ELECTRONICS

Seating is limited!
Geared to 10-14 year olds.

Details/register @ j.mp/makerbootcamp
We were just awarded $7,500 to continue our successful Maker Boot Camp!!

http://www.ala.org/alsc/curiositycreates
Workshops filled very quickly, so we had to create 3 different sessions: 2 for homeschoolers and the other for the public.

Maker Boot Camp Registration

Introducing our second Maker Boot Camp at the Seminole Community Library @ St. Petersburg College, Seminole Campus! Instruction will be provided on video game design, 3D design/printing, circuitry, robotics, virtual reality, and video/audio editing. Each session will meet once a month for 90 minutes from 5:00-6:30pm, beginning November 12, 2015. Each session is a standalone program; therefore, you can sign up for the programs that are of interest to you.

The programs are open to students in grades 3-6 only. All sessions will meet in the Teen Room on the second floor of the library building, with the exception of Video Game Design which will meet in room 232 of the UP Building on the St. Petersburg College Seminole Campus.

Registration is required and space is limited! If you have registration questions please contact Jill Storm at jstorm@myseminole.com or at (727) 394-6915. If you have questions regarding the Maker Boot Camp please contact Chad Mairn at mairn.chad@spcollege.edu or at (727) 394-6917.

The Maker Boot Camp is sponsored by the Innovation Lab [Makerspace @ SPC] and the Seminole Community Library with a grant funded by Disney through the Association for Library Service to Children (ALSC) of the American Library Association.
Maker Boot Camp workshops

- Video Game Design (3 sessions, 4 ½ hours)
- 3D Design/Printing (3 sessions, 4 ½ hours)
- Fun With Electronics/Circuitry (3 sessions, 4 ½ hours)
- Introduction to Robotics (3 sessions, 4 ½ hours)
- Virtual Reality (3 sessions, 4 ½ hours)
- Video Editing for Film (3 sessions, 4 ½ hours)
Big things can happen in small spaces and with small budgets!
The cool thing about Makerspaces is that you will have a space to include interesting technologies that are NOT even invented yet.

Perpetual Beta!
Visit https://www.facebook.com/MarsCuriosity on your smartphone and move through virtual reality!
Robotic Story Time!

Build it! [http://goo.gl/nei4YI](http://goo.gl/nei4YI)
We applied to the Finch Robot loan program and got accepted! We will now get 7 robots so students can learn computer science by providing them with a "tangible and physical representation of their code." The programming languages these robots support are Python, Processing, Greenfoot, Java, Snap!, Scratch, CREATE Lab Visual Programmer, National Instruments LabVIEW, Calico, Ch, Javascript, Scala, C, C++, C#, Go, RoboRealm, Matlab, Visual Basic! Thank YOU Birdbrain Technologies LLC!
Virtual Reality 2015: A Renaissance

http://www.slideshare.net/chadmairn/virtual-reality-a-renaissance
Virtual Reality is a realistic simulation of an environment, including 3D graphics, by a computer system using interactive software and hardware.
GOOGLE CARDBOARD

Experience virtual reality in a simple, fun, and affordable way.

www.google.com/get/cardboard/
https://blendervr.limsi.fr/doku.php
Create a mixed reality game in your library using Aurasma

www.aurasma.com/
360 Degrees—The Future of Journalism

Read more: https://goo.gl/iW5u5J
How can all these advancements fit into a variety of libraries to make them shine a bright light into the future?
Create partnerships!

Be integral to your community.

Share what you do!
Stay informed!
It is nice to learn about these new technologies etc., but it can be stretching a bit to find a place in libraries for most of them.
Contact me!

Chad Mairn, M.L.I.S.
St. Petersburg College

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(727) 394-6917

Dream. Think. Create.

Innovation Lab [Makerspace @ SPC]

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/spcilab