科技与美国高校图书馆创新发展

Lian Ruan, Ph.D.
阮炼 博士
CALA President（**2015/2016**）
美华人图书馆员协会主席（**2015/2016**）
Head Librarian
图书馆馆长
Director of IFSI China Programs
IFSI国际项目主任
Illinois Fire Service Institute
伊州消防服务学院
University of Illinois at Urbana-Champaign
伊利诺伊大学厄本纳-香槟分校
lruan@illinois.edu

Academic libraries in the USA
美国高校图书馆

- As of 2015, 3,793 academic libraries (including 1,304 are less than four-year, 2,489 are four-year and above)

  截止2015年9月，全美共3,793个高校图书馆 (其中1,304个少于四年，2,489在四年或以上）

(ALA Fact Sheet 1

http://www.ala.org/tools/libfactsheets/alalibraryfactsheet01)

Academic libraries in Illinois
伊利诺州伊学术图书馆

- 198 academic libraries in Illinois (Illinois Library Association)

伊利诺伊州有198个高校图书馆 （伊利诺伊图书馆协会）

- CARLI (The Consortium of Academic and Research Libraries in Illinois , July 2005-): 145 members, 850,000 students, thousands of faculty and staff (http://www.carli.illinois.edu/about/histgov). CARLI

伊州高校与研究图书馆联盟，2005年7月--: 145个成员，850,000个学生, 数千教务人员

IFLA Trend Report (August 2013)
国际图联发展趋势报告 (2013年8月)

5 top level trends which will play a key role in shaping future information ecosystem (http://trends.ifla.org/)

5个顶级水平的趋势将在塑造未来的信息生态系统中发挥关键作用:

TREND 1 New Technologies will both expand and limit who has access to information.
趋势1: 新技术将扩展并同时限制信息获取

TREND 2 Online Education will democratise and disrupt global learning.
趋势2: 网络教育民主化同时干扰全球学习

TREND 3 The boundaries of privacy and data protection will be redefined.
趋势3:隐私和数据保护的边界将被重新定义

TREND 4 Hyper-connected societies will listen to and empower new voices and groups.
趋势4:超连接社会将听取并赋予新声音和团体力量

TREND 5 The global information environment will be transformed by new technologies.
趋势5:新技术将改变全球信息环境

World of Information信息世界

Changes in the world of information are very radical 信息世界的改变将是彻底的

1. The displacement of paper. 纸张的取代

2. The primacy of the search engine. 搜索引擎的首要位置

3. The emergence of the digital lifestyle. 数字生活方式的出现

4. The innovative patterns of scholarly communications. 学术交流的创新模式

5. Decreasing reliance on local collections is transforming the library as a physical destination. This environment of upheaval will pose both opportunities and challenges for academic libraries.

对本地馆藏减少的依赖改变了图书馆的实馆性质。巨变的环境对高校图书馆带来机遇的同时也充满挑战

6. Delivery methods have evolved significantly, due largely to the development of new information and communication technologies.

传递方式发生了重要改变，很大程度上是因为新信息和交流技术的发展

(Gregory, 2006, p. 101)

7. Libraries focused largely on capturing the end products of scholarship (ARL 2013）
图书馆过分注重研究成果的最后产品（出版）

Transformational change in the information landscape 信息景观的变革 （35）

1. Collection size rapidly losing importance
图书收藏规模迅速失去原有的重要性

2. Traditional library metrics fail to capture value to academic mission
传统图书馆无法完成价值捕捉的使命

3. Rising journal costs inspiring calls for alternative publishing models
期刊出版成本费用的上升导致新型出版模式出现

4. Viable alternatives to the library now boast fastest growth and easiest access
图书馆用其他方式来寻求快速的发展并且为读者提供更便捷的获取信息方式

5. Demand declining for traditional library services
传统图书馆服务的需求下降

6. New patron demands stretch budget and organizational culture
新读者的需求增加了图书馆经费和组织文化的压力

(Attis & Koproske, 2013)

Academic Libraries' Future Trends
高校图书馆的未来趋势

7. Leveraging digital book collections 利用数字图书收藏

Ebook adoption reaching a tipping point 电子书的应用达到了转折点

8. Large-scale digital collections offer promise of widespread, low-cost access

大规模的数字资源提供便宜并广泛的信息获取

9. Technological constraints unlikely to prevent digital transition

技术限制很难阻碍数字化的转型

10. Usage restrictions and copyright remain the largest obstacles to access

使用的限制和版权仍然是信息的获取最大障碍

11. Patron-driven acquisition models allow 'just in time' purchasing approach

读者驱动的采购模式允许'及时'采购的方法

(Attis & Koproske, 2013)

Academic Libraries' Future Trends (Cont.)
高校图书馆的未来趋势 （续）

12. Rethinking the scholarly publishing model

重新考虑学术出版模式

13. Pay-per-article models emerging as an alternative to the 'Big Deal'

按次收费的文章模式成行为另一件'大事'

14. Pressure for open access likely to disrupt publishing business model

开放存取的压力可能会对出版商业模式造成干扰

15. Many institutions incentivizing and providing infrastructure for open access

许多机构提供对开放存取的奖励和基础设施

(Attis & Koproske, 2013)

Academic libraries' future trends (Cont.)
高校图书馆的未来趋势 （续）

16. Repurposing library space 重新利用图书馆空间

Local print collections are large, expensive, and rarely used 印刷品收藏占空间大昂贵和利用率很低

17. Emerging virtual discovery tools provide alternative paths to serendipity 新兴的视觉发现工具给意外发现新事物提供了新的方法

18. Leverage data on usage, electronic access, and local holdings to prioritize local collections

平衡数据使用，电子信息使用，和本地存量以突出本地收藏

19. Mitigate opposition to relocating resources by regularizing and systematizing deaccession

通过规范的系统的出售或交换图书馆藏品来缓和对资源重新安置的反对

20. Avoid unnecessary duplication through collaborative storage and acquisition plans

通过合作储存馆藏和联合购买来避免不必要的重本

21. Repurpose library space to support collaborative learning
重新规划图书馆空间来支持合作学习

(Attis & Koproske, 2013)

Academic libraries' future trends (Cont.)
高校图书馆的未来趋势 （续）

22. Redeploying library staff 重新分配图书馆员工的工作

Cataloging no longer a local activity

编目工作将不再是一个馆的内部工作

23. Tiered reference services free up librarian time

分类的参考服务将会节省图书管理员的时间

24. Crowd-sourced reference matches supply to decreased demand

多源头的参考资料来匹配读者需求将会压低需求量更好满足需求

25. Successful integrated information technology/library units rely on expertise, mission congruence

成功的集成信息技术和图书馆各部门会更要求专业人员和图书馆使命的一致性。

(Attis & Koproske, 2013)

Academic libraries' future trends (Cont.)
高校图书馆的未来趋势 （续）

26. Students in need of information literacy beyond 'library 101'

学生需要掌握"图书馆101"课程以外的内容

27. Embedded librarians and services offer on-demand, online guidance to students and faculty

对在线学生和教员提供嵌入式图书管理员和按需服务

28. Data management standards require new information infrastructure

数据管理标准需要新的信息管理设施

29. Targeted specialists provide expertise and flexibility

专门的专业人员提供专长和灵活性

30. Publisher partnerships bring new life to special collections

出版社合作关系会对特殊馆藏带来新生命（新机会）

(Attis & Koproske, 2013)

Academic libraries' future trends (Cont.) 高校图书馆的未来趋势 （续）

31. Acquisitions, cataloging, collection development 采编和馆藏发展

 Printed information will continue to fade in importance for research libraries.

 纸质信息在研究性图书馆中的重要性将会逐渐减小

32. Patrons will use the OPAC less and less.

读者将越来越少得使用在线目录

33. The importance of MARC records will decline-slowly at first, and then with increasing speed.

 MARC编目的重要性现先缓慢下滑，然后会加快下滑的速度。

34. Institutional repositories will grow.

 机构储存库会增长

35. Local collections of non-unique will decline.

 本地收藏的的非独家版本会减少

(Anderson, 2008)   (Attis & Koproske, 2013)

Patterns of information exchange 信息交换模式

- Today's academic libraries disseminate information to their patrons very differently than they did a generation ago.

当今高校图书馆给读者传递信息的方式方法和前一代非常不同。

- Shifted away from amassing collections of paper-based monographs in 8 ways

以8种方式远离大量纸基模式文献

(Gregory, 2006)

Patterns of information exchange (Cont.)
信息交换模式 （续）

1. From analog to digital formats 从模拟到数字格式

2. From books to journals and other media从书到期刊到其他媒体

3. From highly assessable on-site storage to compact storage, whether on or off site.
从可以高评估的在线储蓄到压缩储蓄，无论在线或离线

4. From local storage to remote access
从本地储蓄到远程获取

5. From local ownership to subscription-based access
从本地拥有到订阅访问

(Gregory, 2006)

Patterns of information exchange (Cont.)
信息交换模式 （续）

6. From selection of individual items to selection of resources in the aggregate

从个体物件的选取到大批量选取

7. From library-specific collection development to group-based resource-sharing. 从个体图书馆的收藏发展到群体的资源共享

8. From active acquisition of grey literature to free access via the web. 从积极的文献获取到免费的网络访问

(Gregory, 2006)

Horizon Report

Trends Accelerating Technology Adoption in Academic and Research Libraries

高校与研究图书馆加速技术采纳的趋势动态

2015 Library Edition Examines key trends, 趋势 significant challenges挑战, and important development in technology for their impact on academic and research libraries across the globes重要科技发展对全球学术和研究图书馆的影响.

Executive Summary 执行概要

Topics from NMC
地平线报告主题
the NMC Horizon Report

2015 Library Edition
2015年图书馆版

All of the trends listed here were explored for their implications for libraries in a series of online discussions that can be viewed at library.wiki.nmc.org/Trends
展开一系列动态对图书馆意味着什么的网上讨论

CHALLENGES

SOLVABLE
> Embedding Academic and Research Libraries in the Curriculum
> Improving Digital Literacy

DIFFICULT
> Competition from Alternative Avenues of Discovery
> Rethinking the Roles and Skills of Librarians

WICKED
> Embracing the Need for Radical Change
> Managing Knowledge Obsolescence

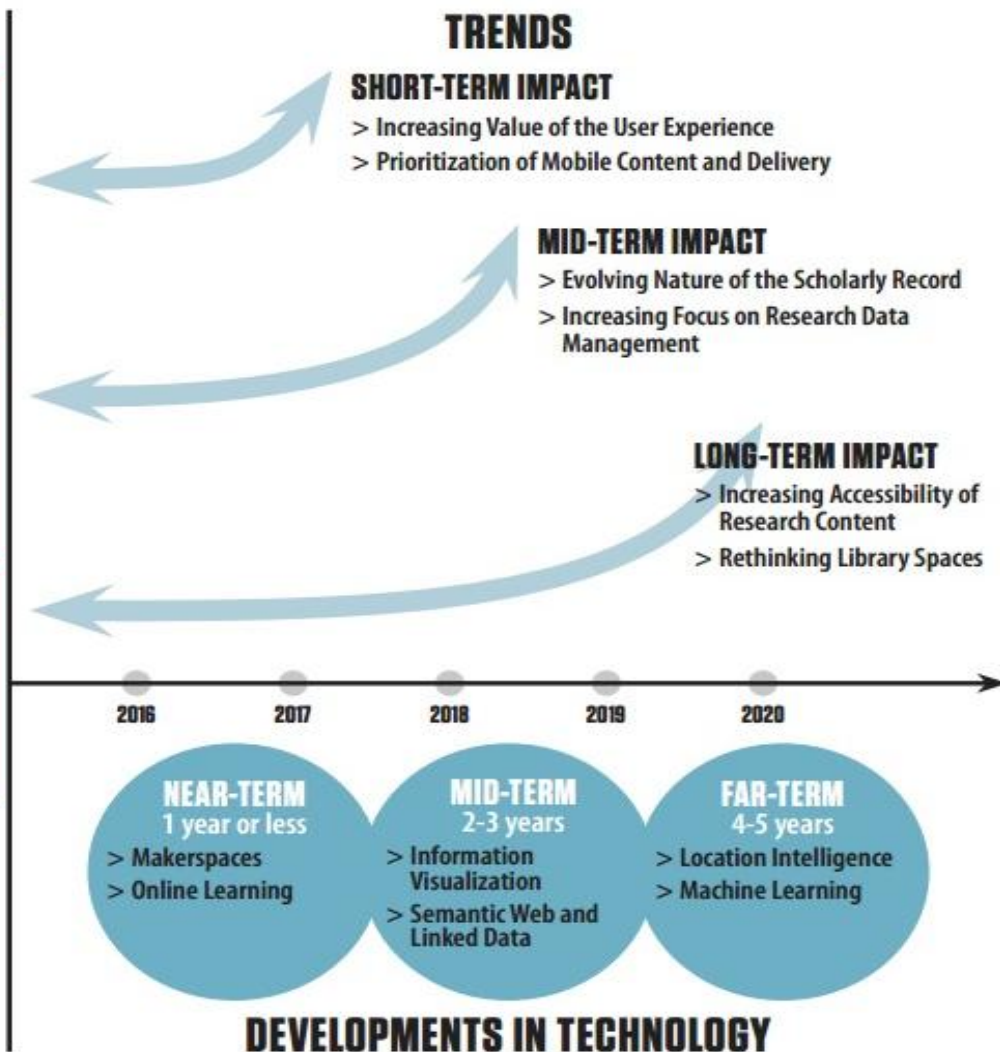TRENDS, CHALLENGES, AND TECHNOLOGIES FOR LIBRARIES

TRENDS

SHORT-TERM IMPACT
> Increasing Value of the User Experience
> Prioritization of Mobile Content and Delivery

MID-TERM IMPACT
> Evolving Nature of the Scholarly Record
> Increasing Focus on Research Data Management

LONG-TERM IMPACT
> Increasing Accessibility of Research Content
> Rethinking Library Spaces

2016   2017   2018   2019   2020

NEAR-TERM
1 year or less
> Makerspaces
> Online Learning

MID-TERM
2-3 years
> Information Visualization
> Semantic Web and Linked Data

FAR-TERM
4-5 years
> Location Intelligence
> Machine Learning

DEVELOPMENTS IN TECHNOLOGY

3 meta-dimensions 3大方面考量

- Focus the discussions of each trend and challenge on – 讨论趋势和挑战时有三大方面的考量

  1. Policy 政策
  - refers to the formal laws, regulations, rules, and guidelines that govern libraries

    管理图书馆的法律、规则、条款、指南等等

  2. Leadership 领导力

    the product of experts' visions of the future of libraries, based on research and deep consideration

    基于研究和深层思考的专家产品对未来图书馆的愿景

  3. Practice 实践

    where new ideas and services take action in libraries and related settings.

    图书馆和相关设置的新慨念和服务产生

Policy 政策
Trends Accelerating Technology Adoption in Academic and Research Libraries

- 2 trends in particular are expected to have a strong impact on policy decisions over the next 5 years：2 趋势对未来5年政策决定有大影响

Trend 1 -- Libraries should continue to support increased availability of research outputs to make it easier for the research community to access key findings and build upon published bodies of work.

趋势1 图书馆应继续支持增加研究输出的可用性，使研究界访问的关键研究成果和建立在已经发表的研究成果上的工作更容易

While this long-term impact trend has been materializing at libraries for some time, national governments recognize that there is still room for progress.

国家政府意识到这方面还有提升的空间

Policy 政策 (续）
Trends Accelerating Technology Adoption in Academic and Research Libraries

Trend 2 -- Types of content available are rapidly expanding, as evidenced by the mid-term impact trend — the evolving nature of the scholarly record.

趋势2 所提供的内容类型正在迅速扩大，这证明了中期的影响趋势-学术记录的不断变化的性质

The rise of digital content has popularized formats such as video, podcasts, and data visualizations that may have been previously represented by all-text documents and articles.

数字内容的兴起和普及格式如视频、播客及先前所有文本文件表示被数据可视化。

• Result: 结果
  • There is a need for policies that guide libraries in the storage, publication, and dissemination of emerging formats.
  对图书馆在储存、出版和传播等方面的政策指南需求
  • The Online Computer Library Center (OCLC) has been instrumental in this process, publishing two reports in 2014 and 2015 that provide conceptual frameworks and pose recommendations for developing effective stewardship models for libraries
  在线计算机图书馆中心（OCLC）已经在这个过程中，出版两报告2014和2015提供的概念框架和提出建议图书馆发展的有效管理模式

Leadership 领导力
Trends Accelerating Technology Adoption in Academic and Research Libraries

2 short-term impact trends stand out as opportunities for innovative vision —to solidify them as vital aspects of library missions.

2个短期影响趋势突显了作为创新愿景的机会-固化其图书馆任务的重要方面

Trend 1 -- The growing focus on developing a positive user experience is informing the enhancement of libraries' web presence and digital resources.

发展积极用户体验的重点是提高图书馆的网络存在和数字资源

- Keeping a pulse on patron expectations and needs can help leaders accelerate this trend.

密切关注读者期望值和需求, 协助领导者加快这个趋势

- Example: Leadership at the North Carolina State University Library System conducts user experience studies across their institution to pinpoint insights that help them more effectively tailor their virtual offerings to students, faculty, and researchers.

北卡罗来纳州立大学图书馆系统领导力发挥是进行跨组织的用户体验研究，以查明见解，帮助他们更有效地调整自己对学生、教师和研究人员制定的虚拟产品

Leadership 领导力 （续）

Trend 2--Increasingly, these online services and resources are being accessed via mobile devices.

趋势2--越来越多的在线服务和资源正在通过移动设备访问获取

- Academic and research libraries 高校研究图书馆必须
  - Must have a rich mobile presence through apps and responsive design approaches 通过应用程序和响应式设计方法来达到丰富的移动存在
  - Must understand the evolving landscape of smartphone and tablet delivery. 理解智能手机和平板电脑传递这个变化的领域

Practice 实践
Trends Accelerating Technology Adoption in Academic and Research Libraries

- These Trends has numerous implications for academic and research libraries

这些趋势对高校研究图书馆有几种意义

Trend 1 -- A long-term and widespread emphasis on rethinking physical spaces is expanding the benefits of on-campus libraries.

趋势1--长期和广泛地重新思考图书馆实体空间对图书馆有好处

- In the past several years, libraries have been moving a large amount of print collections to offsite storage centers as they have transitioned to more digital offerings in the form of e-books and online journals.

在过去的几年中，图书馆已经将大量打印收藏到异地存储中心作为他们过渡到更多的数字产品形式的电子书和电子期刊

- Libraries are reimagining how they can best use the extra room.

图书馆重新想象怎样重新更好地利用多出来的空间

   - The University of Colorado at Colorado Springs Kraemer Family Library recently traded in the shelving that once encompassed print materials to create a flexible learning space for patrons to facilitate more peer discussions and active learning 科州科拉瑞多科母家族图书馆最近把纸本书架挪走，这样提供了更灵活的学习空间，促进更多同行的讨论和主动的学习

Practice 实践 （续）

Trend 2 -- The move to a more expansive online presence is calling for state-of-the-art data management processes

趋势2--更昂贵的在线存在—呼唤最先进的数据管理过程

- make content more discoverable 使内容更容易发现
- ensure long-term preservation 更便于长期保护

- Libraries have long played key roles in this area and are continuing to refine their workflows as well as the digital infrastructures that support them.

图书馆在这方面早已发挥了重要作用，并继续完善自己的工作流程，以及支持它们的数字基础设施

Trend 3- Libraries have a responsibility to educate researchers on the proper protocol for uploading research assets and related metadata.

趋势3--图书馆培训研究人员如何上传研究资产和相关元数据的正确方法

- Stanford University Libraries' data management services, for example, guide researchers and provide them with data management planning tools and repositories 斯坦福大学图书馆的数据管理服务，比如对研究人员提供数据管理工具和数据库方面的指南

Short Term Impact 短期影响

- Increase value of the user experience 增强读者用户体验的价值

Increasing Value of the User Experience 增强读者用户体验的价值

- User experience (UX)：The quality of a person's interactions with a company's services and products 用户与公司服务及产品打交道时的质量体现
  - assess computer-based exchanges with mobile devices, operating systems, and websites
    评估以计算机为主的移动设施，操作系统及网络
  - Superior user experience has been largely attributed to the success of companies
    最好的用户体验是公司的成功

- Easy navigation, digestible content, and practical features —are encompassed in effective website and database designs. The interface itself is just one dimension of UX.

便利的导航，容易看懂的内容，实操部分都体现在有效的网络和书库库设计上。介面设计只是其中一部分
  - Amazon and Google are identifying patterns in users' online behaviors to better tailor search results at the individual level 亚马逊和谷歌等大公司用户行为研究
  - Direct feedback from users in the form of ratings on websites including NetFlix and TripAdvisor help companies customize content and adjust user interface design. 用户网站排名的直接回馈协助公司制定内容和调整用户界面设计

- The result is a more efficient and personal experience for users 更高效益的用户个人体验

- For libraries, which serve up countless e-publications, user experience is a relatively new area. 但对图书馆，用户体验是个新概念

User Experience 用户体验

ISO 9241-210标准将用户体验定义为"人们对于针对使用或期望使用的产品、系统或者服务的认知印象和回应"。通俗来讲就是"这个东西好不好用，用起来方不方便"。因此，用户体验[2] 是主观的，且其注重实际应用时的产生的效果。

ISO定义的补充说明有着如下解释：用户体验，即用户在使用一个产品或系统之前、使用期间和使用之后的全部感受，包括情感、信仰、喜好、认知印象、生理和心理反应、行为和成就等各个方面。该说明还列出三个影响用户体验的因素：系统，用户和使用环境。

ISO标准的第3条说明暗示了可用性也可以作为用户体验的一个方面。如，"可用性标准可以用来评估用户体验一些方面"。不过，该ISO标准并没有进一步阐述用户体验和系统可用性之间的具体关系。显然，这两者是相互重叠的概念。

http://baike.baidu.com/

Increasing Value of the User Experience增强读者用户体验的价值 （续）

- According to a study from eConsultancy, 调研
  - 88% of online customers: unlikely to return to a website after a negative initial experience 88%用户不好体验后就不回来了
    - nearly 100% of these gut reactions are design-related 100% 设计相关
    - A first impression is critical 第一印象重要

- While UX is widely used to define virtual experiences 虚拟经验, successful elements are based on 200 years of scientific knowledge about human behavior. 200年人类行为学
  - InBound Marketing 营销研究
    - key attributes to effective and engaging user interfaces include discoverability, desirability, accessibility, value, credibility, and usability. 有效让用户参与包括：发现，欲求，获取，价值，可靠行和使用行

- Academic and research libraries do not have long invested in top marketing firms and engineers to craft superior UX designs as technology giants. 高校图书馆没像大公司一样在顶尖营销公司做投资，让他们做出最好的用户体验设计
  - However, libraries are rapidly 但是，图书馆很快意识到用户体验的重要性
    - Adapting to this landscape 必须要适应这个变化
    - ensuring that their databases and websites are easier to navigate, and the research content housed there is more discoverable than ever before 数据库和网络服务容易用，研究成果容易找到

Increasing Value of the User Experience 增加读者用户体验的价值（续）

- Both patrons and library professionals benefit from quality UX.

用户和图书馆受益于高质量的用户体验

- "The Systems Librarian" 系统图书馆员文章
  - Published in *Computers in Libraries* Magazine 《计算机在图书馆》的杂志
  - Forecasts relentless consolidation as an imminent focus for libraries as major vendors such as Innovative expand their acquisitions. 整合，如采编
  - Result: Many Internet of Things-enabled and archival technologies have been streamlined with a more consistent user experience. 东西相关的及档案技术等方面的互联网被简单化，用户体验更一致性

Increasing Value of the User Experience 增加读者用户体验价值

- Libraries are also better organizing their databases to promote easy navigation.

  数字库导航简便性

- In 2014， Cornell University Library launched a beta for a custom-built single search tool

  康奈尔大学图书馆2014年开始做专门定制的单一检索工具

  - Supports their entire research community and 对研究人员的支持
  - Quickly scans all of the library's resources through a highly accessible interface

    通过一个高获取的界面迅速浏览全部图书馆资源

- At universities, the user experience for students is often dictated by how well faculty develop and organize virtual content for their courses, and libraries are becoming instrumental in this process.

  大学里，学生的用户体验常常取决于教授如何准备好课程要用的电子资源，图书馆能起到协助作用

- At the Academic Technology Lab in Lathrop Library at Stanford University

  斯坦福大学图书馆学术技术试验室

  - Consultants provide support for the design of instructional materials that leverage media and interactive presentations to engage learners （在图书馆里的）顾问提供教学材料设计的支持，利用媒体和互动演示鼓励学生的参与

Increasing Value of the User Experience 增加读者用户体验的价值

Implications for Policy, Leadership, or Practice 对政策、领导力或实践的蕴涵

- While there are no government policies mandating high-quality user experiences for websites and devices, libraries are developing helpful frameworks and guides

没有政府正式政策，图书馆自己开发框架和指南

- Yale University Library 耶鲁大学图书馆
  - Created web design guidelines to ensure standard typography, color, HTML mark-ups, and aliases are used across the university to maintain a consistent look and feel

    创建网页设计的指导以确保标准的字体，颜色，HTML标记和UPS，别名是整个大学用来保持一致的外观和感觉。
  - If a student understands how to navigate one web portal, interacting on another will be more intuitive 如果一个学生懂得如何浏览一个网络门户，浏览下一个会更容易。

- The Weave Journal of Library User Experience 《图书馆用户体验编织杂志》
  - Is an open-access journal for library UX professionals 图书馆用户体验专业人员的开放存取杂志
  - Contains the latest research and guidelines on subjects including holistic and systemic web design and methods for seamless iBeacon integration

    包含的主题有无缝iBeacon集成整体的、系统的网络设计及方法的最新研究和指导方针

Increasing Value of the User Experience 增加读者用户体验的价值 （续）

- Being a leader in this field requires extensive knowledge of patron behaviors and needs
作为这个领域的领导着必须有广泛的读者行为和需求知识

- The North Carolina State University Library System 北卡州立大学图书馆系统
  - regularly conducts UX studies to glean better data and insights that help them cater to their community
定期搞UX研究收集更好的数据和见解，帮助图书馆满足他们的用户社区
  - Their Discovery Environment Usability Test, for example, enabled them to analyze the effectiveness of the university's search tools and tabbed interfaces at helping students find specific content
他们发现环境的可用性测试，例如，使他们可以分析大学的搜索工具和标签式界面在帮助学生找到具体内容方面的有效性
  - In addition to testing with real people, they also developed fictional personas to mirror different categories of patron in advance of redesigning their website
除了真人测试，他们也开发了虚拟人物模仿不同类别的用户，用来重新设计网站

- University of Michigan Library 密西跟大学图书馆
  - the User Experience Department focused on interface design, user research, usability assessment, and accessibility 读者用户体验部主要做界面设计，读者研究，使用评估和可访问性

Increasing Value of the User Experience 增加读者用户体验的价值 （续）

- A major trend that has materialized in the UX space is responsive design.

主要趋势是用户体验空间的反应设计

- This approach translates to an optimized view and interactive experience of a website across a wide range of devices, including smartphones and tablets.

这种方法转化为一个优化的视图和互动体验的网站横跨广泛的设备，包括智能手机和平板电脑

- An increasing number of libraries are updating their websites to cater to the different ways in which their patrons will access their content

越来越多的图书馆正在更新他们的网站，以满足不同的方式，使他们的用户可以获取资源信息

  - Ithaca College Library's website includes social components and help features integrated throughout the website so that users can discern proper citations and receive support to pinpoint the exact articles they need for different disciplines and studies

  伊萨卡学院图书馆的整个网站集成了社交成分和帮助功能，这样让用户可以辨别正确的引文和获得支持，准确找到他们需要的不同学科和研究的文章

Increasing Value of the User Experience增加读者用户体验的价值（续）

- **California Digital Library's User Experience Design Service** 加州数字图书馆用户体验设计服务
- go.nmc.org/cdl
- (University of California Digital Library, accessed 6 July 2015.) California Digital Library's (CDL) User Experience Design team helps to ensure CDL products and services are designed to meet users' needs.

加州大学数字图书馆用户体验设计团队帮助该馆设计满足用户需求的产品和服务

- **The UX Moment: A Weave Digital Panel, Part One** 用户体验运动：编织数字小组，第一部分
- go.nmc.org/momen
- (Michigan Publishing, Weave Journal of Library User Experience, 2015.) In this panel discussion, librarians from nine institutions describe their user experience work, revealing the variety in both definitions of and the manner in which UX work is accomplished within various libraries. > Practice

小组讨论一组：馆员来自9个图书馆，描述了他们用户体验工作，透露了各个馆用户体验工作的不同定义和态度

Short Term Impact 短期影响

Prioritization of Mobile Content and Delivery

移动内容和传递的优先考量

Prioritization of Mobile Content and Delivery
移动内容和传递的优先考量

- The prevalence of mobile devices is changing the way human beings interact with information.

移动设备的普及正在改变人类交流信息的方式

- By 2020, it is expected that 80% of the world's adult population will own a smartphone

到2020, 全球80%的成人人口会有智能手机。

- Mobile technology has transformed library patrons' expectations of when and where they should be able to access content and services, and the academic and research library community is starting to adjust their delivery to fit a variety of hand-held platforms.

移动技术已经改变了图书馆用户对什么时候、什么地点获取信息和服务的期望。高校和研究图书馆社区开始调整他们的信息传递以适应各种实操式平台

- As mobile strategies continue to evolve, libraries are honing their focus on understanding user behavior in order to implement lasting solutions that will meet the needs of contemporary and future scholars.

移动战略在继续发展，图书馆的重点是了解用户行为以实现持久的解决方案来将满足当代和未来的学者的需求。

Prioritization of Mobile Content and Delivery
移动内容和传递的优先考量

- The rise of mobile technology 移动技术的崛起
  - changing the nature of discovery and research workflows

  改变了发现及研究的流程性质
  - leading many libraries to adapt their strategies for the delivery of content and services

  导致很多图书馆为内容和服务的提供而改变策略

- Responsive web design (RWD) 响应式网页设计
  - libraries are accommodating their increasingly mobile patrons

  图书馆正在适应日益增长的移动用户
  - optimized websites can fit multiple screen sizes, allowing users to perform tasks seamlessly

  优化的网站可以配合多个屏幕大小，允许用户流畅地开展工作
  - Result: students and faculty are becoming more accustomed to searching, reading, finding away from their desks and outside of the library's facilities through their mobile site or app

  学生和教师正变得越来越习惯于通过他们的移动网站或应用程序来搜索、阅读、查找他们的办公桌以及图书馆设施以外资料
  - Library researchers from Brigham Young University found

  百明翰大学图书馆研究人员发现
    - A responsive website allows for all of the features to remain intact, no matter the device. This has streamlined the process for libraries as only one website needs to be maintained

    响应的一个网站允许所有的功能保持不变，无论设备。这已经简化了图书馆的过程，因为只有一个网站需要维护

Prioritization of Mobile Content and Delivery移动内容和传递的优先考量

- Academic and research libraries are also adapting to new reading habits that favor small screens and formats.

高校和研究图书馆也适应了新的阅读习惯，有利于小屏幕和格式

- While PDFs have been a common way to access digital content since the 1990s, they seem cumbersome when compared to the EPUB 3 format, or e-books, which are a viable option for reading on devices smaller than tablets

PDF是1990年代以来访问数字内容的一种常用方法，但它们显得笨重当跟ePub 3格式或电子书对比，对阅读设备小于平板电脑

- Apps like BrowZine embody a mobile-centric approach to discovery, blending both worlds in a virtual newsstand that displays academic journals, PDF articles, and e-books, as well as social features for sharing, tracking favorites, and setting notifications when new articles are published

应用程序如browzine体现移动为中心的方法来发现，融合一个虚拟的报刊亭含学术期刊、PDF格式的文章、电子书、以及共享、跟踪的收藏夹，并在新的文章发表时设置通知。

- Experts in the field speculate digital book formats will gradually dominate the academic space due to the advance of technology, the low cost of production, and simplicity of supply chain logistics, making this an important development to watch for libraries.

电子书因为技术的进步、低价生产、简便流程等会逐步成为学术空间的主流

Prioritization of Mobile Content and Delivery移动内容和传递的优先次序考量

- The rapid growth of mobile technology is underlining the importance of recognizing patron behaviors and needs to inform design, and there are a number of research frameworks that have emerged to guide this transformation

移动通信技术的快速发展突显了识别用户行为和需求并知会设计的重要性。有多项研究框架来引导这一转变。

- University of Illinois at Urbana-Champaign (UIUC) 伊利诺伊大学香槟-厄巴纳分校
  - Library staffs organized a two-day coding camp in order to decipher their expectations of library-focused mobile apps.

  图书馆工作人员组织了一个为期两天的编码营，以破译他们对图书馆的关注焦点的移动应用程序。

  - Through this event, researchers gained a better understanding of how students conceive of library spaces, resources, and services, ultimately leading to products that reflect their real-life needs.

  通过这一活动，研究人员获得更好了解如何设想学生想象中的图书馆空间、资源和服务，最终导致满足学生真正需求的产品。

  - Student-designed apps addressed the desires to build connections with their classmates, discover campus resources, and facilitate collaborative activities

  学生设计的应用程序解决了与同学建立联系、发现校园资源，并促进合作等方面活动的图书馆欲求

Prioritization of Mobile Content and Delivery移动内容和传递的优先考量

Implications for Policy, Leadership, or Practice 政策、领导力或实践

- Academic libraries are beginning to develop policies and strategies that are placing mobiles at the center of many transformative directives.

高校图书馆正在开始制定政策和战略，将手机放在许多变革令的重点上。

- The directive encourages further adoption of mobile technologies to connect users with the Libraries' discovery tools and collections.

该令鼓励进一步采用移动技术连接用户与图书馆的发现工具和收藏。

  - These efforts must be bolstered by evaluation efforts.
    必须借助于评估工作

  - The University of Nevada, Las Vegas Libraries' latest strategic plan emphasizes the need to assess current mobile services and to continuously perform needs assessments, delineating the methods of measurement that will be used.
    拉斯图书馆最新策略是加强对目前手机服务的评估价继续做需求分析和评估。

MOOCs & Challenges to libraries大众网络公开课程和图书馆面临的挑战

- Academic librarians need to be aware of how these developments may impact their responsibilities and role within a university.

高校图书馆需要了解这些发展会怎么样影响图书馆在大学里扮演的角色和承担的责任。

- How universities are involved in creating or sanctioning MOOCs, descriptions of the major MOOC providers, and how scholarly resources are used in their curriculum.

大学怎样创建或开设大众网络课程，主要网络课程提供商的介绍和学术性资

- offer an evaluation of current models for library services in distance learning that may apply to the support of MOOCs.

对现有远程教育课程中的图书馆服务的模式做评估，对大众网络公开课程的图书馆服务提供借鉴意见。

- Important for librarians to consider these issues in the early stages of this phenomenon, because not only are MOOCs here to stay, but they represent a new challenge in the shifting relationship between library services and online learning that will continue to play out in the future of higher education.

在发展早期，图书管理员考虑这些问题非常重要。因为大众网络公开课不仅会成为发展趋势，更因为它代表一个改变图书馆服务和在线教育关系的一个新挑战。而这种关系在未来高等教育中将越来越重要。

(Wright & Reuters, 2013, http://dlib.org/dlib/march13/wright/03wright.html) （莱特和瑞特尔，2013，http://dlib.org/dlib/march13/wright/03wright.html）

MOOCs Challenges to Library Services
大众网络公开课对图书馆服务的挑战

1) MOOCS enrollment far exceeds that of conventional online courses offered by degree-granting institutions.

大众网络公开课的受众群远远的超过学位颁发院校所提供的传统在线课程的受众群。

. Prevents librarians from applying some of the recent approaches for integrating library services in online learning.

妨碍图书管理员采用一些近期将图书馆服务融入在线学习的方法

. For example, in contained online courses with enrollment limits, the "embedded librarian" approach has some documented success. Given the challenges of huge student enrollment, it is unlikely these approaches would translate to MOOCs.

例如，在一些对学生人数有限制的课程中，"嵌入式图书管理员"服务有一些文献记载的成就。在大量授课学生人数的挑战下，这些服务将很难嫁接到大众网络公开课程中

- (Wright & Reuters, 2013, http://dlib.org/dlib/march13/wright/03wright.html)

MOOCs Challenges to Library Services
大众网络公开课对图书馆服务的挑战

2) MOOCS are hosted by third-party companies. This presents numerous technical and proprietary issues because MOOCs use their own platform to host course content, the work done by librarians within their university's course management system, such as embedding lesson plans or offering an "Ask a Librarian" feature, would not easily transfer to outside MOOC platforms. This means librarians would have to create research assignments for multiple online environments if they want to be involved with MOOCs to the same extent that they are involved with their university's online courses.

大众网络公开课是第三公司运营。

这会带来很多技术问题和专利问题。

大众网络课程用运营商用自己的网络平台提供课程，

这样一来，像图书管理员在自己大学运营的网络课程管理系统中所提供的嵌入式课程计划或者"询问图书管理员"服务，将很难转移到第三方课程平台上。

这意味着，如果图书管理员想要像参与学校网络课程一样参与到大众网络课程中，他们对不同的网络环境中进行的不同课题得另外计划作业。

- (Wright & Reuters, 2013, http://dlib.org/dlib/march13/wright/03wright.html)

Solutions to MOOCs Library Services
大众网络课程图书馆服务解决方案

- Reach out to the faculty member teaching the MOOCS.

与大众网络课程的教师合作。

- Convince faculty that learning from scholarly resources is a critical element of higher education

说服全体教员从学术性资料中学习是高等教育中很重要的一部分

- Make the student aware of their available resources.

让学生了解他们所拥有的资源

- Provide the faculty member with links to the "tutorials" and "research guides" sections of their affiliated library's website.

给全体教员提供他们附属的图书馆网站上"教程"和"研究向导"的链接

Solutions to MOOCS Library Services
大众网络课程图书馆服务解决方案

- Review the scope and content of their tutorials and research guides, because most will include paths to proprietary databases which will not be accessible to many MOOC students. T

审查教程和研究向导的内容和覆盖范围，因为很多都会包括大众网络课程学生所不能登录的数据库链接。

- Peer-reviewed research tutorials are freely available from the American Library Association, and the Multimedia Education Resource for Learning and Online Teaching initiative, which can supplement current tutorial offerings.

美国图书馆协会提供免费的同行审查的研究教程，和在线教育多媒体资料。这些给以作为附加教程提供给学生。

- Provide links to open access research guides and tutorials

给学生提供公开研究向导和教程的链接

- Offer services that can be repeated by large numbers of students with varying affiliation to the hosting university and faculty.

提供可让大量不同学校学生重复使用的服务。

Mid-term Impact 中期影响

- Evolving the nature of scholarly record学术记录的性质变化

Evolving Nature of the Scholarly Record学术记录的性质变化

- The evolution of the scholarly record is being driven by two related developments:

这个性质变化有两个原因

  - The move from the printed record to digital 从纸本到数字
  - The shift from text-based materials to research datasets, computer models, laboratory notebooks. 全文资料到研究数据集，计算机模型，实验室笔记

- Traditionally, researchers published their outputs as articles in scholarly journals by 传统上，研究人员出版他们的研究成果靠学术期刊上发表文章

  - registering a finding through the submission of a manuscript 提交手稿发表研究成果
  - certifying the validity of a claim through peer review通过同行评审证明其有效性
  - archiving the record through the printed output通过打印输出将记录归档
  - creating awareness through discovery systems通过发现系统创造意识

- Increasingly, these functions are being accomplished through digital means

电子手段逐步取代

  - Certification can be performed online through platforms like PubPeer 证书可以通过在线平台发布，如PubPeer
    - an open peer review where scientists comment on articles published using a digital object identifier 开放评估，科学家对论文的点评是通过电子认可号来接受
  - Or papers can be archived and distributed through arXiv 论文也可以通过ArXiv来做和转达
    - researchers call a "Web of Objects" that includes software and operating systems, and increasingly new forms of digital data。研究人员叫"实体的文博网"含软件开放，操作系统管理，更多新的电子数据开始运转。

Evolving Nature of the Scholarly Record学术记录的性质变化

- Some leaders in the field envision major changes in the scholarly record as new workflows develop.

一个大变革是新的工作流程出现

- One idea put forward recently is the notion of the evolving manuscript, which can provide a more dynamic approach to capturing scholarly works.

最近提出的一个想法是不断发展的手稿，它可以提供一个更动态的方法来捕捉学术作品的概念

- Researchers would start with a pre-publication, move to a pre-peer review version of an article, and then publish the approved article.

研究人员先从出版前的文章期刊，出版物草稿，出版物发表

  - This process would enable researchers to update a paper as studies unfold

  研究人员继续更新内容

  - Subsequent versions could enhance the original findings while bolstering researchers' reputations.

  更新版可以帮助原著发现新内容，不影响作者声誉

- Evolving manuscripts would create more organic publications

变化的论文可以帮忙建更多更好的出版。

  - That enable researchers to theoretically write multiple versions of a paper that continuously progress over the time of their study, instead of having to start from scratch with every new manuscript

  研究人员可以写好几稿，可以不断修改，不用每次出新文章都要来一次。

Evolving Nature of the Scholarly Record 学术记录的性质变化

- University researchers are also leveraging social media to expand the reach of their work, establishing new partnerships and research methods.

利用社交网来扩展新的联合和研究方法

- A study of social media use in higher education featured in the journal Nature

自然杂志专题文章—《高等教育利用社交媒体》

  - a substantial percentage of scholars surveyed used sites such as ResearchGate,[61] Academia.edu,[62] and Twitter[63] to post content related to their work and to discover recommended papers 很多学者喜欢用ResearchGate等网站，
  - Explains: how an ecologist at the University of Hawaii at Hilo uses Academia.edu to gather metrics on how often, where, and when a particular paper was downloaded 夏威夷大学用 Academia.edu来收集材料.

- Experts argue that librarians must

专家提到图书馆员必须认识到用社交网在改变学术记录的性质内容

  - recognize how social media is changing the nature of scholarly record elements
  - develop plans to properly capture and preserve these activities 图书馆规划来正确扑捉和保存这些活动

Mid-term Impact 中期影响

- Increasingly focus on research data management 更加重视研究数据的管理

Research Data Management
研究数据管理

Data Curation

数据收藏

- "selection, preservation, maintenance, collecting and archiving of digital assets".

"选择，保存，维护，收集和归档数字资产"

- "the process of establishing and developing long term repositories of digital assets for current and future reference by researchers, scientists, historians, and scholars".

研究人员，科学家，历史学家和学者为当前和未来作参考建立和长期发展数字资产库。

(Ray, 2012)

Research Data Management(Cont.)
研究数据管理（续）

Cyberinfrastructure

网络基础设施

- Describing research environments that support advanced data acquisition, data storage, data management, data integration, data mining, etc.

描述研究环境，支持先进的数据采集，数据存储，数据管理，数据集成，数据挖掘等。

- Conveying the concept of a distributed yet integrated network

传递分散但为整合网络的概念

- Including the digital infrastructure and the critical role of digital curators in maintaining it

包含数字基础设施和数字收藏员的关键作用

- Including governance and policy

包含治理与政策

(Ray, 2012)

Research Data Management(Cont.)
研究数据管理（续）

The curation lifecycle

保存周期

- Preservation

保护

- Interoperability

互通性

- Encourage collaborations and partnerships, work together, establish consortia

鼓励合作和伙伴关系，携手合作，建立联盟

(Ray, 2012)

Research Data Management(Cont.)
研究数据管理（续）

- [CIRSS](#) (Center for Informatics Research in Science and Scholarship) at GSLIS
- 图情学员的CIRSS（科学学术信息研究中心）
- Core research areas of CIRSS：

CIRSS的核心研究领域

1. Digital collections and Curation

   数字储藏及存储

2. Digital Humanities

   数字人文学

3. E-Science

   电子科学

4. Socio-Technical Data Analytics

   社科数据研究

http://cirssweb.lis.illinois.edu/index.php

- **UIUC Library** 伊大图书馆

Elise Dunham

Data Curation Specialist, Research Data Service (RDS) 研究数据服务，研究数据管理专业人员

University of Illinois at Urbana-Champaign

Increasing Focus on Research Data Management 对研究数据的更多注重

- JISC's DISC-UK "DataShare" report
  - defines the act of data management as "that which is collected, observed, or created, for purposes of analyzing to produce original research results. Research data may be created in tabular, statistical, numeric, geospatial, image, multimedia or other formats"

  定义数据管理的行为："收集、观察、或创建，用于分析产生原始研究结果的目的。研究数据可以用表格、统计、数字、地理空间、图像、多媒体或其他格式来创建。

- As universities generate more data over time, libraries are well poised to be the managers and curators of this information.

  高校产生更多的数据，随着时间的推移图书馆也即将成为这一信息的管理者和策展人

- By digitally archiving the datasets from every publication they contain, tagging them with keywords, and making them searchable, library databases can uncover links and patterns between studies, revealing the full trajectory of an idea as it grows

图书馆通过对每一个他们拥有的出版物数字归档，标出关键词，可以搜索。这样图书馆数据库可以发现数据之间不同研究的关联和规律，揭示出思想发展的全部过程

  - Bibliometric tools such as Web of Science aid this process by quantifying the number of times a publication has been cited so that libraries can see the entire body of work that builds upon it.

    文献计量工具，如Web科学, 通过量化出版物的引用次数来帮助这个过程，让图书馆可以看到整体的研究工作是怎样建立起来的

Increasing Focus on Research Data Management对研究数据的更多注重

Libraries are not the only entities focused on data management; individual researchers must have substantial knowledge of this area.

图书馆不是唯一实体做数据管理，研究人员必须在这方面有丰富的知识

- "Evolving Nature of the Scholarly Record"学术记录的进化性
  - The formats of research and accompanying data are constantly expanding.
    研究格式和随附相伴的数据在不断扩大

- Libraries now have a responsibility to educate researchers 图书馆有责任培训研究人员
  - About how to select the proper medium to fit their findings
    关于如何选择合适的媒体来配合他们的发现
  - to ensure that what is submitted can be stored and published in their databases.
    确保提交的数据可以在数据库中存储和发布

- Cambridge University Library in the UK 英国剑桥大学
  - Researchers can choose different formats for their data, with an emphasis on long-term sustainability. 研究人员可以选择不同的数据格式，但强调要能长期保存

Increasing Focus on Research Data Management对研究数据的更多注重

Implications for Policy, Leadership, or Practice

- When storing and publishing vast amounts of research materials, it is key to establish a consistent protocol to handle all types of data through metadata frameworks.

在存储和发布大量的研究资料时，通过元数据框架建立一致的程序规定来处理全部类型的数据至关重要。

- This helps link together related resources and increases their discoverability.
    这样可以帮助链接相关的资源和增加他们被发现度
- Library leaders must strategize and build sustainable databases that can house enormous amounts of research materials in nearly any format.

    图书馆领导必须有战略考虑，建立可以持续的数据库，这个数据库可以收藏各种格式的海量研究资料

- An increasing number of institutions have established open access systems. 不少学校建了开放存取的系统
    - Harvard University 哈佛大学
        - Open policy mandates that all metadata in their catalog must be accessible under broad use licenses 开放政策要求全部元数据必须有广泛的授权可以获取
        - Board's role is to resolve any policy disputes concerning interpretation and application of data
        哈佛董事会起到调解任何政策方面有馆数据解释和运用方面的纠纷

Increasing Focus on Research Data Management对研究数据的更多注重

- Many academic libraries have their own processes for storing and publishing research data with the goal of aiding researchers each step of the way. 很多高校图书馆有自己的存储和出版等处理研究数据的程序，目的是希望每一步都能帮助研究人员的研究

- Stanford University Libraries 斯坦福大学图书馆
  - Data management services were established to assist researchers with the organization, management, and curation of research data to ensure its long-term preservation and accessibility.
  - They provide a data management planning tool as well as a repository for storing all research materials and metadata.

- University of Maryland Libraries 马里兰大学图书馆
  - Design digital data management and archival plans with researchers and help them compose official methodologies for any grants they are writing.
  - Librarians there are known for their technical expertise in areas including the optimization of taxonomies, citing data, and addressing any intellectual property issues.

Hathitrust Digital Library
HATHITRUST 数字图书馆

- In 2013, Hathitrust digitized

10,796,403 total volumes 总量

5,658,745 book titles 书

281,890 serial titles 期刊

3,778,741,050 pages 页

484 terabytes

128 miles 英里

8,772 tons 顿

3,450,939 volumes(~32% of total) in the public domain 册

Hathitrust 数据库课题项目

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• The Andrew W. Mellon Foundation has awarded a grant in the amount of $437,000 to the University of Illinois at Urbana-Champaign in partnership with Indiana University for an exciting new project in the HathiTrust Research Center.

安德鲁麦伦基金会奖励给伊利诺伊大学厄本那香槟分校和印第安纳大学$437,000，作为 HathiTrust 研究中心的全新合作项目的起始资金。

• The "Workset Creation for Scholarly Analysis: Prototyping Project" (WCSA) project will be directed by HTRC Co-director and GSLIS Associate Dean for Research J. Stephen Downie, GSLIS-affiliated faculty member and Professor of Library Administration Timothy Cole, and Beth Plale of Indiana University.

WCSA项目的负责人是 HTRC联合主管和 GSLIS 研究部副主任 J. 史蒂芬 道尼, 还有 GSLIS 教员和图书馆管理教授，蒂莫西科尔及印第安纳大学的贝斯普莱乐。

(Schmidt's email, August 27, 2013)
（施密特的邮件，2013年8月27）

Hathitrust Digital Library HathiTrust 数字图书馆联盟

- Partnership of major research institutions and libraries working to ensure that the cultural record is preserved and accessible long into the future. 学术图书馆的合作联盟：对文化资源的保存和长期的未来的获取

- More than 80 partners in HathiTrust 80多个成员

- Membership is open to institutions worldwide 成员对全球开放

-

http://www.hathitrust.org/about

Hathitrust 数据库课题项目

•Requirements for creating scholarly worksets are becoming increasingly sophisticated and complex, both as humanities scholarship has become more interdisciplinary and as it has become more digital.

人文类的跨学科交叉性和数字化使得建立学术工作站的要求变得愈加繁琐和复杂。

•Developing the ability to slice through the massive HathiTrust corpus and to construct the precise set of materials needed for a particular scholarly investigation will open exciting new opportunities for conducting research with digital content in the humanities and beyond.

研发HathiTrust数据库里庞大数据，如何为某个学科研究精准地提取所需的材料，这对人文学科及其他学科如何利用数字化内容做研究提供了激动人心的机会。

•Given the unprecedented size and scope of the HathiTrust corpus—in conjunction with the HTRC's unique computational access to copyrighted materials—this project will engage scholars in designing tools for exploring, locating, and analyzing content from the HathiTrust so they can conduct computational scholarship at scale, based on meaningful worksets.

利用HathiTrust前所未有的规模和范围, 与HTRC独特的电子化获取版权保护类的资料结合，这个项目将会吸引研究学者来设计探索、定位和分析HathiTrust内容的工具，从而在此基础上进一步推广电子化学术研究的规模。

• (Schmidt's email, August 27, 2013)

Libraries and Big Data 图书馆和大数据

- Webinar Description: Faculty in all disciplines are increasingly creating and/or incorporating big data into their research and institutions are creating repositories and other tools to manage it all. There are many challenges to effectively manage and curate this data—challenges that are both similar and different to managing document archives. Libraries can and are assuming a key role in making this information more useful, visible, and accessible, such as creating taxonomies, designing metadata schemes, and systematizing retrieval methods. Our panelists will talk about their experience with big data curation, best practices for research data management, and the tools used by libraries as they take on this evolving role.

- 网络研讨会大纲：各个领域的学者越来越多的创建和运用大数据在他们的研究中，科研机构也在创建储存库和其他的工具来管理数据。想有效的管理和储存这些数据面临着很多挑战 ---这些挑战与管理文件数据既相同又不同。图书管理员可以并且已经将信息变得更有用，视觉化，和可获取的，例如创建分类法，设计数据体质和提取信息系统化。嘉宾将分享他们对数据策展的经验，研究数据管理的最有效方法和图书管理员所使用的工具。

Life Cycle of Information with Undergraduates
本科生的信息生命周期

- Librarians play a unique role in teaching faculty, graduate students, and undergraduate students about the complete life cycle of information through educational programs geared to different disciplines and levels of student learning.

图书馆员在教学教师，研究生和本科生的完整信息生命周期通过教育方案面向不同学科和学生的学习水平发挥独特的作用。

- Undergraduates: Required to work collaboratively on a wiki or to write a blog for a class as the first steps in a writing or research assignment or even as the final product.

本科生：作为协作或研究作业或甚至于终结成果，要求在维基合作协作或写一篇博客

- Librarians: more involved with student-run journals find that working with undergraduate students as authors, editors, and publishers is an excellent way to teach about the economic, technological, and legal aspects of publishing, emphasizing the traditional life cycle of scholarly information. (ACRL, 2013)

图书馆员：更多地参与学生运营期刊，与作者，编辑和出版商的本科学生工作是教授出版学经济，技术和法律方面的一个很好的方式，强调学术信息的传统的生命周期。(ACRL, 2013)

- Publishing as Pedagogy: Undergraduate students are learning and becoming scholars and creators in this new economic and technological publishing environment (ACRL, 2013)

作为教育学发布：本科生在这个新的经济和技术的出版环境中学习，成为学者和创作者（ACRL，2013）

- The digital environment require a greater awareness on the part of information seekers, users, and creators of the conditions that underlie the specific information they are seeking and using (ACRL 2013)

数字环境需要信息搜索者，使用者和创造者对他们正在寻求和使用的基础条件有极大的认识（ACRL2013）

- Media and visual literacy are focused on undergraduates

本科生主要集中在媒体和视觉素养

- Ownership and rights issues

所有权和其他权利问题

Life Cycle of Information with Graduate Students
研究生的信息生命周期

- With graduate students writing their dissertations find opportunities when helping with the copyright questions that arise as the students use the journal articles that they previously published or wonder about reuse of figures from other works (ACRL, 2013)

研究生写论文时遇到版权问题，如学生使用他们以前出版的期刊文章，或想知道重用来自其他作品的数字（ACRL，2013年）

- Data literacy: Graduate students and faculty; centering on understanding how to find and evaluate data, the version of data being found and used, who is responsible for it, how to cite it, and the ethics of data procurement (ACRL, 2013)

数据素养：研究生和教师以了解如何发现和评估数据为中心，发现和使用的版本数据，谁负责，如何引用它，以及数据采购伦理（ACRL，2013）

- Data: quantitative results drawn from surveys or from scientific experimentation; text as scholars use layers of meta-analysis to seek trends and themes across huge corpuses of textual material; numerical results can now be visualized in dramatic ways

数据：从调查或科学实验得出的定量结果;学者使用荟萃分析层以寻求巨大的语料文本材料的趋势和主题;数值结果现在可以以戏剧性的方式可视化

- Ownership and rights issues

所有权和其他权利问题

Scholarly Commons Services @ Illinois
伊利诺伊的学术共享服务

- Starting in fall semester 2013, the Scholarly Commons has extended its hours of service to Monday-Friday from 11am-7pm

学术共享组织在2013秋季学期开始，已延长其服务时间周一至周五从上午11时至晚上7时

- Services: 服务内容： Copyright, Data Services, Digital Humanities, Digitization, Savvy Researcher, Scholarly Communication, Web & Computer Usability, Other Campus Services 版权所有，数据服务，数字人文，数字化，精明的研究员，学术交流，网络与计算机可用性，其他校园服务

- Resources: 资源：Experts, Training, Software, Hardware, Bookmarks, Other Campus Resources 专家介绍，培训，软件，硬件，书签，其他校园资源

- http://www.library.illinois.edu/sc/

Long-Term Impact 长期影响

- Increasing Accessing of Research Record提高研究内容的获取度

Increasing Accessibility of Research Content
提高研究内容的获取度

- Academic and research libraries are gradually embracing the movement toward openness, a concept that eliminating the financial and intellectual barriers in the library community

接受开放性运动 – 图书馆社群消除经济和智力障碍的一个理念

- Increasing number of major funding entities 更多提供重要课题经费单位的参与：
  - The National Science Foundation and National Institutes of Health
    美国科学基金和国家健康研究院
  - Guidelines to include more comprehensive dissemination plans for their data ,their outputs, expanding access to encompass all scientific outputs.
    指南规定出全面传播数据、研究成果、扩大获取全部科学成果等计划

- More opportunities for libraries to drive and engage in discussions about efficient ways to make access a priority for the long-term. 图书馆更多机会参与如何有效地让获取成为长期的一个重点

. Librarians have been focused on finding or creating more cost effective avenues to increase access to scholarly materials

图书馆员一直致力找到或创造更多省钱渠道来提高研究资料的获取

Increasing Accessibility of Research Content提高研究内容的获取度

- Leading initiatives have been established to support academic and research libraries in their missions to increase access to scholarly work. 支持图书馆提高学术资料获取的重要创举

- University of California, Davis and the California Digital Library 加州大学戴维斯分校及加州数字图书馆
  - poised to help define the future of open access to scholarship
    准备好为学术开发获取确定未来方向
  - "Pay It Forward: Investigating a Sustainable Model of Open Access Article Processing Charges for Large North American Research Institutions" 为北美大型研究机构的持续开放获取文章收费模式调研
    - year-long effort to study the implications of new funding models for scholarly works 一年多对新学术工作经费支持 的研究工作
    - the aim of creating a flexible financial model that will ensure open access APCs will continue to be more affordable than the current journal subscription model. 目的是开发灵活的经济模式来保证开放获取收费会比目前期刊订阅模式更价格低廉合理

Increasing Accessibility of Research Content提高研究内容的获取度

- Academic and research libraries are adapting to this trend by developing new resources and funding opportunities for researchers. 为研究人员提供新资源和经费机会

- Cornell University Library emphasizes open access scholarly publishing

  康奈尔大学强调开放获取的学术出版
    - Links to open access journals such as BioMed Central提供开放获取期刊，如生物医学中心
    - Links to open access repositories such as arXiv.org提供开放获取存储如arXiv.org

- The Colorado State University (CSU) Libraries allocated $45,000 to support

  科拉瑞都州立大学图书馆提供4万5000美金来支持开放获取研究和奖学金
    - Open Access Research and Scholarship Fund
        - Supports CSU authors in choosing appropriate open access venues for their work
          支持该校作者选择适合他们工作的开放获取渠道
        - Reduces total cost of publishing in open access journals
          减少开放获取期刊总体出版费用
        - Collects data to measure effectiveness and fiscal impacts of new models of support
          收集数据来评估新的支持模式的有效性和财政年的影响

Implications for Policy, Leadership, or Practice 政策、领导力及实践的蕴涵

- Established formal policies on the accessibility of research outputs. 正式政府政策
  - In the US美国, the "Increasing Access to the Results of Federally Funded Research Policy" memorandum directed heads of executive departments and agencies with over $100 million in annual extramural research and development budgets to make publications resulting from federally funded research freely available to the public within one year of publication. 联邦政府基金要求

Long-Term Impact 长期影响

- Rethink Library Space 图书馆空间再造

Rethinking Library Spaces and Skills of Librarians 重新定位图书馆空间和图书馆员的技能

- Students are relying less on libraries for accessing information, and more for finding a place to be productive. 图书馆成为学生创造工作的地方

- According to the 2015 Student Engagement Insights survey 调研
  - 77% of college students visit the library to study on their own 77%到图书馆去自习
  - only 51% go to use the online databases 51%到图书馆用数字资源

- Result: 结果
  - Institutional leaders reflect on how the design of library spaces can better facilitate the face-to-face interactions. 面对面的交流
  - Library staff are increasingly studying patron behavior to inform decisions for strategic plans and budgetary considerations. 研究用户行为来做战略规划和预算
  - A number of libraries are expanding to make room for active learning classrooms, media production studios, makerspaces, and other areas conducive to hands-on work. 主动学习教室，多媒体工作室，maker空间和其他实操工作的空间

- Changes reflect a trend: 变化反应了一种趋势
  - lead to the development of real-world skills and concrete applications for students to foster learning experiences in higher education. 图书馆发展学生现实世界的技能，营造学生高等教育的学习体验

Rethinking Library Spaces and Skills of Librarians 重造图书馆空间和图书馆员技能

- In the challenge "Rethinking the Roles and Skills of Librarians" 挑战
  - Librarians are expected to become more involved in facilitating innovative instructional and research methods. 协助创新的教学和研究方法开放
- Active learning spaces whose integration is one way of addressing this goal.

提供结合的主动学习空间
  - Student-centered workspaces 学生为中心的学习工作空间
    - Learners engage in discussion and problem solving
      学生参与讨论和解决问题
    - The educator acts as the facilitator of the activity 老师变成协助者，推动者
  - The University of Minnesota has pioneered one of the most well known active learning classroom (ALC) research initiatives. 密里苏达大学主动学习教室的研究穿件很有名

Challenges 挑战

Solvable Challenges: Those that we understand and know how to solve 可以解决的挑战： 我们明白也知道怎么处理

- *While libraries have always supported academic institutions, there is a mounting case that librarians should play a more critical role in the development of information literacy skills.*

虽然图书馆一直支持学校，在越来越多的情况下 图书馆员应发挥更重要的信息素养技能的作用。

- *Librarians are tasked with broadening their role in the co-design of curriculum and improving their instruction techniques to work alongside faculty toward the common goal of training students to be savvy digital researchers.*

图书馆工作人员的任务是扩大他们的作用，在共同设计的课程，提高他们的教学技术，跟教授们有共同的目标，那就是培养学生成为聪明的数字研究者。

Improving Digital Literacy 提高数字素养的发展

- *Lack of consensus on what comprises digital literacy is impeding many libraries from formulating adequate policies and programs that address the development of this competence for professional staff.*

缺乏共识，到底数字素养包含什么内容，阻碍许多图书馆制定适当的政策和方案来要求这种能力的发展是专业人员必须。

- *Discussions among leaders have included the idea of digital literacy as being fluent with a wide range of digital tools for varied educational purposes, or as an indicator of having the ability to critically evaluate resources available on the web.*

领导人之间的讨论包括数字素养的想法，跟其他数字工具一样，服务于不同的教育目的，或作为一个能力的指标，以审慎评估网络上找到的资源。

- *Supporting digital literacy will require programs that both address digital fluency training in librarians, along with the faculty and students they support on campus.* 支持数字素养将要求这方面的项目既解决数字图书馆员的数字流利培训，以及获得在校教师和学生的支持。

Competition form Alternative Avenues of Discovery竞争形式的替代途径的发现

- B*efore the rise of the Internet, libraries were widely perceived as the ultimate gateways to knowledge.*

 在互联网兴起之前，图书馆被广泛认为是知识的最终入口。

- *In the past two decades, as the Internet has expanded, so has the array of academic content made easily accessible to people.*

过去20年，网络提高了，高校图书馆内容的获取减少

- *This shift has not only impacted how people research, but also where they do it.*

这种转变不仅影响了人们怎么做研究，而且也影响了他们到哪里去做研究。

- *Emerging Internet technologies are fostering changes in patron behavior, challenging libraries to either adapt to the new expectations defined by current discovery practices or risk becoming obsolete over time*

新兴的互联网技术正在改变用户行为，挑战图书馆，要么适应发现实践所定的用户期望，或因风险随着时间的推移，图书馆变得过时

Difficult Challenges: Those that we understand but for which solutions are elusive
Rethinking the Roles and Skills of Librarians 难的挑战： 重新定位图书馆员 的角色和技能

- T*he influx of data and digital resources involved in learning and research is challenging the capabilities of libraries.* 学习和研究用到的大量数据和数字资 源对图书馆员的能力提出了挑战

- *It is no longer enough for librarians to manage the flow and organization of print materials 图书馆员不能就是帮忙管理纸质版材料的流程*

- *ALA reports that academic libraries are hiring professionals with experience in emerging 21st century skills such as data mining and web development.*

ALA报告： 21世纪高校图书馆员的技能含数据管理和网址发展

- *There is a clear hiring trend that emphasizes finding more functional specialists that have a strong digital or technology background. The challenge is in building capacity for these new specialized roles and providing sufficient training along the way. 有一个明确的招聘趋势：强调找到更多的功能性专业人才，有强大 的数字或技术背景。面临的挑战是在建设能力时，要为这些新专业化的角色 提供足够的培训。*

More Challenges 挑战

1. Development in network technologies 网络技术的发展

2. Scholarly communication 学术交流

3. National policy 国家政策

…

4. Budget decrease 预算减少
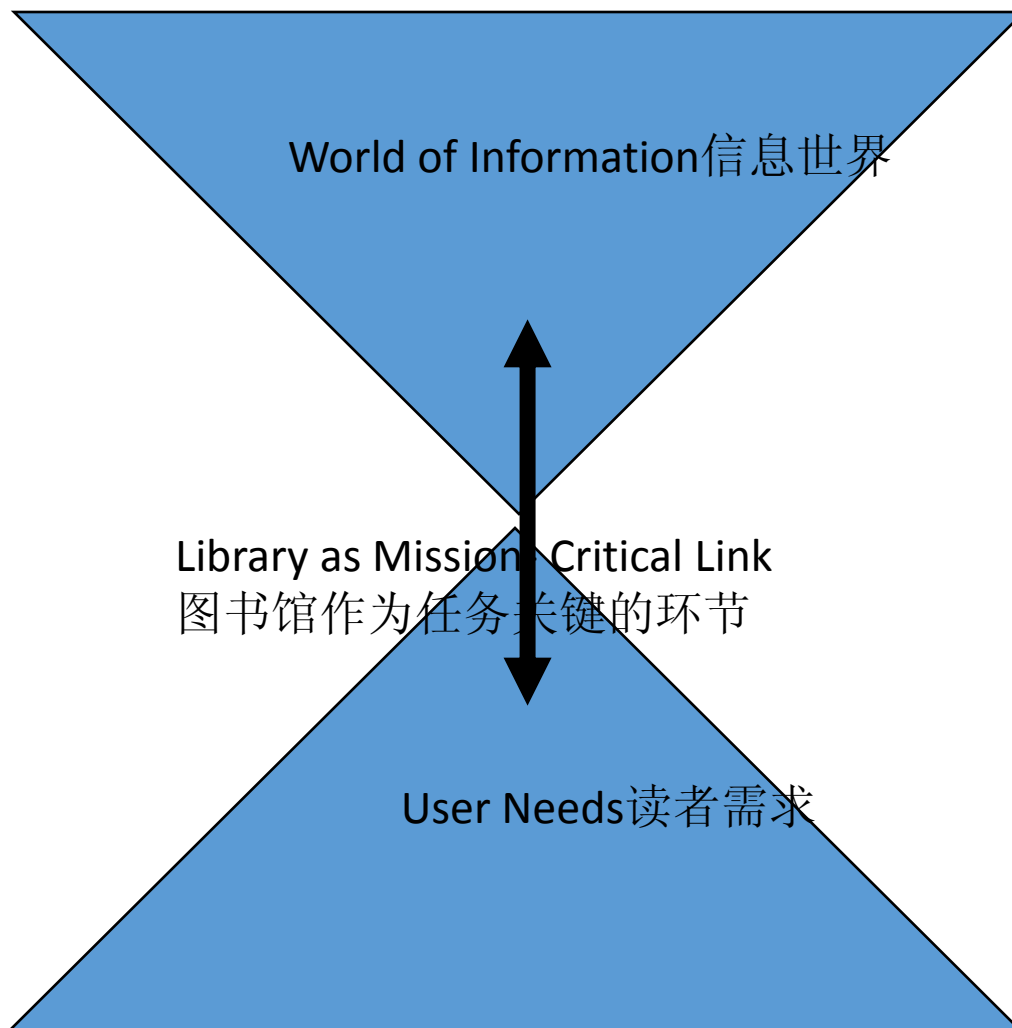
(Corrall, Kennan, & Afzal, 2013)

Solutions 解决方案

- Collaboration 合作
- Research data management 研究数据管理
- Redirect staff time away from the acquisition and management of printed materials to online resources.

重新调整图书馆员的时间，让他们远离印刷品而转向电子资源的采集

- Redirecting staff time away from the care and feeding of non-unique, replaceable materials and toward the development of unique collections.

重新分配工作人员的时间，让他们花更多时间在独特馆藏发展上

(ACRL; Corrall, Kennan, & Afzal, 2013; Anderson, 2008)

World of Information信息世界

Library as Mission Critical Link
图书馆作为任务关键的环节

User Needs读者需求

Value of Academic and Research Libraries
高校图书馆的价值

- Librarians attaching more importance than researchers to subject expertise, information literacy teaching, metadata management, and copyright advice.

图书馆员比研究员更重视学科专业知识，信息素养教学，以及数据管理和版权咨询

- Library's role in e-resource procurement
图书馆在电子资源采购中的独特作用

- Reference librarian in digital environment
电子数字环境下的参考咨询馆员

(Corrall, Kennan, & Afzal, 2013)

Librarians Facing Changes面对变化的图书馆员

"Resilience when faced with a changing environment is critical not only to survival but also to the growth and development of an organization. To achieve this, we need to be willing to practice and model innovation within our organizational structures" (ACRL, 2013)

在面临着不断变化的环境时，韧性是至关重要的。它不仅能保证生存，而且还能让组织的继续成长和发展。为了实现这一目标，我们需要并愿意在我们的组织结构中不断实践和创新模式。

Executive Summary   执行概要

Topics from NMC
地平线报告主题
the NMC Horizon Report

2015 Library Edition
2015年图书馆版

All of the trends listed here were explored for their implications for libraries in a series of online discussions that can be viewed at library.wiki.nmc.org/Trends
展开一系列动态对图书馆意味着什么的网上讨论

CHALLENGES

SOLVABLE
> Embedding Academic and Research Libraries in the Curriculum
> Improving Digital Literacy

DIFFICULT
> Competition from Alternative Avenues of Discovery
> Rethinking the Roles and Skills of Librarians

WICKED
> Embracing the Need for Radical Change
> Managing Knowledge Obsolescence

TRENDS

SHORT-TERM IMPACT
> Increasing Value of the User Experience
> Prioritization of Mobile Content and Delivery

MID-TERM IMPACT
> Evolving Nature of the Scholarly Record
> Increasing Focus on Research Data Management

LONG-TERM IMPACT
> Increasing Accessibility of Research Content
> Rethinking Library Spaces

2016   2017   2018   2019   2020

NEAR-TERM
1 year or less
> Makerspaces
> Online Learning

MID-TERM
2-3 years
> Information Visualization
> Semantic Web and Linked Data

FAR-TERM
4-5 years
> Location Intelligence
> Machine Learning

DEVELOPMENTS IN TECHNOLOGY

TRENDS, CHALLENGES, AND TECHNOLOGIES FOR LIBRARIES

Questions & Answers? 问答

Thank You! 谢谢！

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