

# arXiv MAB Annual Meeting

Oya Y. Rieger  
Associate University Librarian  
arXiv Program Director

September 2016



Cornell University  
Library

arXiv.org



1. *arXiv is the single most important research tool for my work*
2. *I sincerely wish academic journals could try to emulate the cleanness, convenience, and user-friendly nature of the arXiv.*
3. *arXiv is an amazing service which does a huge good and whose utility is underappreciated. Thank you for your good work!*
4. *I love arXiv. You're doing a hell of a service to many people!*
5. *I appreciate the quality control the arXiv moderators and realize that they do this "for free"*
6. *Arxiv is a great tool for disseminating research to the community. Thanks for all your work!*
7. *Thanks for the hard work of many people over the years. My work life would be very different without your efforts.*
8. *arXiv is so important in its current function, I don't want additional functionality to compromise the efficiency, stability, and financial security of the current model.*
9. *I think the arxiv is a wonderful service and the most important thing is that its current form is maintained.*
10. *The ArXiv is a valuable scientific resource, particularly for those without institutional subscriptions to the vast number of journals.*
11. *arXiv provides a unique service which is incredibly valuable. The focus should remain on quickly and freely disseminating information*
12. *I'm very glad arXiv exists. Thank you!!*
13. *arXiv is an incredible resource! Do not ruin it by making unnecessary changes.*
14. *I appreciate very much and thank for the invaluable services of arXiv.*
15. *I wouldn't be where I am without you guys. I am indebted to you all!*
16. *The arXiv is the obvious answer to "what is the best-preserved store of our most-certain knowledge?"*
17. *You folks provide an important service to those of us that do not have institutionally deep pockets, and I thank you.*
18. *I am very happy with the current form of the arXiv webpage, including its policies.*
19. *Thank you very much for your excellent service.*
20. *I appreciate the good work that keeps this vital resource available to the community.*
21. *This is a great service. Thank you and keep up the excellent work!*
22. *The arXiv was a revolution, and still is ...*
23. *Thanks and congratulations for an outstanding contribution to the scientific process!*
24. *I am not very satisfied, rather extremely satisfied. Do you remember before Google? It's sort of like that with the arxiv: so hard to get papers before publication.*
25. *Just want to say thanks for all your efforts. I'm an amateur physicist and use your site very frequently.*

3

[quotes from 2016 arXiv user survey](#)

## MAB Meeting Goals

- Introductions and arXiv Overview
- Beyond 2013-2017 Business Plan: Planning for Next Business Cycle
- Working lunch - Next-Gen arXiv
- MAB Executive Session
- Conclusions

4

open access to 1.2 million e-prints in Physics, Mathematics, Computer Science, Quantitative Biology, Quantitative Finance and Statistics

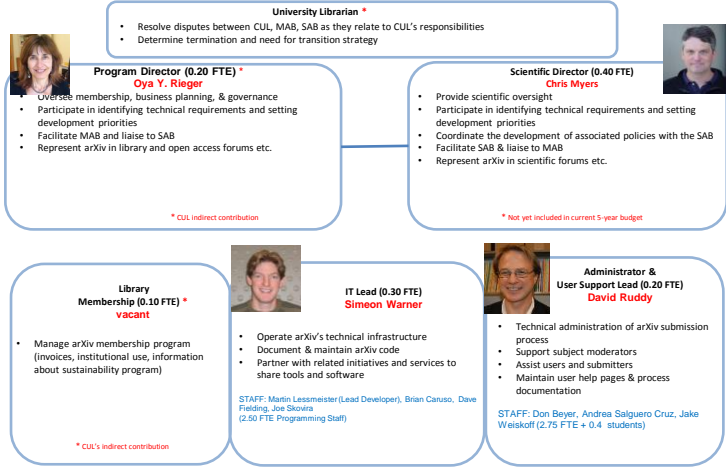


- 2012
  - 84,000 new submissions
  - 64 million downloads
- 2013
  - 92,500 new submissions
  - 67 million downloads
- 2014
  - 97,000 new submissions
  - 90 million downloads\*
- 2015
  - 105,000 new submissions
  - 139 million downloads\*

\* The numbers are sensitive to robot downloads and it is hard to remove all from our numbers so potential significant over-counting – we put less effort in cleaning up this data 2014 on. 5



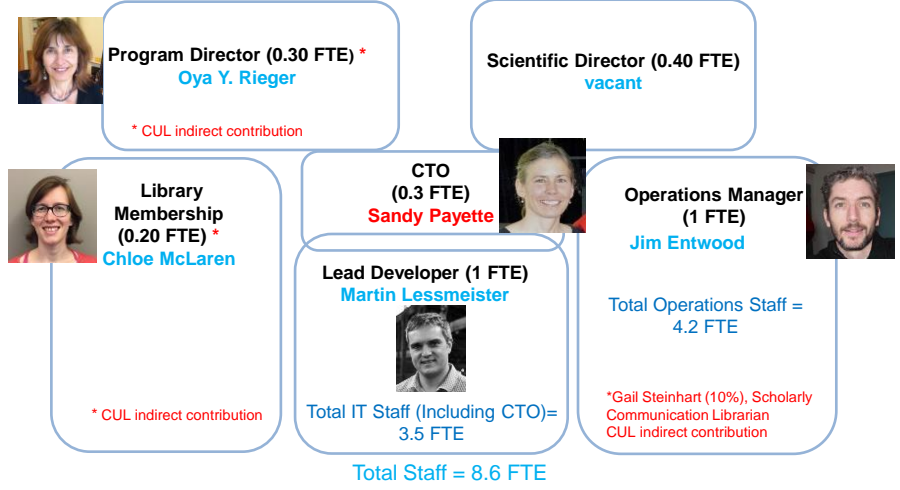
## arXiv Organizational Chart @ Cornell University Library



- 6.7 FTE library staff
- Paul Ginsparg
- ~150 moderators

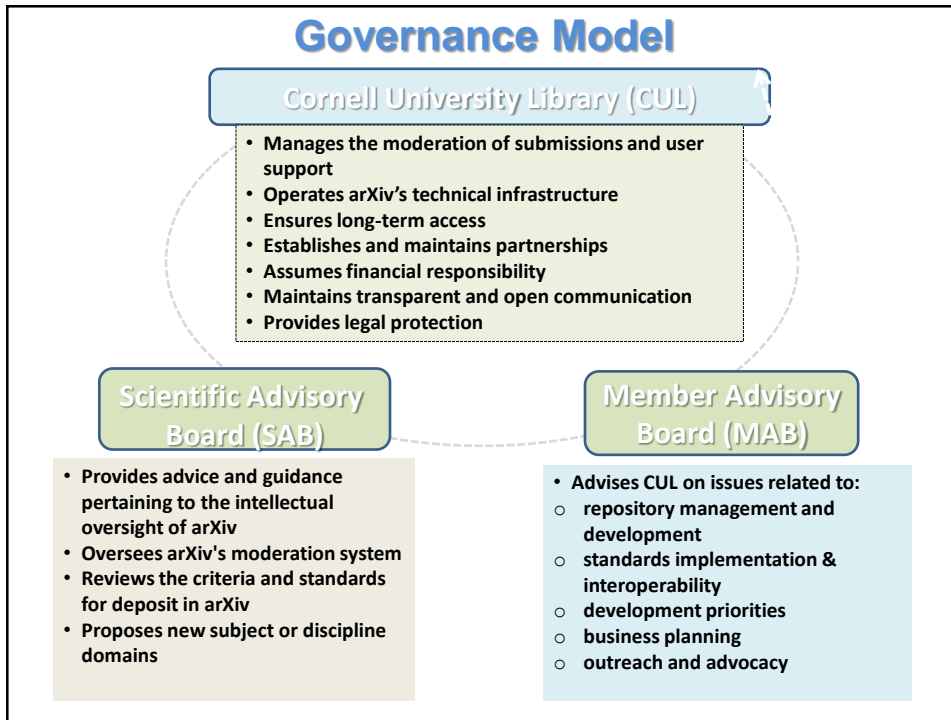
last year

## arXiv Organizational Chart @ Cornell University Library



Additional Contributors:  
Paul Ginsparg & ~150 moderators

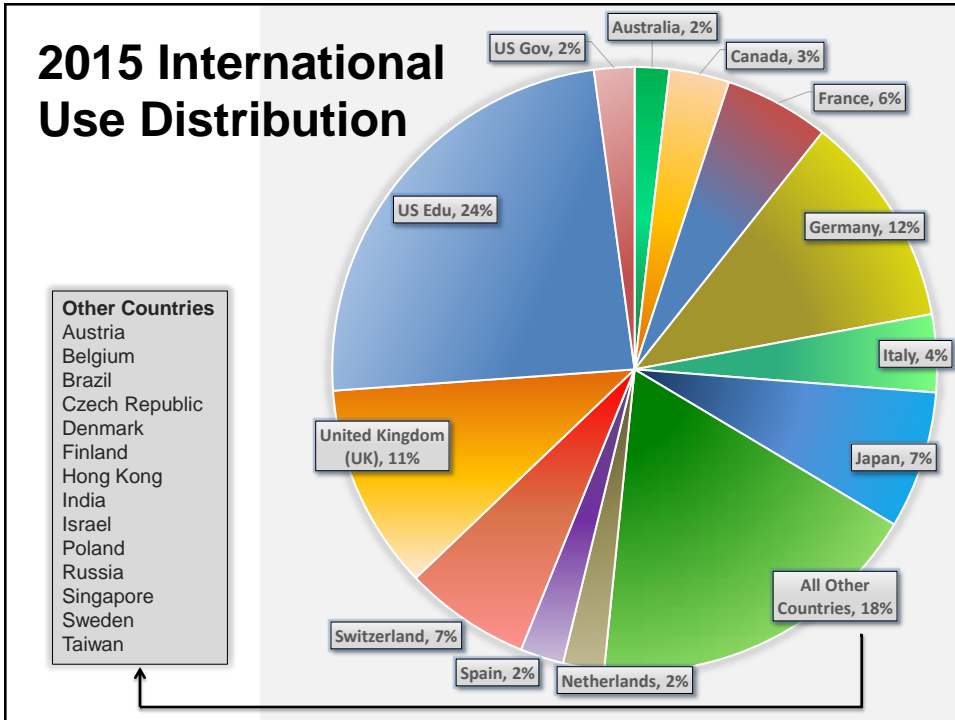
Plus indirect-related staffing, e.g., HR, Accounting



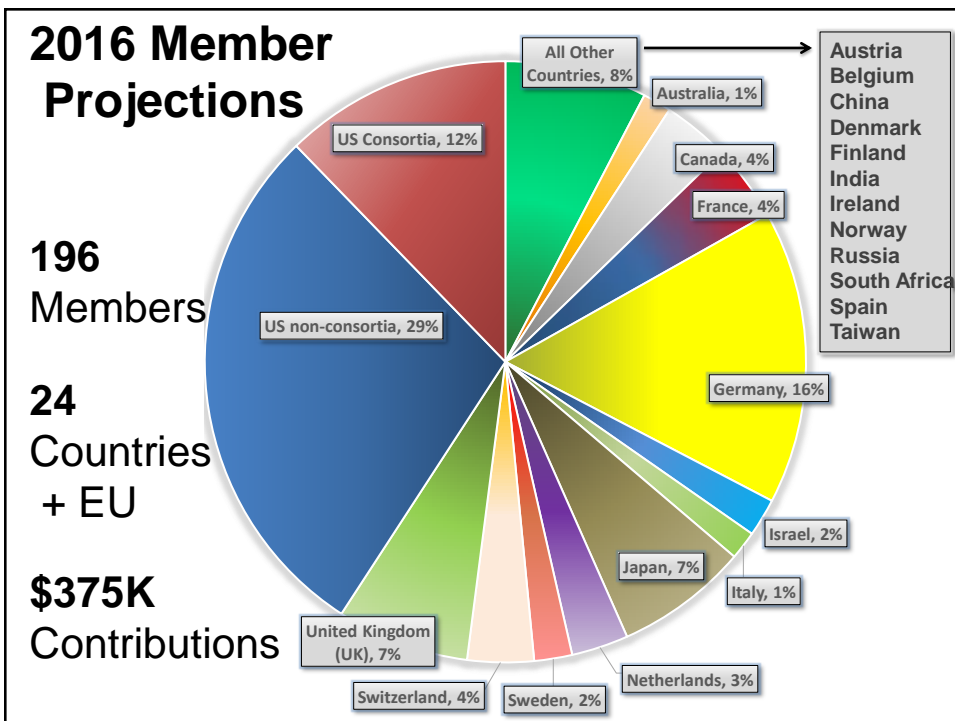
## Business Model, 2013-2017

- Cornell University Library
  - \$75,000 per year in support of operational costs
  - in-kind contribution of all indirect costs (37%)
- Simons Foundation
  - \$50,000 per year (increased to \$100,000 per year in 2016)
  - \$300,000 per year matching grant
- Member Institution
  - annual fees within \$1,500-3,000 range (based on usage ranking)

## 2015 International Use Distribution



## 2016 Member Projections



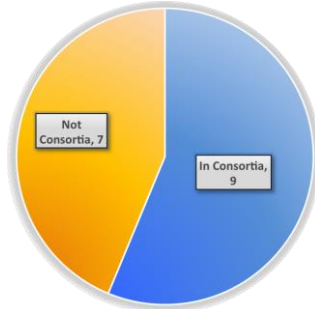
**196**  
Members

**24**  
Countries  
+ EU

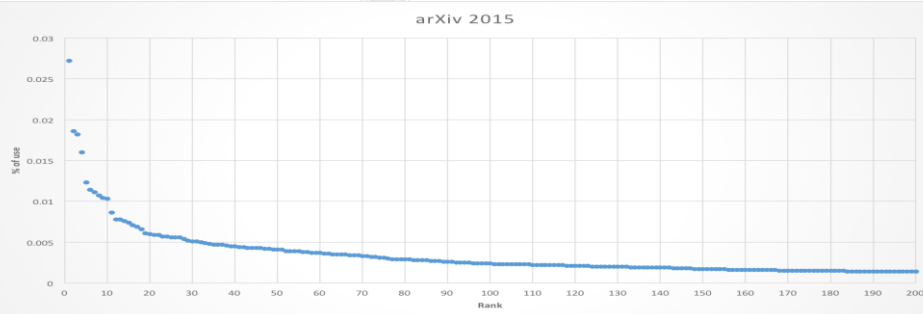
**\$375K**  
Contributions

# Platinum Campaign

16 invited  
13 YES



CERN
Max Planck
Univ. of Cambridge
Univ. of Tokyo
MIT
Berkeley Univ.
Princeton
University of Oxford
ETH Zurich
Kyoto Univ.
CalTech
Imperial College London
IN2P3
DESY
Harvard Univ.



**Donate to arXiv**

One hundred percent of your contribution will fund improvements and new initiatives to benefit arXiv's global scientific community. Please join the [Simons Foundation](#) and our [generous member organizations and research labs](#) in supporting arXiv.

[Donation FAQ](#)

This is a test server. The contents of this server may not reflect the true contents of arXiv.org. Submissions made to this server will not become part of arXiv.org

Open access to e-prints in [Physics](#), [Mathematics](#), [Computer Science](#), [Quantitative Biology](#), [Quantitative Finance and Statistics](#)

Subject search and browse: [Physics](#)

27 Jun 2016: [DONATE to arXiv](#): Help fund improvements and new initiatives that will benefit arXiv's global scientific community.  
 25 Jan 2016: A project update, including a brief summary of activities in 2015, has been posted  
 1 Jan 2016: New members join arXiv Scientific Advisory Board  
 See cumulative "What's New" pages. Read robots beware before attempting any automated download

**Physics**

- [Astrophysics \(astro-ph new, recent, find\)](#)  
includes: Astrophysics of Galaxies; Cosmology and Nongalactic Astrophysics; Earth and Planetary Astrophysics; High Energy Astrophysical Phenomena; Instrumentation and Methods for Astrophysics; Solar and Stellar Astrophysics
- [Condensed Matter \(cond-mat new, recent, find\)](#)  
includes: Disordered Systems and Neural Networks; Materials Science, Mesoscale and Nanoscale Physics; Other Condensed Matter; Quantum Gases; Soft Condensed Matter; Statistical Mechanics; Strongly Correlated Electrons; Superconductivity
- [General Relativity and Quantum Cosmology \(gr-qc new, recent, find\)](#)
- [High Energy Physics - Experiment \(hep-ex new, recent, find\)](#)
- [High Energy Physics - Lattice \(hep-lat new, recent, find\)](#)
- [High Energy Physics - Phenomenology \(hep-ph new, recent, find\)](#)
- [High Energy Physics - Theory \(hep-th new, recent, find\)](#)
- [Mathematical Physics \(math-ph new, recent, find\)](#)
- [Nonlinear Sciences \(nlin new, recent, find\)](#)  
includes: Adaptation and Self-Organizing Systems; Cellular Automata and Lattice Gases; Chaotic Dynamics; Exactly Solvable and Integrable Systems; Pattern Formation and Solitons
- [Nuclear Experiment \(nucl-ex new, recent, find\)](#)
- [Nuclear Theory \(nucl-th new, recent, find\)](#)
- [Physics \(physics new, recent, find\)](#)  
includes: Accelerator Physics; Atmospheric and Oceanic Physics; Atomic Physics; Atomic and Molecular Clusters; Biological Physics; Chemical Physics; Classical Physics; Computational Physics; Data Analysis, Statistics and Probability; Fluid Dynamics; General Physics; Geophysics; History and Philosophy of Physics; Instrumentation and Detectors; Medical Physics; Optics; Physics Education; Physics and Society; Plasma Physics; Popular Physics; Space Physics
- [Quantum Physics \(quant-ph new, recent, find\)](#)

**Mathematics**

- [Mathematics \(math new, recent, find\)](#)  
includes (see detailed description): Algebraic Geometry; Algebraic Topology; Analysis of PDEs; Category Theory; Classical Analysis and ODEs; Combinatorics; Commutative Algebra; Complex Variables; Differential Geometry; Dynamical Systems; Functional Analysis; General Mathematics; General Topology; Geometric Topology; Group Theory; History and Overview; Information Theory; K-Theory and Homology

DONATE

(secure file, no need to create account)

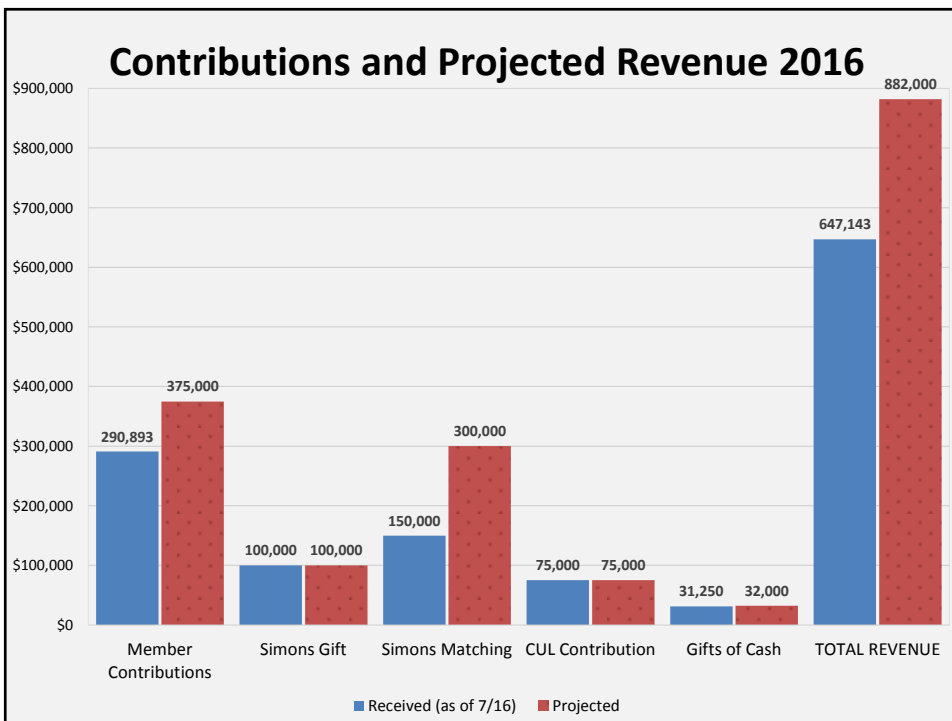
# Results of the Online Giving Campaign

480 donors gave \$30,675

Gift Amount	# Gifts	Amount Raised
\$0.83	1	\$0.83
\$5.00	45	\$225.00
\$7.00	1	\$7.00
\$10.00	114	\$1,140.00
\$15.00	11	\$165.00
\$20.00	82	\$1,640.00
\$24.00	1	\$24.00
\$25.00	29	\$725.00
\$30.00	20	\$600.00
\$35.00	2	\$70.00
\$40.00	4	\$160.00
\$50.00	79	\$3,950.00
\$60.00	1	\$60.00
\$75.00	2	\$150.00
\$100.00	74	\$7,400.00
\$101.00	1	\$101.00
\$108.00	1	\$108.00
\$200.00	5	\$1,000.00
\$250.00	1	\$250.00
\$400.00	1	\$400.00
\$500.00	1	\$500.00
\$1,000.00	3	\$3,000.00
\$4,000.00	1	\$4,000.00
\$5,000.00	1	\$5,000.00
<b>Total</b>	<b>481*</b>	<b>\$30,675.83</b>

Day	Date	# Donors	Amount Raised
Monday	27 June	67	\$6,415.00
Tuesday	28 June	99	\$6,035.00
Wednesday	29 June	73	\$2,957.00
Thursday	30 June	50	\$6,890.00
Friday	1 July	50	\$1,580.00
Saturday	2 July	27	\$965.00
Sunday	3 July	39	\$1,733.83
Monday	4 July	41	\$2,529.00
Tuesday	5 July	35	\$1,571.00
<b>Total</b>		<b>481*</b>	<b>\$30,675.83</b>

\*1 individual gave twice





## Projected Expenses from 2013-2017 Business Model

Expense <sup>2</sup>	Description	2013	2014	2015	2016	2017
<b>Staff</b>						
	User support (staff)	228,405	236,400 <span style="color: red;">▲</span>	244,680	295,453	305,795
	User support (student)	8,581 <span style="color: red;">▲</span>	8,500	9,192	9,514	9,847
	Programming & system maintenance	238,669	164,685	170,453	176,415	182,588
	Management & administration	61,835	64,000	66,240	68,558	70,958
	<i>Subtotal Staff Costs</i>	537,490	473,585	490,565	549,939	569,187
<b>Other Direct Costs</b>						
	Server costs <sup>3</sup>	41,700	43,160	44,670	46,235	47,855
	Network bandwidth & telephony	1,550	1,605	1,660	1,720	1,720
	Staff computers, software & supplies	1,865	1,930	2,000	2,070	2,140
	Preservation services	-	-	-	-	-
	Staff travel	8,280	8,570	8,870	9,180	9,500
	Advisory group travel support	20,700	21,425	22,175	22,950	23,755
	Consulting for business/governance					
	<i>Subtotal Other Direct Costs</i>	74,095	76,690	79,375	82,155 <span style="color: green;">▲</span>	84,970
	<b>Total Direct Costs</b>	611,585	550,275	569,940	632,094 <span style="color: green;">▲</span>	654,157
<b>Indirect Costs</b>						
	Facilities <sup>4</sup>	67,274	60,530	62,693	69,530	71,957
	Department administration & staff support <sup>5</sup>	159,012	143,072	148,184	164,344	170,081
	<i>Subtotal Indirect Costs</i>	226,286	203,602	210,878	233,875 <span style="color: green;">▲</span>	242,038
	<b>Total Expenses</b>	837,871	753,877 <span style="color: red;">▲</span>	780,817	865,969	896,195

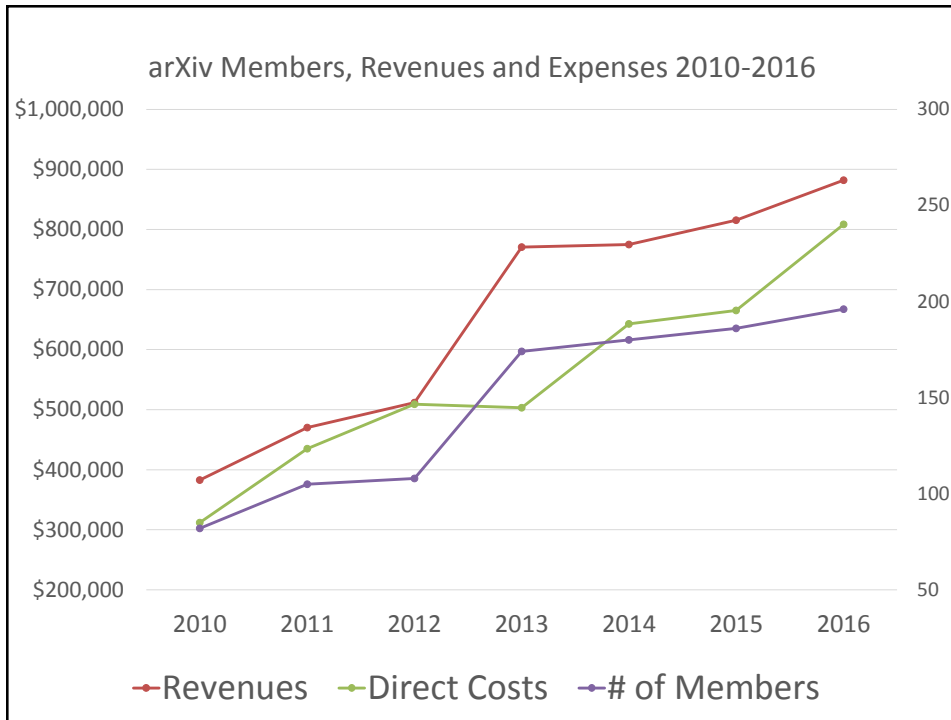
arXiv CY2016 MIDYEAR BUDGET				Projected Budget	Midpoint (August)
<b>REVENUE</b>					
	Member contributions			\$350,000	\$375,000
	Simons Foundation Annual Commitment			\$100,000	\$100,000
	Simons Foundation Matching Fund			\$300,000	\$300,000
	Cornell University Library (Direct)			\$75,000	\$75,000
	Gifts of Cash				\$32,000
	<b>TOTAL REVENUE</b>			<b>\$825,000</b>	<b>\$882,000</b>
<b>EXPENSES</b>					
	Personnel (including benefits) <sup>1</sup>				
	Program Director & Membership Coordinator	0.4 FTE	Considered Indirect Expense		
	Operations Manager	1 FTE			
	User support	2.5 FTE + 0.60FTE student			
	IT Lead, Programming, Systems, UX Specialist	2.3 FTE + Contract			
	Programming and Systems	1 FTE			
	Scientific Director	.4 FTE			
	Gen-ph moderator	Contract			
	User study & fundraising support	Contract			
				<i>Subtotal Personnel</i>	\$716,000
				<i>Funded by Development Reserves</i>	\$230,000
					\$193,386
	Non-Personnel				
	Servers (physical & virtual), hardware maintenance, storage and backup			\$44,000	\$41,338
	Network bandwidth and communication			\$1,000	\$1,000
	Staff computers, software, supplies and misc. expenses			\$3,000	\$3,500
	Meetings (SAB and MAB), Workshops, Conferences and staff conference travel			\$40,000	\$41,500
				<i>Subtotal Non-Personnel</i>	\$88,000
					\$87,338
	<b>TOTAL DIRECT EXPENSES</b>			<b>\$804,000</b>	<b>\$808,255</b>
	Indirect and Volunteer Costs				
	College and department administration, staff support (26% of direct costs) <sup>2</sup>			\$209,040	\$210,146
	Facilities (11% of direct costs) <sup>3</sup>			\$88,440	\$88,908
	arXiv moderation (130+ moderators, varying time commitments)			not tracked	not tracked
				<i>Subtotal Indirect Costs</i>	\$297,480
					\$299,055
	<b>TOTAL EXPENSES (direct + indirect)</b>			<b>\$1,101,480</b>	<b>\$1,107,310</b>
<b>RESERVES<sup>4</sup></b>				CY15 Final	CY16 Projected
	Operating Reserves			\$200,000	\$250,000
	Development Reserves			\$456,400	\$480,000

arXiv CY2017 BUDGET PROJECTION			
<b>REVENUE</b>			
Member contributions			\$375,000
Simons Foundation Annual Commitment			\$100,000
Simons Foundation Matching Fund			\$300,000
Cornell University Library (Direct)			\$75,000
Gifts			\$50,000
<b>TOTAL REVENUE</b>			<b>\$900,000</b>
<b>EXPENSES</b>			
Personnel (including benefits) <sup>1</sup>			Salary/Benefits
Program Director, Membership, Finance, Policy	0.3FTE Rieger, 0.2FTE McLaren, 0.1FTE Steinhart, 0.15FTE Bolduc		\$94,000
Scientific Director	0.4FTE		Considered CUL Indirect
Operations Manager & User Support	1FTE Entwood, 1FTE Weiskoff, 1FTE Salguero, 0.5FTE Goldweber, 0.6FTE students		
CIO, IT Lead, Programming, Systems, UX	0.3FTE Payette, 1FTE Lessmeister, 1FTE Caruso, 0.5FTE Fielding, 0.5FTE Perez, 0.20FTE Baker (CIC)		
Gen-ph moderator			
arXiv-NG & Fund Raising Support			
		<b>Subtotal Personnel</b>	<b>\$805,794</b>
		<b>Subtotal Personnel w/Indirect</b>	<b>\$900,164</b>
<b>Non-Personnel</b>			
Servers (physical & virtual), hardware maintenance, storage and backup			\$44,000
Staff computers, software, supplies, network, and misc. expenses			\$4,000
Meetings, workshops, training			\$40,000
		<b>Subtotal Non-Personnel</b>	<b>\$88,000</b>
<b>TOTAL DIRECT EXPENSES</b>			<b>\$893,794</b>
<b>Indirect and Volunteer Costs</b>			
College and department administration, staff support (26% of direct costs) <sup>2</sup>			\$232,386
Facilities (11% of direct costs) <sup>3</sup>			\$98,317
		<b>Subtotal Indirect Costs</b>	<b>\$330,704</b>
<b>TOTAL EXPENSES (direct + indirect)</b>			<b>\$1,224,498</b>

## Budget in a Nutshell

Description	2010	2011	2012	2013	2014	2015	2016	2017
Projected Costs	\$312,000	\$435,000	\$509,000	\$503,000	\$505,000	\$507,500	\$614,900	\$639,000
Additional Costs *	-	-	-	-	\$138,028	\$157,500	\$193,400	\$255,000
Total Direct Costs	\$312,000	\$435,000	\$509,000	\$503,000	\$643,000	\$665,000	\$808,300	\$894,000
Revenue	\$383,000	\$470,000	\$511,000	\$770,000	\$775,000	\$815,500	\$882,000	\$900,000
Operating Reserves				\$100,000	\$150,000	\$200,000	\$250,000	\$256,000
Development Reserves				\$277,000	\$360,000	\$456,300	\$480,000	\$480,000

Additional Costs: Some of the staff expenses in this category were not anticipated in the original 5-year business plan, including 1 FTE programmer, 0.4 FTE Scientific Director, 0.5 FTE user support, GenPh moderator, and project support for the 2016 development and fund raising initiative. For CY16, this amount is projected to be \$255,000. Per MAB/SAB board approval, additional staff costs will be drawn from the development reserves.



## Reserves - 2010-2016

### 1. Operating Reserves

- support the service’s transition to another institution
- provide a safety net when there is a revenue short-fall
- estimated total = \$250,000

### 2. Development Reserves

- support special projects & unforeseen expenses (e.g., Scientific Director position)
- estimated total = \$480,000

# MAB Subgroups: With Appreciation

## Fundraising for System Revamp

Subgroup Members: Tracy (chair), Steve, Carol, Jenny  
Charge: Identification of new revenues through the consideration of funding sources  
Deliverable: Annotated listing of various fund raising sources

## Fundraising Strategies for CY2016

Subgroup Members: Philip (chair), Esther, Karen, Tim, Molly  
Charge: Develop fundraising Strategies for CY2016 as Cornell starts the next membership drive in January'16.  
Deliverable: Platinum Membership Drive

## Technological Infrastructure & User Experience Review

Subgroup Members: Lucie (chair), Tommy, Eva  
Charge: Assessment of arXiv's technological infrastructure, interfaces, resources, and workflows.  
Deliverable: Selection of IT experts to be invited for the workshop

23

arXIV@25  
§  
Next-Gen arXiv

24

## MAB/SAB Survey:

*arXiv is struggling to keep up with the core mission and it is therefore essential to keep focused on maintaining and improving fundamental systems, functionality, moderation support, and user interaction before any new major initiatives are undertaken.*

25

As an open-access site, arXiv serves people like you all over the world and your opinion counts. Please complete [this questionnaire](#) to help us improve arXiv and think of future directions for the service in a way that best serves users like you. The survey has four sections, and will take about 10 minutes to complete. We do not collect any information that can identify you and we will share only a summary of the results. Thank you!

[Take our user survey](#)

Open access to 1,139,732 e-prints in Physics, Mathematics, Computer Science, Quantitative Biology, Quantitative Finance and Statistics

Subject search and browse:

6 Apr 2016: [Take the arXiv user survey](#)

25 Jan 2016: [A project update, including a brief summary of activities in 2015, has been posted](#)

1 Jan 2016: [New members join arXiv Scientific Advisory Board](#)

See cumulative "What's New" pages. Read [robots beware](#) before attempting any automated download

### Physics

- **Astrophysics (astro-ph new, recent, find)**  
includes: Astrophysics of Galaxies; Cosmology and Nongalactic Astrophysics; Earth and Planetary Astrophysics; High Energy Astrophysical Phenomena; Instrumentation and Methods for Astrophysics; Solar and Stellar Astrophysics
- **Condensed Matter (cond-mat new, recent, find)**  
includes: Disordered Systems and Neural Networks; Materials Science; Mesoscale and Nanoscale Physics; Other Condensed Matter; Quantum Gases; Soft Condensed Matter; Statistical Mechanics; Strongly Correlated Electrons; Superconductivity
- **General Relativity and Quantum Cosmology (gr-qc new, recent, find)**
- **High Energy Physics - Experiment (hep-ex new, recent, find)**
- **High Energy Physics - Lattice (hep-lat new, recent, find)**
- **High Energy Physics - Phenomenology (hep-ph new, recent, find)**

April 6-27, 2016

26

## Key Conclusions of the IT Workshop

**USERS:** arXiv is a production service, not a technology experiment.

**CODE BASE:** No single system can replace everything that arXiv does. The code base is 20+ years old - infrastructure is at risk.

**ARCHITECTURE:** Broad agreement that about pursuing a modular approach that builds on either an open-source stack or framework.

**PROCESS MATTERS:** Managing the transition and putting in place a sound project oversight is as critical as making the right technological choices.

**STAKEHOLDERS:** There needs to be a careful stakeholder analysis to understand use cases.

27

## Key Conclusions of User Survey

- Keep to the core mission & urge vigilance in making changes
- Improve the search function
- QC matters!
- Provide more information about moderation
- Link scholarly content
- Enable partners to build new services & innovate on top

28

## Going Well

- arXiv continues to be heavily used and praised as a reliable service
- Membership model works for covering base operating costs
- Governance model fosters transparency & accountability
- Team model is getting stronger
- arXiv@25 planning generated valuable information
- Registered some progress on fund raising:
  - Increase in annual revenue & plans for expanding membership
  - Simons Foundation grant continues (\$450K)
  - Funding proposal to Sloan Foundation for next-gen arXiv
  - Initial contact with the Moore Foundation – interest in funding
  - In-the-works: \$400K request from an IT think-tank
  - Interest in exploring Library-CIS collaboration
  - Several ongoing conversations for [partnerships](#)

29

## Needs Improvement

- Team building and communication
  - Setting & managing expectations
  - Vacant Scientific Director position
- Authority – further clarification of Paul G.'s embedded role
- Supporting maintenance & simultaneous development
  - scaling to new demands and modern tools
- Ramp up fund raising efforts
- arXiv@25: implementation plans

30

Cornell University Library

We gratefully acknowledge support from the Simons Foundation and Cornell University Library

arXiv.org > help

Search or Article-id (Help | Advanced search)

All papers - Go!

Help Table of Contents | Search arXiv Help

## arXiv Business Support and Governance Model

In January 2010, Cornell University Library (CUL) undertook a three-year planning effort to establish a long-term sustainable support model for arXiv, one that reduced arXiv's financial burden and dependence on a single institution and transitioned it to a collaboratively governed, community-supported resource. CUL identified institutions worldwide where the use of arXiv was most active and worked collaboratively with them to develop a membership and governance model based on voluntary institutional contributions. A formal long-term plan took effect in January 2013. In this new model, arXiv is supported by libraries and research laboratories worldwide that represent arXiv's heaviest users, as well as by CUL and generous matching funds from the Simons Foundation.

Please see the resources below for details about the arXiv support and governance model

**General Information**

- arXiv Membership Program - FAQ
- Principles
- Organizational Structure
- Additional Information

**arXiv Governance and Business Model**

- Principles
- Scientific Advisory Board
- Member Advisory Board
- Business Model
- For annual budgets, see [Additional Information](#)

**arXiv Supporters and Users**

- arXiv Five-Year Member Pledges
- arXiv Planning Phase Supporters: 2010, 2011, 2012
- arXiv Institutional Usage Statistics: 2009, 2010, 2011, 2012, 2013, 2014

<http://arxiv.org/help/support>

31

## arXiv Sustainability Initiative

Created by Oya Yildirim Rieger, last modified by Chloe McLaren on Sep 01, 2016

Search

**Questions?** Check out arXiv's sustainability initiative [FAQ](#) or email us at [support@arxiv.org](mailto:support@arxiv.org)

Governance & Business Model	arXiv Members
<ul style="list-style-type: none"> <li>• <a href="#">Principles and Business Model</a></li> <li>• <a href="#">arXiv Organizational Structure</a></li> <li>• <a href="#">MAB   Bylaws</a></li> <li>• <a href="#">SAB   Bylaws</a></li> <li>• <a href="#">arXiv budget (2015)</a></li> <li>• <a href="#">arXiv budget (2016)</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">arXiv Member Institutions</a></li> <li>• <a href="#">arXiv Institutional Statistics (2015)</a></li> <li>• <a href="#">arXiv MAB Work Space</a></li> <li>• <a href="#">arXiv@25 Review Strategy</a></li> <li>• <a href="#">arXiv User Survey Report</a></li> </ul>

Join the mailing list to receive annual support updates!  
[arXiv-support-updates-l-request@cornell.edu](mailto:arXiv-support-updates-l-request@cornell.edu)  
 Leave the subject line blank  
 Body of the message: join

<https://confluence.cornell.edu/x/xKSTBw>



## Executive Session

- What are the strengths of the current arXiv governance and membership model? What is working well?
- What are the areas for improvement? How should the Cornell team strengthen the operation from technical, policy, user support, fund raising, and communication perspectives?
- Do you find your role as an MAB member fulfilling? Has Cornell set the right expectations? What are the other ways MAB could be involved in advising the Cornell team?
- Any other input/suggestions you may want to relay to us.

33