Demonstrating Library's New Values in the Research Workflow at HKUST

Pacific Rim Research Libraries Alliance (PRRLA) 2017 Annual Meeting, Zhejiang University, Hangzhou, China. October 17 – 20, 2017

香港科技大學圖書館
The Hong Kong University of
Science and Technology Library

Mr. Kevin Ho, *Reference Librarian*
Ms. Diana Chan, *University Librarian*

Outlines

- **Research Workflow and Library Support in a Changing Landscape**

- **Research Support at HKUST**
  - ➢ Institutional Repository
  - ➢ Scholarly Publications Database
  - ➢ Research Assessment Exercise (RAE)
  - ➢ SPD Metadata Cleansing Exercise

- **Final Thoughts and Recommendation**

HKUST At a Glance

Background

- **Established**: **1991**
- **Mission**: to advance learning and knowledge through teaching and research
- **Vision**: to be a leading university with significant international impact and strong local commitment
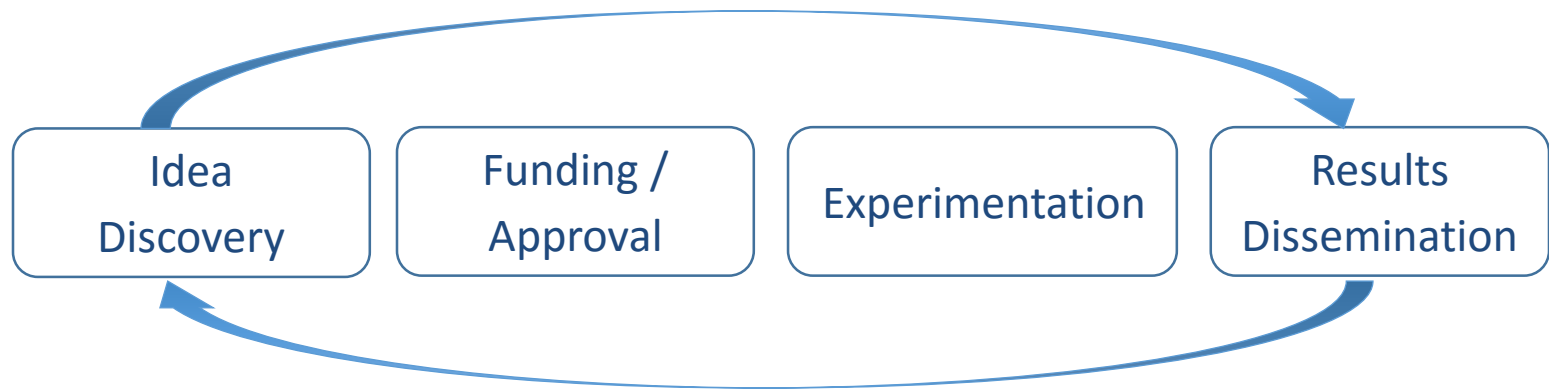
Faculty & Student

- Faculty (as of Jun 2017): **641 faculty member** (regular)
- Undergraduate: **9,334**
- Postgraduate: **4,874**

Schools and Research

- **4 Schools** (business, engineering, science, social sciences and humanities)
- **969 sponsored projects** (2015-2016)

Research Workflow and Library Support

Idea Discovery → Funding / Approval → Experimentation → Results Dissemination

Library Support Across the Research Cycle

Idea Discovery

Access to information, journal, etc (collection development)

Develop information skill (workshops and seminars)

Research Consultation

Funding

Prepare grant proposal (incl. data management plan)

Advise on funding and open access (OA) requirements

Experimentation

Provide virtual research environment (VRE) tools and services

Dissemination

Select journal / Identify OA journals

Provide advice and support on copyright

Track research impact (assessment)

Promotion

Preservation

(Adapted and modified from RIN, 2010)

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What do Researchers Think?

In 2009, OCLC and Research Information Network (RIN) initiated an investigation about tools and services used/desired by researchers in higher education institutions in U.S and U.K

These are the specific areas that covered in the study:

- Learning about grant funding opportunities
- Managing intellectual property and exploiting commercial value
- **Finding potential collaborators and making themselves visible to others**
- **Management and storage of documents and data sets**
- Analysis of large text and data files
- Improving information retrieval and management skills
- Managing literature citations
- Choosing where to publish or alternative forms of dissemination
- **Support for promotion and tenure**
- Professional standing
- **Managing pre-prints, publications and post-prints**

(source: Kroll, S. & Forsman, R, 2010)

Research Support at HKUST – Institutional Repository (IR)

Background

- Established in 2003; run on DSpace
- Covers: journal articles, conference papers, theses, book chapters, patents, pre-prints, post-prints, presentations, research reports, working papers, data, etc
- All documents deposited are in **Open Access**
- **OpenURL link resolver** (Find@HKUST) to discover published version of the document
- Web service **API** to retrieve **citation counts** from Scopus and Web of Science in real time
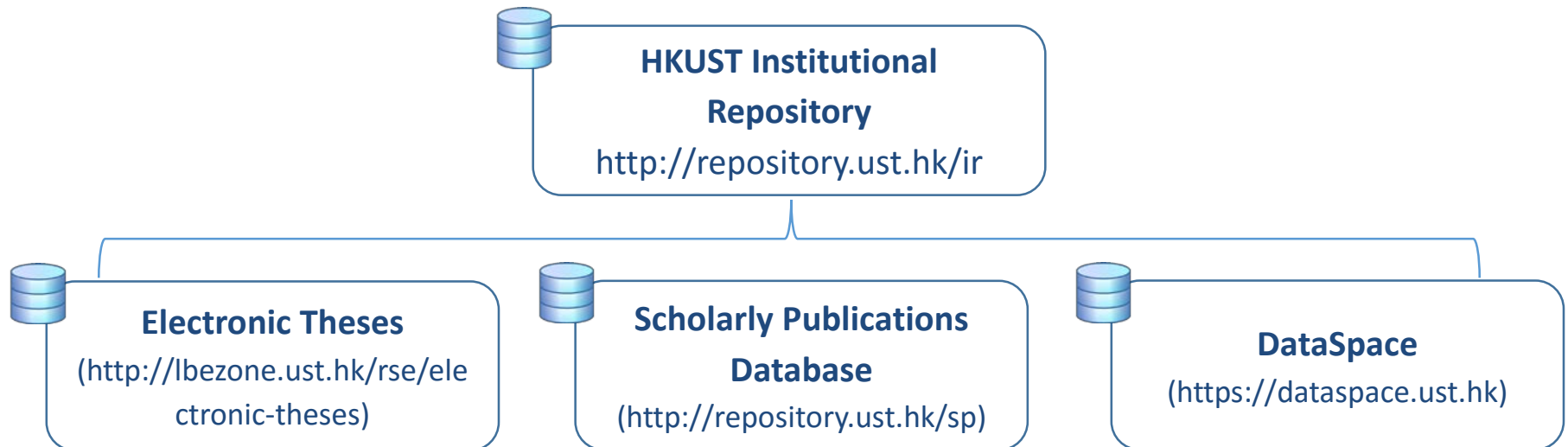
Limitations and Challenges

- No University IR mandate
- OA documents only; covers a small subset of the total output of the University

Research Support at HKUST – Scholarly Publications Database (SPD)

Background

- Started in 2007; **HKUST Scholarly Publications Index**
- In 2009 – initiated a joint knowledge harvesting project with the research office (VPRGO) to build **HKUST Scholarly Publications Database (includes publication index and scholar profiles)**

HKUST Institutional Repository
http://repository.ust.hk/ir

Electronic Theses
(http://lbezone.ust.hk/rse/electronic-theses)

Scholarly Publications Database
(http://repository.ust.hk/sp)

DataSpace
(https://dataspace.ust.hk)

SPD Feature Highlights & Technology

Publication Index

- Interlinking between publications and profiles

- Citation counts

- Full-text via DOI, Scopus, WOS, OpenURL, HKUST IR (OA only)

Scholar Profile

- Showcase: publications, bibliometrics, research interests & research projects

- Author identifiers

- Co-authorship graph

- ORCID integration

Technology

- Open source software (DSpace, VuFind, etc) + in-house development

- SPD API – for searching, deep linking and data harvesting

- Support OAI-PMH (Open Archives Initiative Protocol for Metadata Harvesting)

- Automation (in-house) tools for batch processing and data input via CMS (content management system)

Sample Scholar Profile

» Director, Center for Display Research (CDR), Dept of Electronic & Computer Engineering
» Director, State Key Laboratory on Advanced Displays and Optoelectronics Technologies (ADT), Dept of Electronic & Computer Engineering
» Dr William M W Mong Chair Professor of Nanotechnology, Dept of Electronic & Computer Engineering
» Chair Professor, Dept of Electronic & Computer Engineering

Telephone:　Email:
Homepage:
Scopus: 36071953500　Google Scholar: t3mcfk0AAAAJ　ORCID: 0000-0002-2820-9530

✎ Edit my profile
Update my ORCID record

✕ Co-authorship graph

Author identifiers and links

- ORCID iD
- Scopus Author ID
- WOS Researcher ID
- Google Scholar ID
- Co-authorship graph

Integration with ORCID iD

Publications | Bibliometrics | Research Interests | Projects

Summary

	Total	Conference paper	Article	Patent	Book chapter	Book
All publications	1251	595	572	75	5	4
HKUST affiliated	1112	548	482	75	3	4

Limit to

Format:
Any format ▼

Affiliation:
⦿ All
○ HKUST Only
○ Non-HKUST

Year of Publication:
From: ____ To: ____

Sort by:

Publication List
Showing 1 - 20 of 1251 (0 seconds)

Export 0 items: (☐ Export all) to: ⦿ Email ○ CSV ○ Refworks ○ ORCID   Go

1　2　3　4　5　6　7　8　9　10　11　Next »　[63]

Article

☐ Photoinduced Micropattern Alignment of Semiconductor Nanorods with Polarized Emission in a Liquid Crystal Polymer Matrix
Author(s): Schneider, Julian ; Zhang, Wanlong 👤 ; Srivastava, Abhishek Kumar 👤 ; Chigrinov, Vladimir G. 👤 ; Kwok, Hoi Sing 👤 ;
Rogach, Andrey L.
Source: Nano Letters, v. 17, (5), May 2017, p. 3133-3138
Article, 2017

Sample Scholar Profile
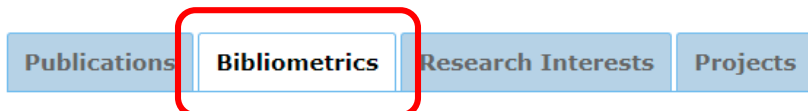
- **Bibliometrics from WOS and Scopus**
- **Links to external bibliometrics**

| Publications	**Bibliometrics**	Research Interests	Projects

Number of documents indexed in this database is **1251**.

» **827** documents are found in Scopus. They are cited **18786** times by documents in Scopus. The h-index is **66**.

» **686** documents are found in Web of Science. They are cited **17346** times by documents in Web of Science. The h-index is **65**.

View bibliometrics on Scopus: ID: 36071953500
View bibliometrics on Google Scholar Citations: t3mcfk0AAAAJ [Citations: **24397**, h-index: **76**, i10-index: **379**]
View bibliometrics on ResearcherID:

Publications	Bibliometrics	**Research Interests**	Projects
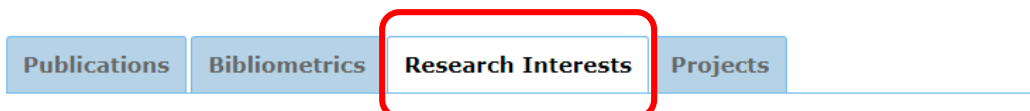
Research Interests

» Display technologies

» Thin film materials

» Organic light emitting devices

Publications	Bibliometrics	Research Interests	**Projects**

Active Projects as Principal Investigator

- Coatable thin film polarizers by photoalignment for electronic displays
- PSKL on advanced displays and optoelectronic technologies
- Partner State Key Laboratory on Advanced Displays and Optoelectronic Technologies

Active Projects as Co-investigator

- Institute of Molecular Functional Materials

- **List of active research projects, as Principal Investigator and Co-Investigator**

Co-authorship Graph
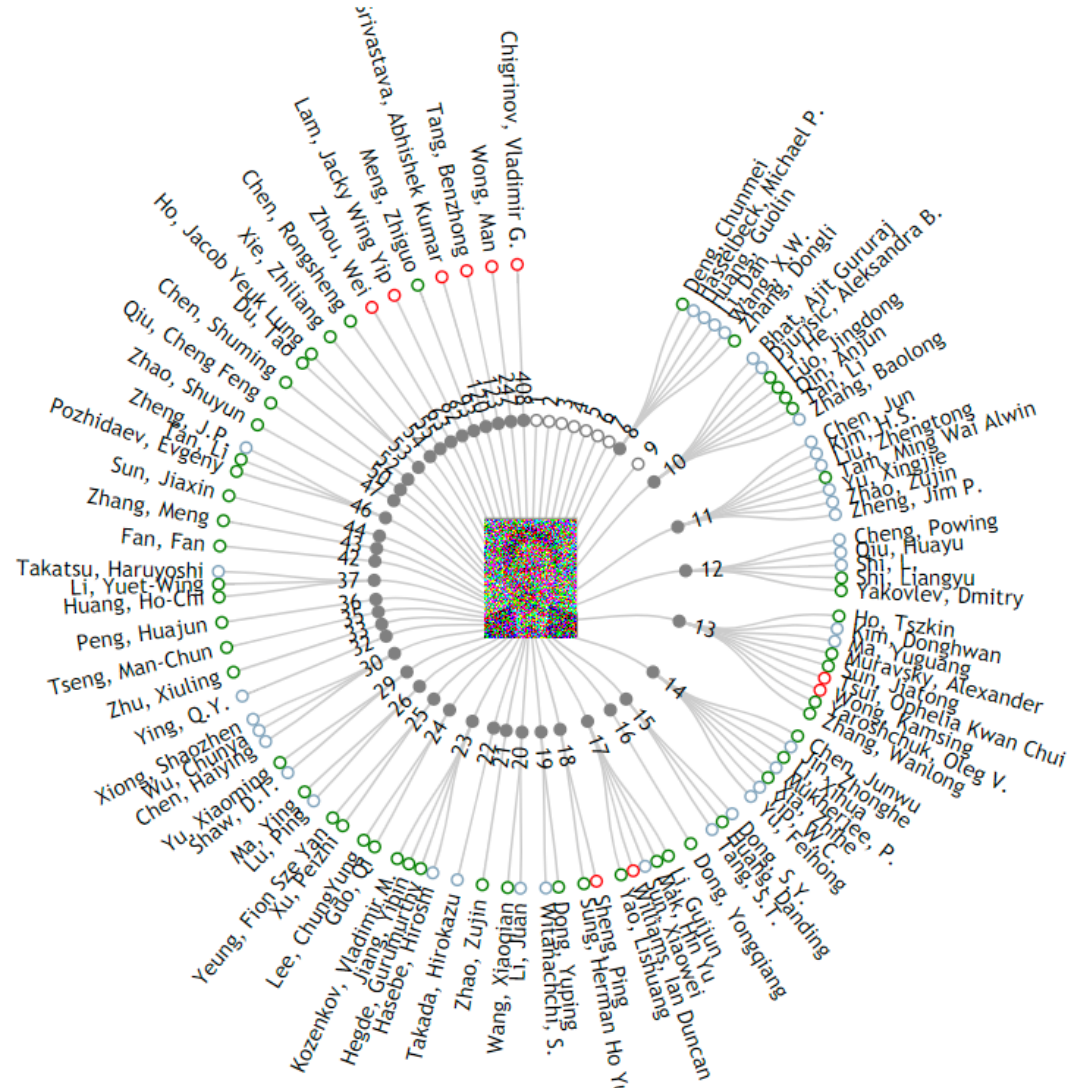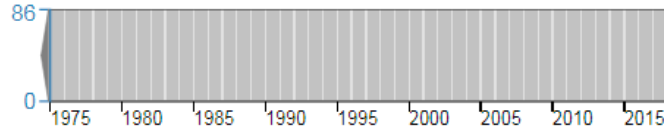
- A collaboration between CSE (HKUST VisLab) and Library

- An interactive interface visualizes the collaboration network of researcher

- User can tune the display by filtering the publication year or co-author node

Sample SPD Record

Cited By Counts

55 WoS
58 Scopus

Online Attention

19

See more details

Blogged by **2**
Tweeted by **8**
On **3** Facebook pages

151 readers on Mendeley
1 readers on CiteULike

Similar Items

A repository of assays to quantify 10,000 human proteins by SWATH-MS
Author(s): Rosenberger, George; Koh, Ching Chiek; Guo, Tiannan ...
2014

A Hybrid Retention Time Alignment Algorithm for SWATH-MS Data
Author(s): Wu, Long, Amon, Sabine; Lam, Henry H N

Building high-quality assay libraries for targeted analysis of SWATH MS data

Authors	Schubert, Olga T.
	Gillet, Ludovic C.
	Collins, Ben C.
	Navarro, Pedro
	Rosenberger, George
	Wolski, Witold E.
	Lam, Henry H N
	Amodei, Dario
	Mallick, Parag
	MacLean, Brendan
	Aebersold, Ruedi
Issue Date	2015
Source	Nature Protocols , v. 10, (3), March 2015
Summary	Targeted proteomics by selected/multiple reaction monitoring or, in the case of SWATH MS, by data-independent acquisition window acquisition of all theoretical spectra peptide identification. Quality and coverage of the methods. Here we present a detailed reference libraries supporting targeted ... data acquisition by discovery proteomics, assertion of peptide-spectrum matches (PSMs), generation of consensus spectra and compilation of MS coordinates that uniquely define each targeted peptide. Crucial steps such as false discovery rate (FDR) control, retention time normalization and handling of post-translationally modified peptides are detailed. Finally, we show how to use the library to extract SWATH data with the open-source software Skyline. The protocol takes 2-3 d to complete, depending on the extent of the library and the computational resources available.
Language	English
Format	Article
Access	View full-text via DOI
	View full-text via Web of Science
	View full-text via Scopus
	Find HKUST
	Files in this item:

File			
PhysRevE.90.042504.pdf	Published version	4053566 B	Adobe PDF

- This author has a profile

- Citation Counts (Bibliometrics)
- Online Attention (Altmetrics)
- Similar items (recommendations)

- View full-text vai DOI, WOS and Scopus
- OpenURL link resolver to HKUST subscribed resources
- View the "open access" version

Integration with ORCID

Publication List
Showing **1 - 20** of **1251** (0 seconds)
Export **0** items: (☐ Export all) to: ● Email ○ CSV ○ Refworks ○ ORCID Go

1 2 3 4 5 6 7 8 9 10 11 Next » [63]

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Source: Nano Letters, v. 17, (5), May 201...
Article, 2017

☑ A Fast 2D-3D Switchable Display Using a
Author(s): Shi, Liangyu 👤 ; Srivastava, A
Source: SID Symposium Digest of Techn
Conference paper, 2016

☐ Ultra-Thin High-Dichroic-Ratio Polarizer
Author(s): Pan, Su 👤 ; Ho, Jacob Y.L. 👤
Conference paper, 2016

☐ Low-voltage Driving Liquid Crystal Lens
Author(s): Zhao, Chenxiang 👤 ; Fan, Fa
Source: SID International Symposium Dig
Conference paper, 2016

Search 🔍 ⚙️ **English** ▾

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ORCID ID
🆔 orcid.org/0000-0002-2820-9530

🖨 Print view ❓

Also known as

Country
Hong Kong SAR China

Keywords
Display technologies, Thin film materials, Organic light emitting devices

˅ Education (1)   ↕ Sort

Harvard University: Cambridge, MA, United States
1973-09-01 to 1978-08-01 | PhD
Source: | Created: 2016-11-07

˅ Works (1175)   ↕ Sort

A Fast 2D-3D Switchable Display Using a Polymeric Lenticular Lens Array and an Electrically Suppressed Ferroelectric Liquid Crystal
The Society for Information Display, San Franscisco
2016 | conference-paper
DOI: 10.1002/sdtp.10808
HANDLE: 1783.1/80074
URL: http://hdl.handle.net/1783.1/80074
Source: Hong Kong University of Science and Technology   ☑ Preferred source

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Value of IR and SPD to the Library

Support the "Dissemination Stage" of researcher cycle

- ...making themselves visible to others (promotion)
- Management and storage of documents and data sets (preservation)
- Managing pre-prints, publications and post-prints (preservation)
- Support for promotion and tenure (assessment)

Adoption by the University

- University Website (homepage) – faculty/research and publication directory
- Embed in departmental websites (e.g. CBME)
- Infrastructure to serve research output data for use by other systems
  - research output reporting system
  - faculty analytics (merit review)
- Publication of faculty profiles (print & electronic)
- **UGC Research Assessment Exercise (RAE) 2014 & 2020**

- Demonstrate library's value and librarians' expertise in supporting research
- Increase library's visibility among university and researchers

Research Assessment Exercise (RAE) 2014 - Overview

Background

- The University Grants Committee of Hong Kong (UGC) – advises the Government on **funding needs** of all **8 higher education institutions** in Hong Kong

- Conducted 5 RAEs in 1993, 1996, 1999, 2006 and 2014; the results of RAEs linked to future university funding

- 3 dimensions*: (i) **Research Output (RO)** – 80% of total rating;
  (ii) Research Grants and (iii) Esteem Measure

- Unlike previous assessment exercises, RAE 2014
  - Changed from paper submission to **electronic submission**
  - Required **a file storage** to seamless access to the documents by local and overseas reviewers
  - Required a robust electronic system and a new submission **workflow**

(*source: University Grant Committee, 2013)

Research Assessment Exercise (RAE) 2014 - Challenges

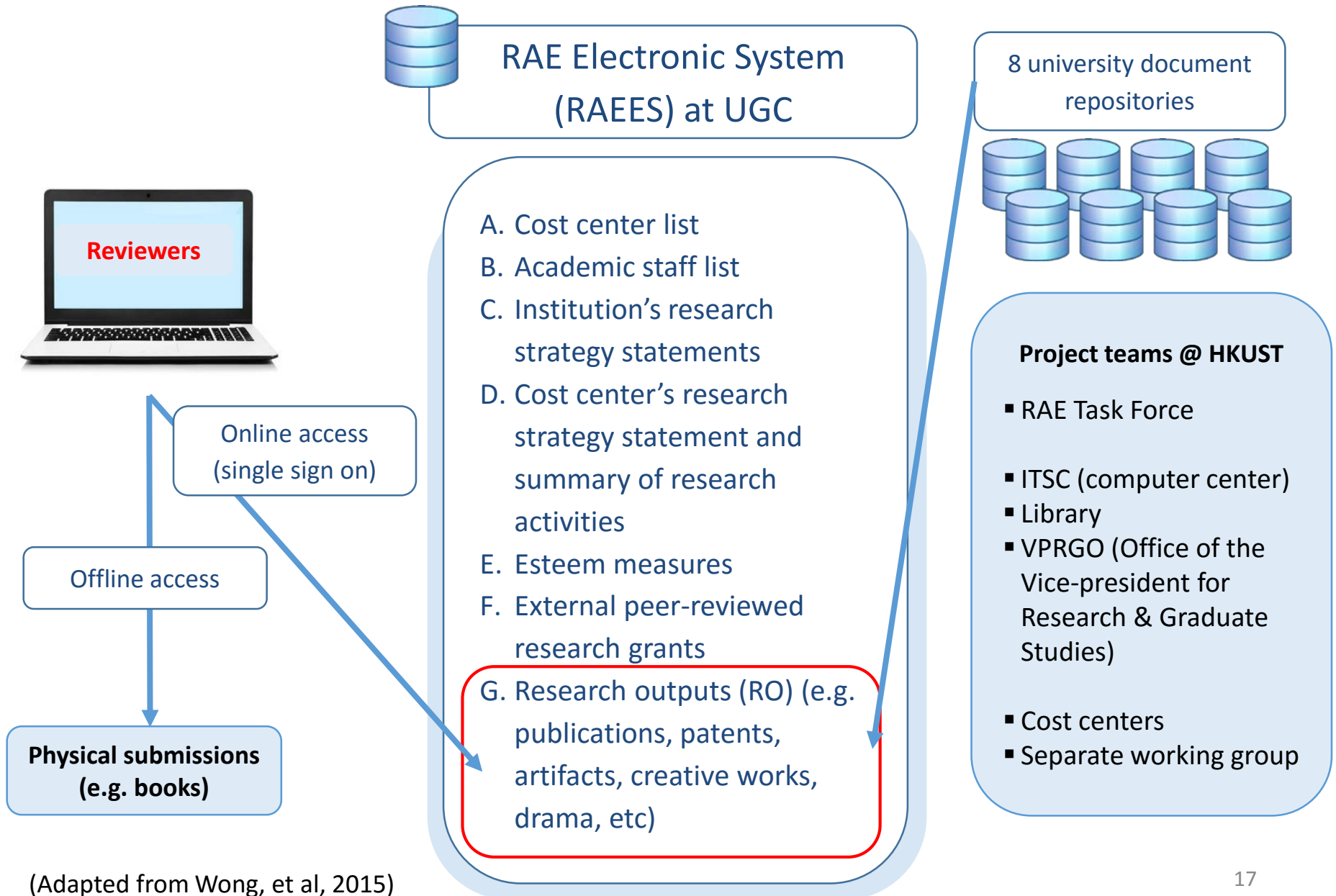### Electronic Infrastructure

- Build a central RAE Electronic System (**RAEES**)

- Collect data from 8 institutions and provide access interface to reviewers

- Each institution need to build a document repository to host its full-text files

Copyright

- Seek permission from publishers

- Negotiate a transactional license with the Hong Kong Reprographic Rights Licensing Society (HKRRLS)

RAEES and Document Repositories

RAE Electronic System (RAEES) at UGC

Reviewers

Online access (single sign on)

Offline access

Physical submissions (e.g. books)

A. Cost center list
B. Academic staff list
C. Institution's research strategy statements
D. Cost center's research strategy statement and summary of research activities
E. Esteem measures
F. External peer-reviewed research grants
G. Research outputs (RO) (e.g. publications, patents, artifacts, creative works, drama, etc)

8 university document repositories

Project teams @ HKUST

- RAE Task Force

- ITSC (computer center)
- Library
- VPRGO (Office of the Vice-president for Research & Graduate Studies)

- Cost centers
- Separate working group

(Adapted from Wong, et al, 2015)

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HKUST Library's Participation in 3 Stages

One: Design Stage

Design in RAEEs and Repositories

- RAE Electronic System
- RAE Online Submission System
- Document Repository

Copyright Permissions or Clearance

- 140 major publishers
- Individual requests to minor publishers

Two: Formation Stage

- 4 library teams (copyright, metadata, communication, and full-text team)
- Training for cost centers
- Dry Run (mock-up exercise)

Three: Data Processing Stage

- Cost center administrators coordinated with researchers to select ROs to be submitted
- Library Team verified the eligibility of ROs, the metadata and the full-text version

Library Expertise in
- System design (repository)
- Copyright
- Metadata

Benefits of RAE to the Library

- Library's contributions and effort were highly and widely recognized by the university administrator, department heads, staff and cost centers

- Helped the Library to raise the awareness of Scholarly Publication Database (SPD) developed by the Library

- Faculty/researchers were more motivated to report errors and missing items

- Build institutional partnership and participate in new projects/initiatives including:
  - Research output data cleansing project
  - University research information system

SPD Metadata Cleansing Exercise

Background

- Besides RAE, UGC also requires information about the activities of the UGC-funded institutions every year

- At HKUST, annual data submission: Office of Institutional Research (OIR) and the Research Office (RO)

- **Problem: "Incomplete and Incorrect Data on Publication Record"**
  - ➤ Missing data (e.g. author details, affiliation, etc)

Importance of Maintaining Accurate Publication Records

- University Ranking (T.H.E., QS, etc)
- University performance review (UGC)
- School / department review
- Faculty merit review

SPD Metadata Cleansing Exercise

Background

- VPRGO, OIR RO and Library agreed to submit SPD data for UGC 2016/17 reporting

- The Library started a SPD Metadata Schema Revamp project in summer 2017. Add new fields (incl. CDCF fields) to support UGC reporting
  - Research output type and categories
  - Number of authors
  - Date published in print / online
  - Author affiliation type
  - Affiliation of non-HKUST co-author, etc

> **At a Glance**
> - >4,700 records processed
> - Time: 2 months (completed in mid Sept)

Moving Forward

- Enhance Research Output Reporting System <> SPD data synchronization
- Establish workflow with authors in handling incomplete data
- More automated process in packaging data for submission
- Check/clean publication for 2013, 2014 and 2015 to prepare for **RAE 2020**

*CDCF – Common Data Collection Format, developed by UGC to collect statistical data from the UGC-funded institutions)

Final Thoughts and Recommendation

Roles of Libraries in Research Workflow			
Idea Discovery	Funding / Approval	Experimentation	Results Dissemination

- Ensure researchers have **seamless access** to high quality research content
- Support researchers in **scholarly communication** (e.g. publishing, copyright, etc)
- Facilitate collaborative management of documents and data; provide **virtual research environment** (VRE) tools and services to researchers
- Promote and exploit **new technologies** (e.g. social media, altmetrics, etc)
- Rethinking about **Institutional Repository** (roles and strategies)
- Library Roles in **University research assessment (e.g. RAE 2020), University Ranking**
- Importance of institutional **partnerships** (e.g. Research Office, Knowledge Transfer Office, etc)

Thank you

References

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Wong, G.K.W., Caplan, V.F., Chan, D.L.H., Fung, L.M.Y., & Lam, K.T. (2015). Actively demonstrating library expertise in a research assessment exercise. Library Management, 36(1/2), 115-126. Available at: http://hdl.handle.net/1783.1/64398 (accessed 29 September 2017)

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