From Data Silos to Strategic Insights:

Building Low-code Research Impact Dashboards via RIM Metadata





Presented by:

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Fong Sum Wood Library

Metadata = Hidden Treasure

> Metadata liberates us, liberates knowledge

David Weinberger
"Knowledge at the End of the Information Age". Bertha Bassam lecture, University of Toronto, February 07, 2008.

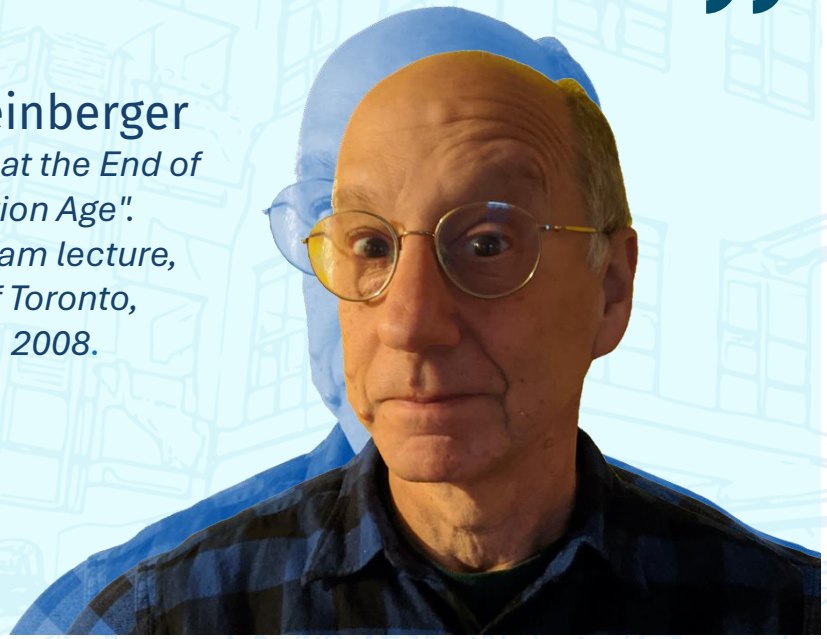


Image: David Weinberger, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons

> Bringing metadata out of the black box would open up new worlds of possibility

Holman W. Jenkins, Jr.
"Metadata Liberation Movement." The Wall Street Journal, 2013.



Image: CNBC, "Trump's Great Protectionist Speech: Holman Jenkins" (video thumbnail), June 29, 2016.

Metadata in RIM context

- **R**esearch **I**nformation **M**anagement (**RIM**) = **Aggregation**, **curation** & **utilization** of research information
- RIM Metadata = Information about **every aspect** of research throughout the **full research lifecycle**

Aggregation



Capturing all research-related information from **diverse sources**

Research Outputs / Activities / Personnel



Research Outputs



Events



Affiliations



Grants



Media & Press



Researchers

Impact

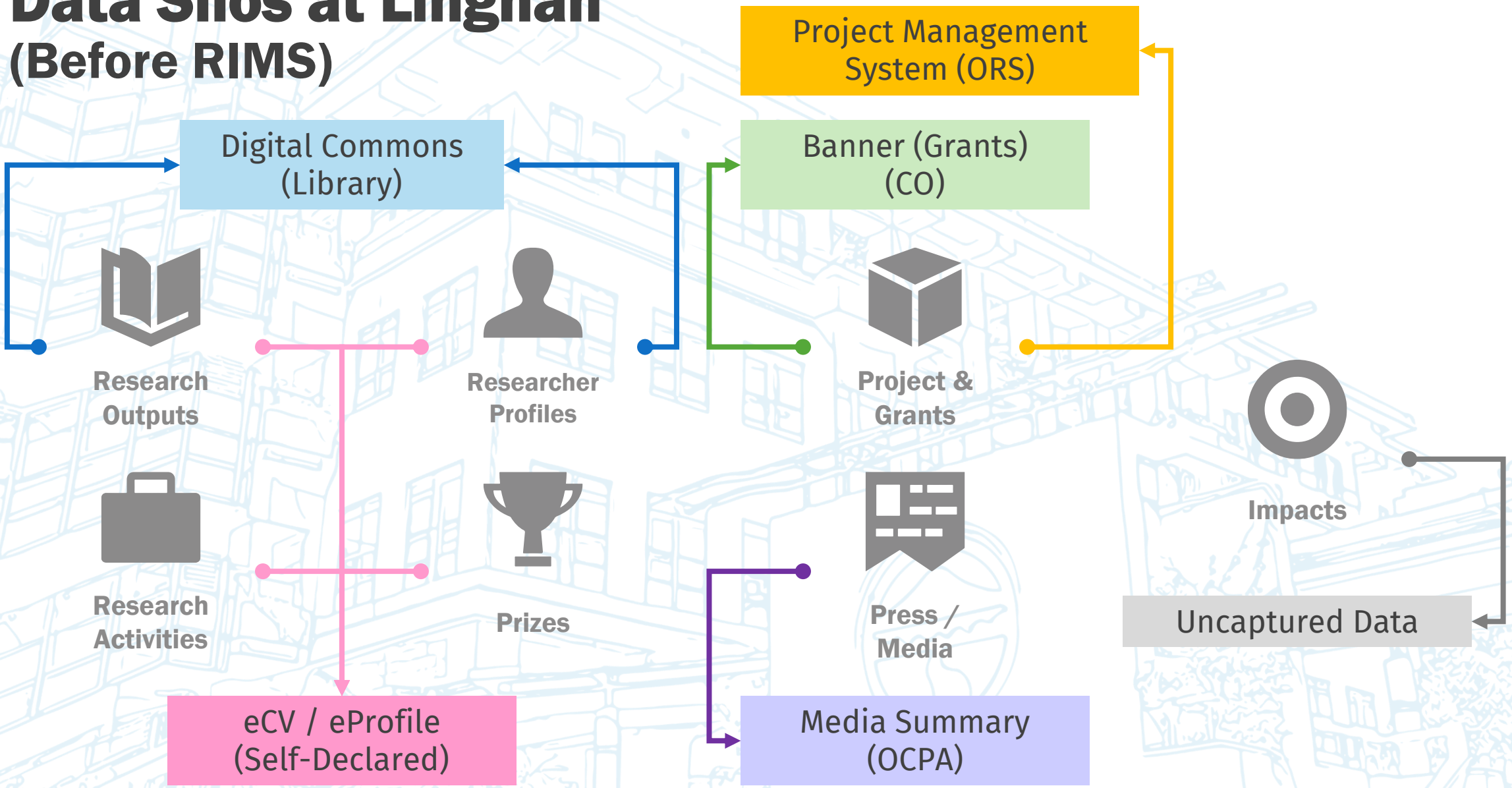


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Scopus® SciVal

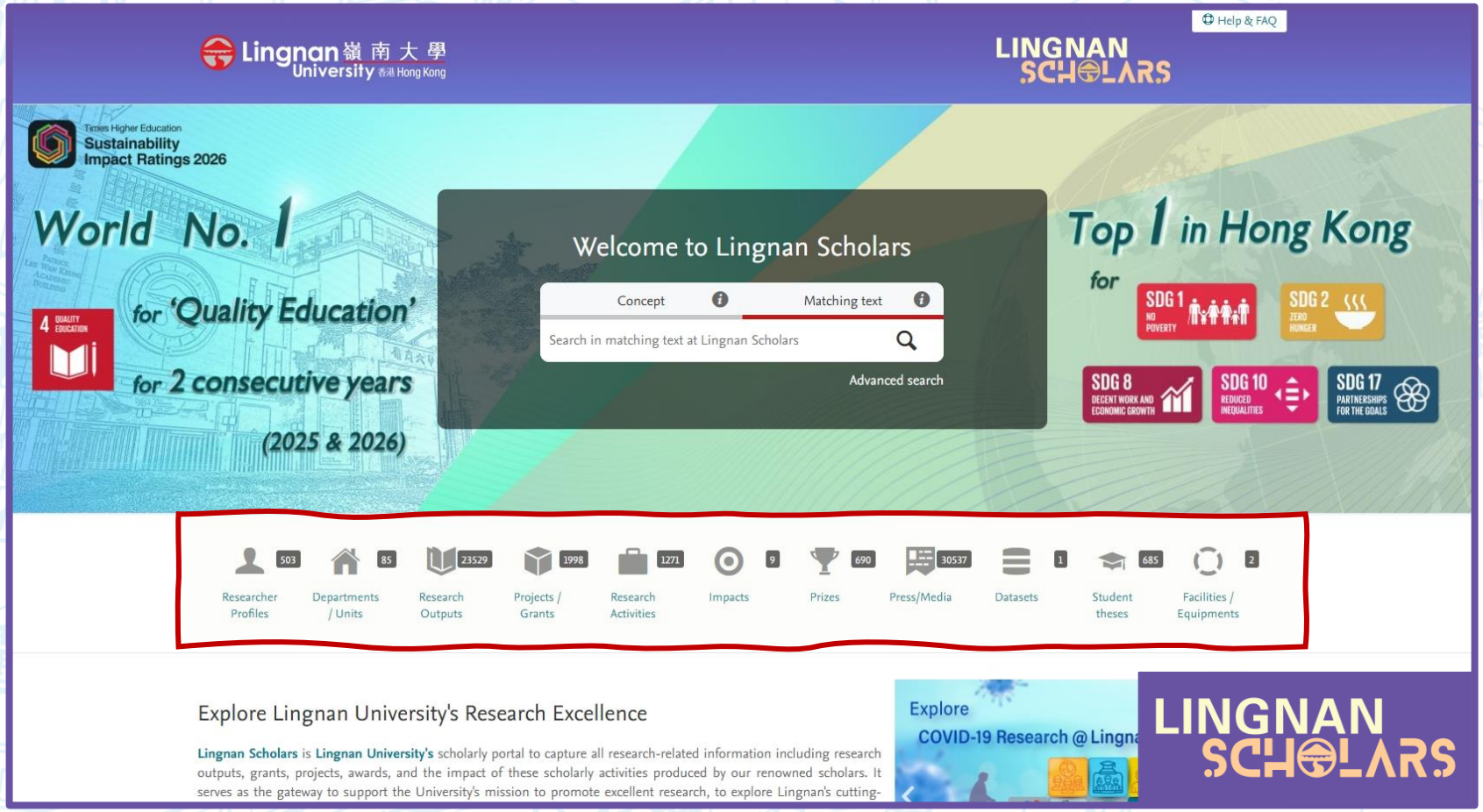
Clarivate Analytics

Data Silos at Lingnan
(Before RIMS)



Lingnan's RIMS — Lingnan Scholars

Breaking down the silos



- Launched in early 2019 and powered by Elsevier's Pure
- **Single Source of Truth** for the University's research landscape
- **Consolidated data** previously stored in silos across different systems
- Library oversees **research output harvesting and validation**

Centralized, Yet Not Liberated

Data availability ≠ Knowledge liberation.

Centralized data is only the starting point.

Delayed
Data Insights

Limited
Data Sources

Difficult to
Understand

Expert-dependent
to interpret

Built-in report in RIMS

Research outputs > Journals

I	J	K	L
Type	*Journal title*	*Journal ISSN*	*Publisher*
Book Chapter			
Journal Article (refereed)	SN Social Sciences	2662-9283	Springer
Journal Article (refereed)	Journal of e-learning Research	2669-235X	Diamond Scientific Publishing
Journal Article (refereed)	IEEE Transactions on Emerging Topics in Compu	2471-285X	Institute of Electrical and Electronics Er
Journal Article (refereed)	IEEE Transactions on Engineering Management	0018-9391	Institute of Electrical and Electronics Er
Journal Article (refereed)	Social Policy and Society	1474-7464	Cambridge University Press
Journal Article (refereed)	Molecules	1420-3049	Multidisciplinary Digital Publishing Insti
Journal Article (refereed)	Scientific Reports	2045-2322	Nature Publishing Group
Book (Editor)			
Journal Article (refereed)	International Journal of Computer Vision	0920-5691	Springer Netherlands
Journal Article (refereed)	Marketing Letters	0923-0645	Springer New York
Journal Article (refereed)	Teaching and Teacher Education	0742-051X	Elsevier Ltd
Journal Article (refereed)	Expert Systems with Applications	0957-4174	Elsevier Ltd
Journal Article (refereed)	Journal of Management Studies	0022-2380	Wiley-Blackwell Publishing Ltd
Journal Article (refereed)	Comparative Strategy	0149-5933	Routledge
Book Chapter			
Journal Article (refereed)	Explicator	0014-4940	Routledge
Journal Article (refereed)	Fashion and Textiles		Springer Singapore
Book Chapter			
Book Chapter			
Journal Article (refereed)	IEEE Transactions on Systems, Man, and Cybern	2168-2216	IEEE Advancing Technology for Humani

Therefore, we need to move from having data to
using data to answer questions

Metadata as a Service in RIM context

From "**RIMS Manager**" to "**Insight Provider**"

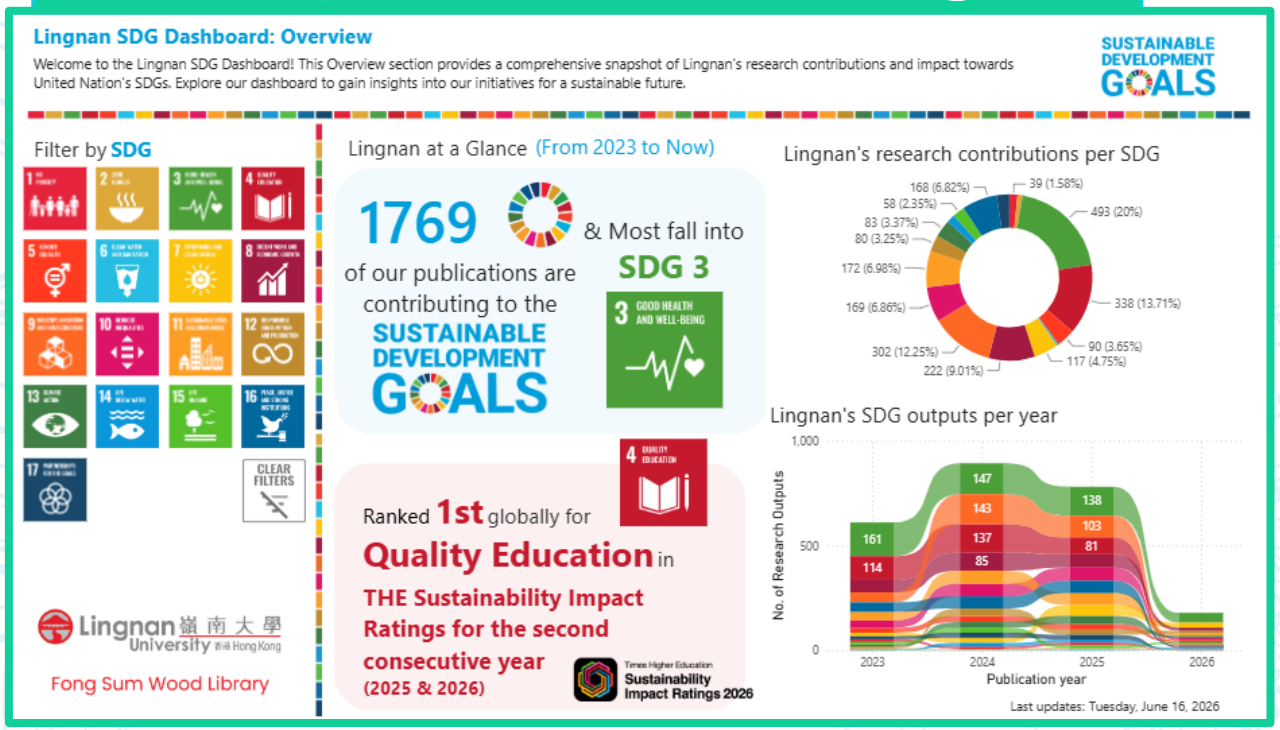
Transform static data into **actionable insights**

Traditional static data

Research outouts | Journals

I	J	K	L
Type	*Journal title*	*Journal ISSN*	*Publisher*
Book Chapter			
Journal Article (refereed)	SN Social Sciences	2662-9283	Springer
Journal Article (refereed)	Journal of e-learning Research	2669-235X	Diamond Scientific Publishing
Journal Article (refereed)	IEEE Transactions on Emerging Topics in Compu	2471-285X	Institute of Electrical and Electronics Er
Journal Article (refereed)	IEEE Transactions on Engineering Management	0018-9391	Institute of Electrical and Electronics Er
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Journal Article (refereed)	Journal of Management Studies	0022-2380	Wiley-Blackwell Publishing Ltd
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Book Chapter			
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Book Chapter			
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Cleaned, enriched & visualized insights



Challenges: From Data to Insights

Manual Approach

Spreadsheet-heavy; manual exports; on-demand consolidation

✓ **Accessible; Leverages domain expertise without coding**

× Non-repeatable, labour-intensive to update

Advanced Programming

Custom scripting; heavy IT dependency

✓ **Highly automated, scalable, and sophisticated**

× High barrier to entry; requires specialized technical skill



We needed something in between: LOW-CODE
Combining domain expertise with automation and scalability

Solution: Low-Code Approach

Adopted Microsoft Fabric in 2025; A low-code data analytics platform

Low barrier to entry: Leverages librarians' metadata expertise without advanced programming

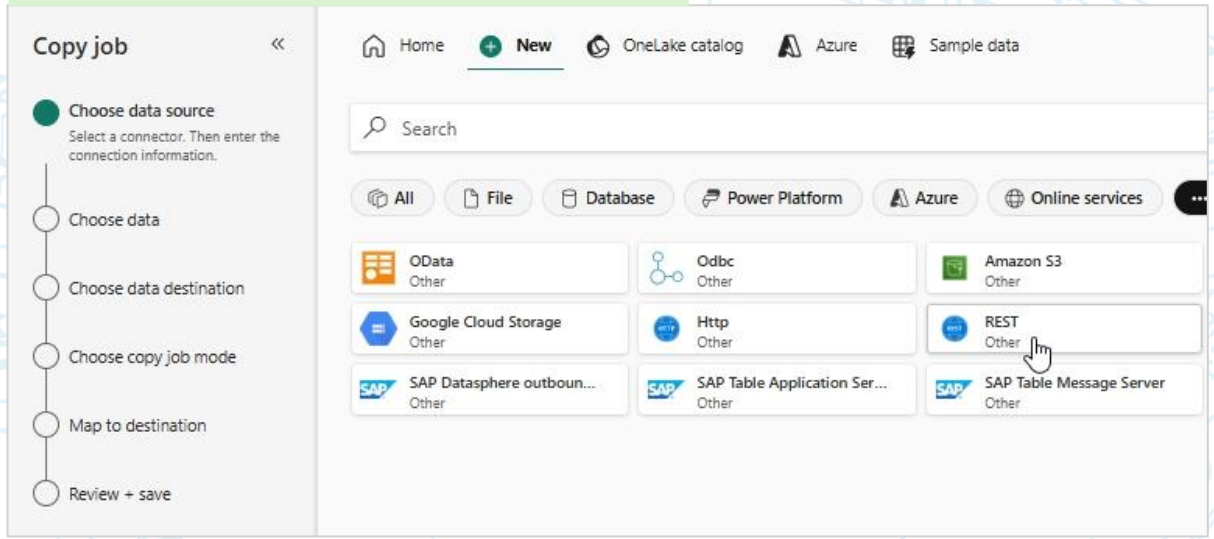
Scalable & sustainable: Replaces manual tasks with repeatable, automated workflows

Traditional line-by-line coding

```
        "retryIntervalInSeconds": 30,
        "secureOutput": false,
        "secureInput": false
    },
    "typeProperties": {
        "source": {
            "type": "RestSource",
            "httpRequestTimeout": "00:01:40",
            "requestInterval": "00.00:00:00.010",
            "requestMethod": "GET",
            "paginationRules": {
                "supportRFC5988": "true"
            },
            "datasetSettings": {
                "annotations": [],
                "type": "RestResource",
                "schema": [],
                "externalReferences": {
```

Visual, low-code interface

Microsoft Fabric



Low-code Approach

Minimize dependency on coding experts → Library can **manage data & updates independently**

1 Data Sourcing from Multiple Sources

Internal Data + External Sources

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Journal Citation Reports™

2 Consolidating multiple data sources into a ready-to-use dataset

Microsoft Fabric

Ingestion Pipeline

Transform Dataflow

Storage Lakehouse

3 Visualizing Data into Narrative Insights

Power BI

Analysis

Visualization

Reporting

Data is retrieved via **APIs and cloud-based file storage**

- ✓ Dynamic, real-time synchronization
- ✓ Scalable bulk retrieval

Library is responsible for the **end-to-end data workflow**, from ingestion and transformation to storage — all within Fabric

- ✓ **Reduced IT Reliance**: Enables non-technical users to manage data through intuitive interfaces

The dataset is integrated with Power BI to transform data into **actionable insights for effective communication**

- ✓ **Security & Access**: Supports Single Sign-On authentication and granular role-based access control

Microsoft Fabric

Pipeline

Dataflow

RIM-Data Sources

{;} JSON </> XML , CSV </> HTML ... Others

Internal Data + **External Sources**

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Journal Citation Reports™

FIND

Where is the **right data**?

CONNECT

How do the datasets **relate**?

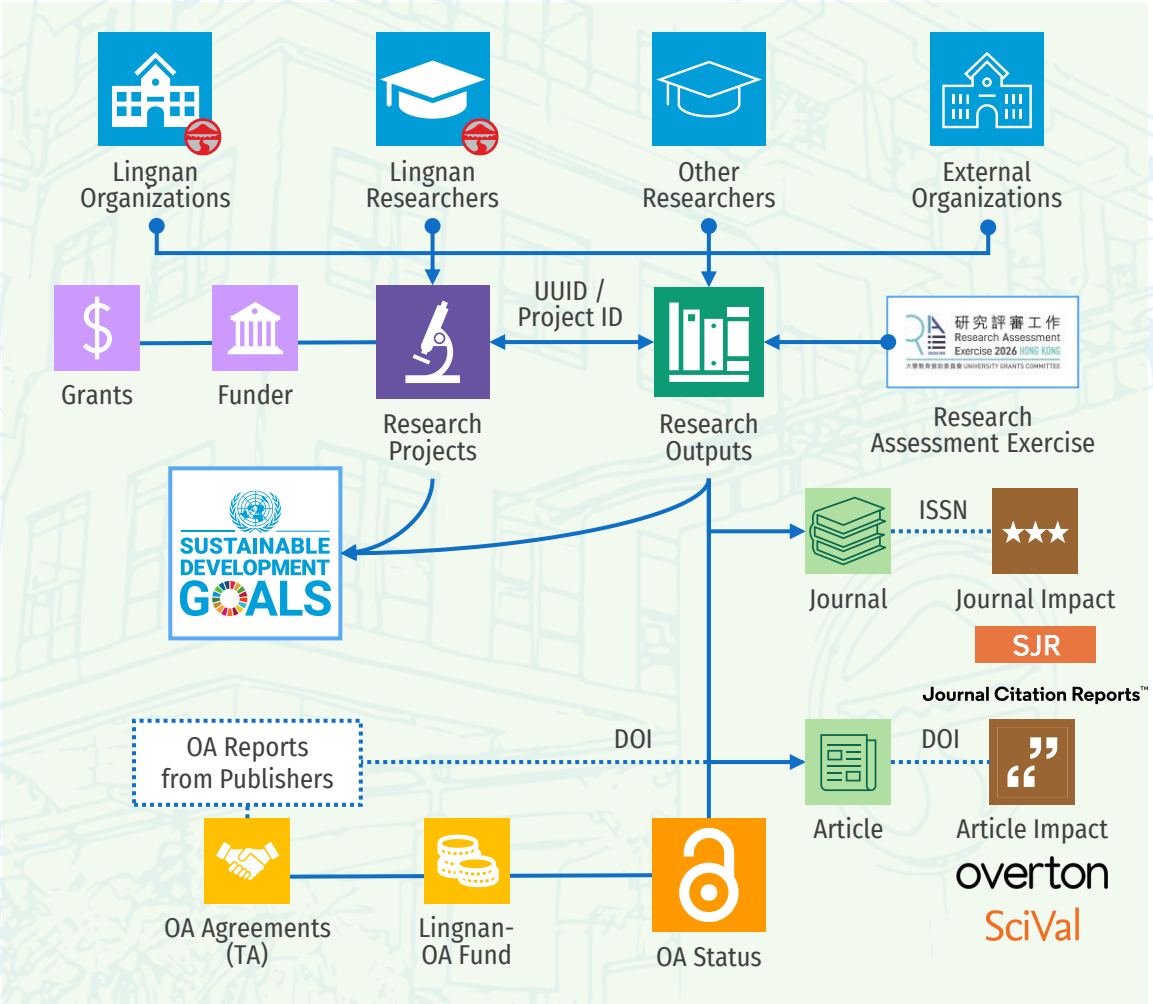
USE

What data do we need to **answer the question**?

Connected, ready-to-use dataset

Ready-to-use + Reusable + Enriched

Lakehouse



From Data to Answers

Power BI

Basic Figures

Research outputs

Publication venues

Funding sources

Open Access

Research Analytics

SDG contribution

Research Assessment Exercise

RPG publications

OA support

Other Needs

Reporting

Ad-hoc requests

Dashboards in Action: Institutional Research Impact Dashboard

- **Strategic view of research output and impact**
- **Across institution, faculty, and department levels**

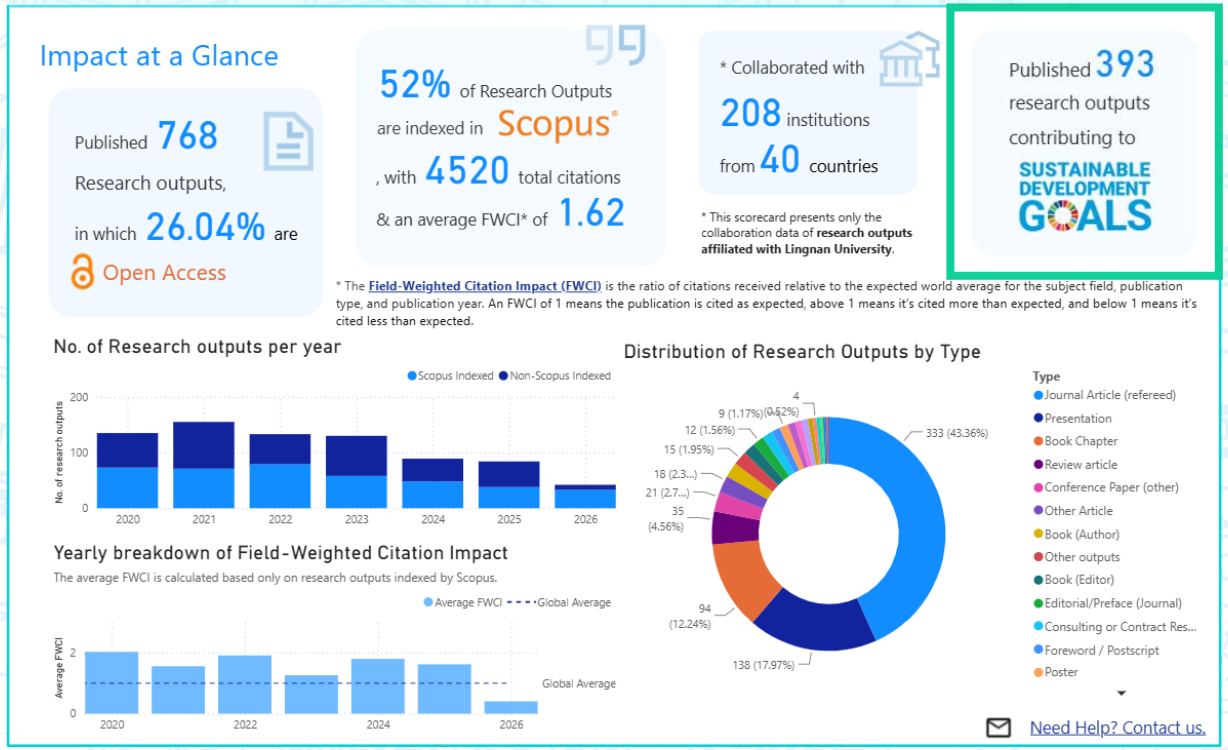
Role-based access:
User roles and affiliations synced from RIMS to Power BI

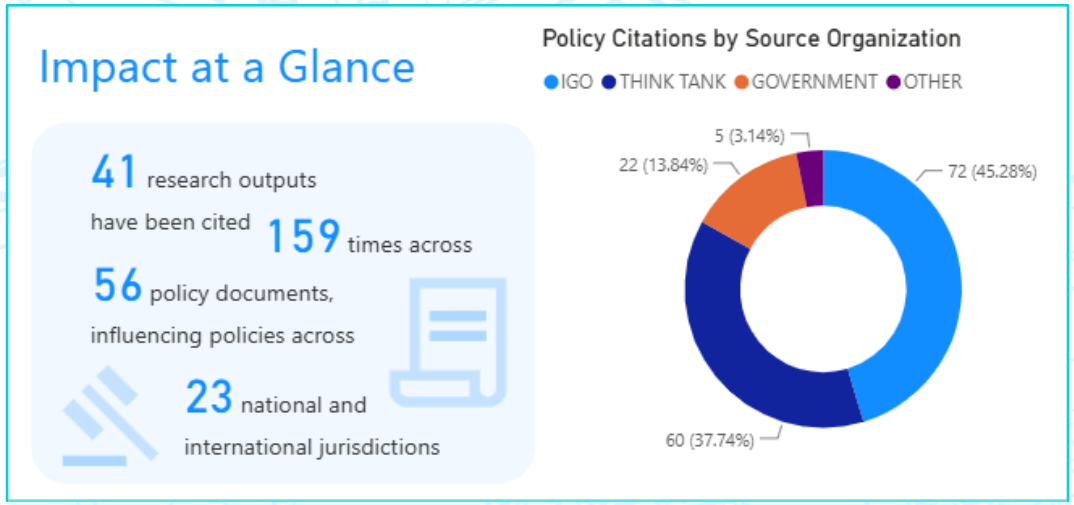
Please select the Faculties, Departments, or Units you would like to view:

Access permissions are granted based on your institutional role. For example, Deans are authorized to view Faculty-wide data, while Department or Unit Heads can access data specific to their departments / units. Please contact the Library if you have any questions.

- Select all
- Academic Departments
  - Faculty of Social Sciences

Visual narratives: Key metrics make insights easy to understand



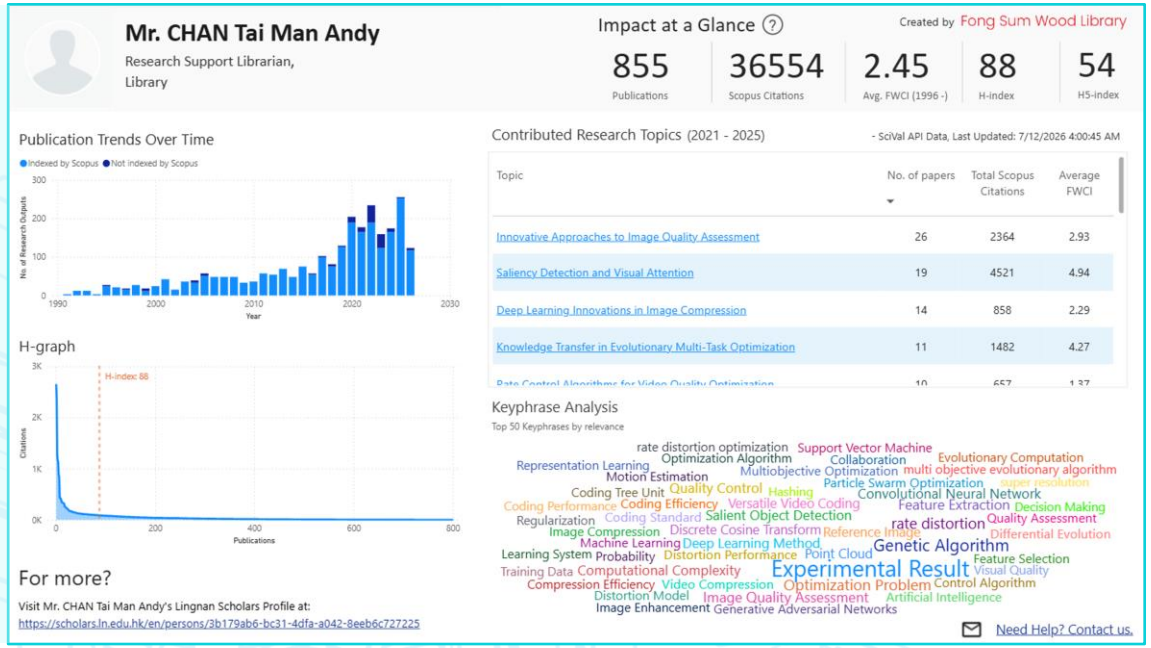


Beyond citations:
Overton policy citations provide evidence of real-world influence

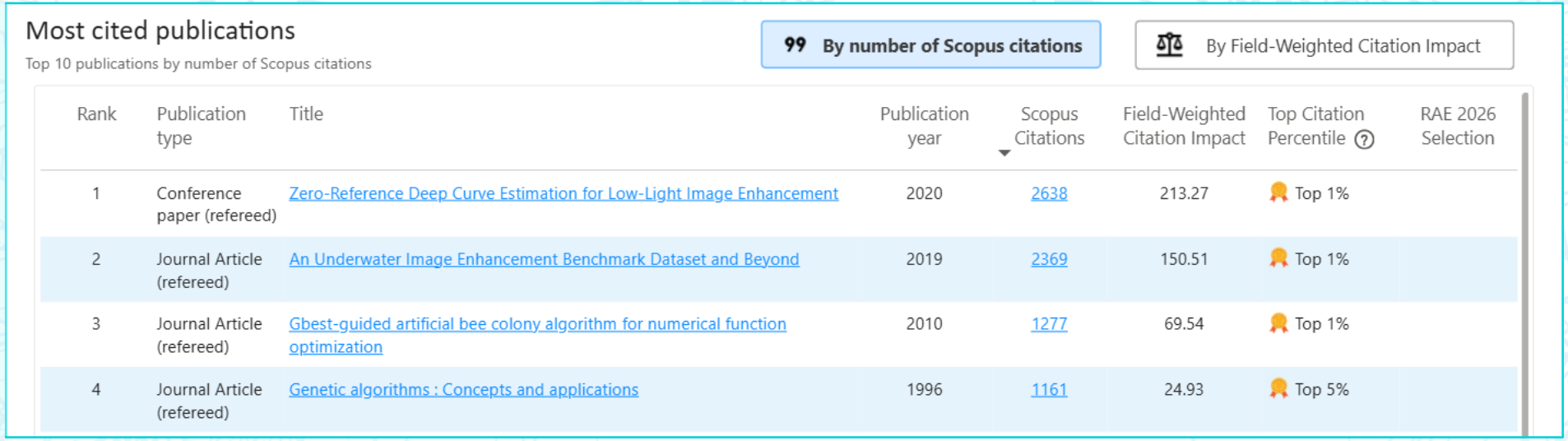
Dashboards in Action:
Personal Research Impact Dashboard

- **Individual view of research output and impact**
- **Bringing performance, publications, topics, journals & collaboration into one view**

Individual research profiles:
Every academic staff member has their own research profile



Evidence for assessment:
Most-cited publications and key metrics support evidence-based publication selection



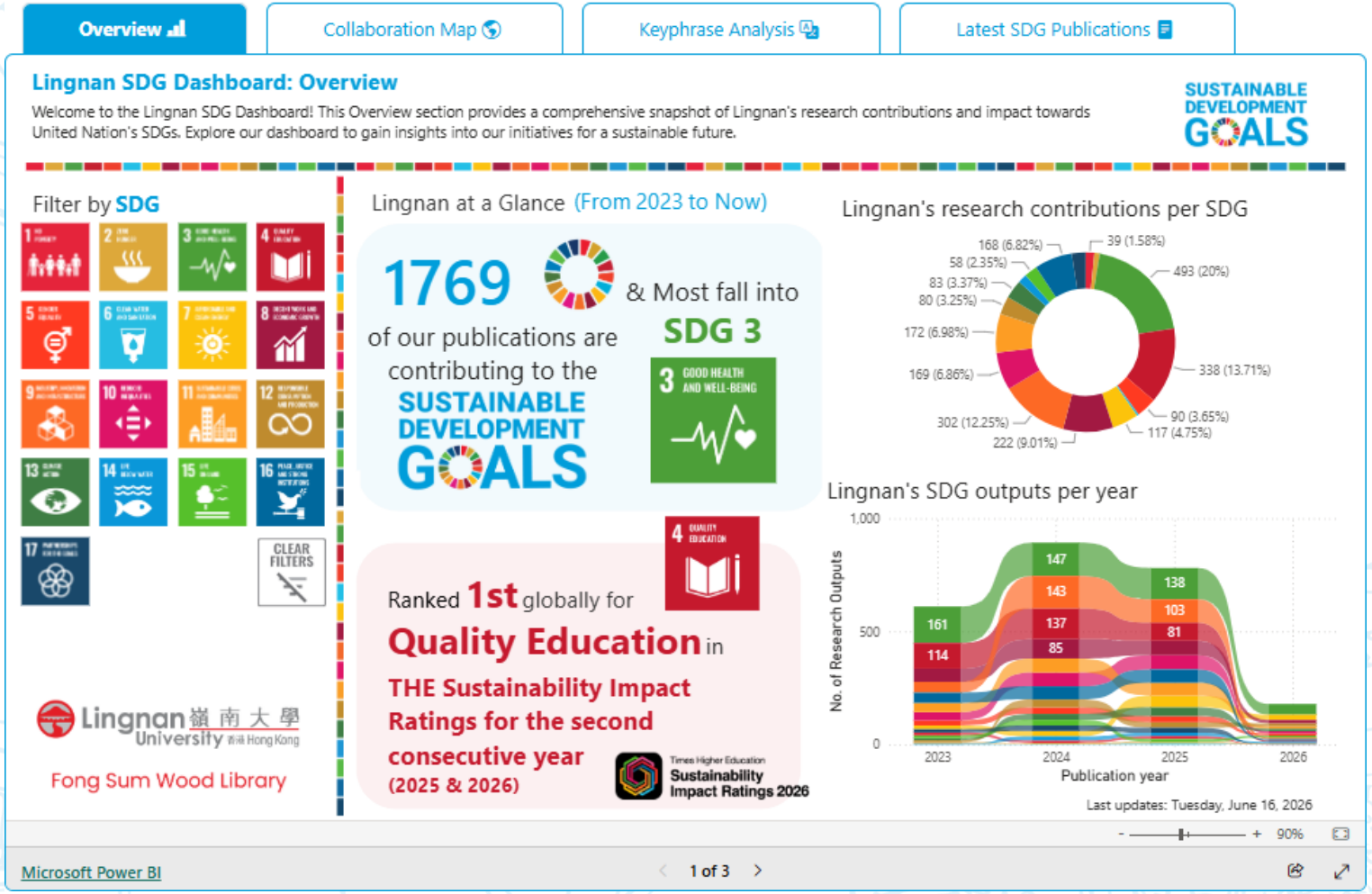
Rank	Publication type	Title	Publication year	Scopus Citations	Field-Weighted Citation Impact	Top Citation Percentile	RAE 2026 Selection
1	Conference paper (refereed)	Zero-Reference Deep Curve Estimation for Low-Light Image Enhancement	2020	2638	213.27	Top 1%	
2	Journal Article (refereed)	An Underwater Image Enhancement Benchmark Dataset and Beyond	2019	2369	150.51	Top 1%	
3	Journal Article (refereed)	Gbest-guided artificial bee colony algorithm for numerical function optimization	2010	1277	69.54	Top 1%	
4	Journal Article (refereed)	Genetic algorithms : Concepts and applications	1996	1161	24.93	Top 5%	

Dashboards in Action:

Sustainable Development Goals Dashboard

- **Publicly Accessible**
- Showcasing Lingnan's research contributions toward the UN SDGs

Scan to explore



https://www.library.ln.edu.hk/en/research/united_nations_sdgs/contributions

From Feedback to Campus Impact

Real Users Feedback

> Informative, interactive, and useful for understanding research impact and finding collaborators.
>
> - Academic Users

> Tailor-made reports provide the information we need, efficiently.
>
> - Administrative Staff

> Much easier to use, saving time on manual work.
>
> - Leadership

A Real Case: Promotion

Academic Staff Seeking Promotion

↓

Approached the Library for promotion review evidence

↓

Tailored Research-Impact Evidence

↓

Successful Promotion

Campus Impact

↑ Cross-campus collaboration

\+

Recognized as a data provider

\+

Peer recommendations

=

Growing demand for data & analytics support

Future Directions

Embracing **Technologies (Low-code; AI)** while Deepening **Analytical Skills**

From **Metadata Management** to **Insight Generation**

Positioning the **Library** as a campus **Data Partner**

Library's Role: Routine Data Maintenance → Data Analytics & Strategic Storytelling

Thank You!

Any questions?

Contact us at:

scholars@ln.edu.hk

With thanks to our colleagues:

Ms CHEUNG Sze Lui Sheila

Ms CHAN Kit Yee Kammy

Mr CHANG Cheuk Hei Derek