RESEARCH PERFORMANCE ANALYTICS

RESEARCH PERFORMANCE ANALYSIS OPTIONS AT ECU

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Introduction

Research performance analyses can draw on a range of evaluation tools. The **Table of Research Performance Measures** included in this document summarises an array of research performance measures that can be undertaken at ECU. The table also indicates the systems available to create reports on each listed research performance measure.

ASPIRE Indicators and Performance Indicator Framework

The **Table of Research Performance Measures** is structured around two primary ECU performance structures.

ASPIRE Indicators

ASPIRE is ECU's Research Performance Scheme, described in depth in the ASPIRE guidelines available at http://intranet.ecu.edu.au/research/for-research-staff/research-performance. ASPIRE uses four research performance indicators as illustrated below:

INDICATOR CATEGORIES	RESEARCH 'ACTIVITY' MEASURES	RESEARCH 'QUALITY' MEASURES
Research Income	[1]Dollar Value of: • Australian Competitive Grants Income (Category 1) • Other Public Sector Research Income (Category 2) • Industry and Other Research Income (Category 3) • Cooperative Research Centre (CRC) Research Income (Category 4)	Number of: • Australian Competitive Grants (Category 1)
Research Training	Number of: • Supervised Doctoral Completions • Supervised Masters by Research Completions	Number of: • 'Timely' Supervised Doctoral Completions i.e. ≤ 4 Years (EFTSL)[2] • 'Timely' Supervised Masters by Research Completions i.e. ≤ 2 Years (EFTSL)[3]

Research Outputs[4]	Number of Publications:
	• Books
	• Book Chapters
	• Journal Articles
	• Conference Papers
	
	Number of Creative Works:
	• Original Creative Works
	• Live Performance of Creative Works
	• Recorded or Rendered Creative Works
	• Curated or Produced Substantial Exhibitions or Events
		Number of:
		• ERA-Listed Journal Articles
		• Citation Database (Thomson Reuters ISI or Elsevier Scopus) Indexed Journal Articles or Conference Papers
		• High Quality Creative Works as determined by an internal peer review process and measured by:
		  1. Prestige of Venue;
		  2. Extent; and/or
		  3. Contribution to Knowledge[5].

Research Engagement	Number of: • Accepted Invention Disclosures • Granted Patents/Plant Breeder's Rights Dollar Value of: • Commercialisation Income[6]	Number of: • External Co-Authored/Created Outputs • External Collaboration Grants

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[1] Research income based on total amount received by ECU versus total amount granted.
[2] Timely completions are calculated based on EFTSL consumed as reported in Callista.
[3] Timely completions are calculated based on EFTSL consumed as reported in Callista.
[4] Outputs must have been produced at ECU to be eligible e.g. demonstrate a publication association in the byline.
[5] Contribution to Knowledge is determined by assessing the Research Statement.
[6] Includes contract research income (other than Category 2 and 3 research income) licensing income and royalties.
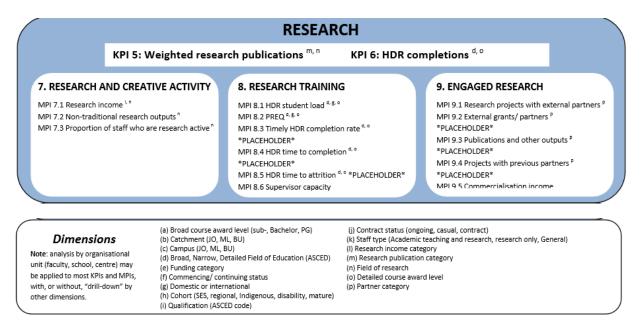
Performance Indicator Framework

The second framework is ECU's **Performance Indicator Framework**, which is a set of performance measures that collectively provide an evidence-base for the University's performance.

The framework is comprehensive, hierarchical and structured into four themes. One of the four themes is **Research**. There are two high order key performance indicators (KPIs) and three categories of Management Performance Indicators (MPIs) used for the monitoring of research performance.

The Performance Indicator Framework is embedded in University plans and performance reports and reviews at all organisational levels of the University. More information can be found at
http://intranet.ecu.edu.au/staff/centres/planning-quality-and-equity-services/our-services/reporting-on-performance

The current research-related KPIs are MPIs are given below:

RESEARCH

KPI 5: Weighted research publications [m, n]   **KPI 6: HDR completions** [d, o]

7. RESEARCH AND CREATIVE ACTIVITY

MPI 7.1 Research income [l, n]
MPI 7.2 Non-traditional research outputs [n]
MPI 7.3 Proportion of staff who are research active [n]

8. RESEARCH TRAINING

MPI 8.1 HDR student load [d, g, o]
MPI 8.2 PREQ [d, g, o]
MPI 8.3 Timely HDR completion rate [d, o]
PLACEHOLDER
MPI 8.4 HDR time to completion [d, o]
PLACEHOLDER
MPI 8.5 HDR time to attrition [d, o] *PLACEHOLDER*
MPI 8.6 Supervisor capacity

9. ENGAGED RESEARCH

MPI 9.1 Research projects with external partners [p]
MPI 9.2 External grants/ partners [p]
PLACEHOLDER
MPI 9.3 Publications and other outputs [p]
PLACEHOLDER
MPI 9.4 Projects with previous partners [p]
PLACEHOLDER
MPI 9.5 Commercialisation income

Dimensions

Note: analysis by organisational unit (faculty, school, centre) may be applied to most KPIs and MPIs, with, or without, "drill-down" by other dimensions.

(a) Broad course award level (sub-, Bachelor, PG)
(b) Catchment (JO, ML, BU)
(c) Campus (JO, ML, BU)
(d) Broad, Narrow, Detailed Field of Education (ASCED)
(e) Funding category
(f) Commencing/ continuing status
(g) Domestic or international
(h) Cohort (SES, regional, Indigenous, disability, mature)
(i) Qualification (ASCED code)

(j) Contract status (ongoing, casual, contract)
(k) Staff type (Academic teaching and research, research only, General)
(l) Research income category
(m) Research publication category
(n) Field of research
(o) Detailed course award level
(p) Partner category

EIMS (see below) provides reports that enables analyses to be performed on both research-related KPIs as well as a range of research-related MPIs. However, the following MPIs are not currently included in EIMS and the data for these measures are prepared by ORI and provided directly for the relevant ECU Performance Indicator Framework report:

- KPI 5: Weighted research publications
- MPI 7.1 Research income
- MPI 7.2 Non-traditional research outputs
- MPI 7.3 Proportion of staff who are research active
- MPI 8.6 Supervisor capacity
- MPI 9.1 Research projects with external partners
- MPI 9.2 External grants/partners
- MPI 9.3 Publications and other outputs
- MPI 9.4 Projects with previous partners
- MP1 9.5 Commercialisation income

Academic Staff Performance Expectations and Outcomes Framework

The four ASPIRE Indicator categories are also captured by the four contexts of **research and creativity performance** in the **Academic Staff Performance Expectations and Outcomes Framework**, which include **Research and Research Scholarship** (Research Outputs), **Research Income**, **Research Training** and **Engaged Research and Impact** (Research Engagement). As a result, the research reporting options listed in the Table of Research Performance Measures could potentially assist in measuring progression towards targets for performance management and promotion within the context of the ASPEO framework.

Research Performance Evaluation System

The **Table of Research Performance Measures** includes the systems that can be used to perform analyses on each of the listed performance measures. A brief summary of each system, and how it can be accessed, is given below.

RAS

Research Activity System (RAS) is the system used for entering and recording research outputs produced by authors currently affiliated with ECU. RAS records data on both traditional outputs (journal articles, conference papers, book chapters and books) and non-traditional outputs (research reports and creative works) dating back to 2001. RAS can be accessed via https://portalapps.ecu.edu.au/ras, or alternatively, via the Easy Logins in the ECU Staff Portal. For more information refer to *Generating Reports within RAS* at http://intranet.ecu.edu.au/web-apps/staff/research-activity-system/resources

EIMS

EIMS is a data warehouse that draws on data from a range of internal ECU systems, including RAS, ECU Research Management System (ECURMS) and Oracle Financials. The EIMS provides reporting functionality that enables users to interrogate the array of data that has been drawn into the system.

EIMS can be accessed via the **Other Logins** in the **ECU Staff Portal**. Users will need to log into EIMS using their ADS username and password once they have launched it via Other Logins.

VIP-R

The **Visual Information Portal Research (VIP-R)** is a third party analytical tool that enables research performance to be evaluated across a range of metrics including outputs, income, HDR completions, and research commercialisation. VIP-R is available to all School Deans and ADRs and can be accessed via your VIP-R username and password at https://www.vip-research.com.au/

The **Table of Research Performance Reports** indicates which of the listed performance measures can be addressed by one of the analyses available in the VIP-R FAVOURITE folder, the default set of reports users will see when first logging into VIP-R, and which have been pre-selected to meet the analytical needs of school research managers. Where applicable, additional useful analyses available the ALL folder in VIP-R will be also highlighted.

Publication-Based Research Performance Tools

SciVal

SciVal is a research performance assessment tool provided by Elsevier that draws on the publication and citation data from **Scopus**. SciVal includes a number of modules to enables publication and citation analyses and benchmarking and collaboration evaluations. Users can filter results on FoR codes.

InCites

InCites is a research performance assessment tool provided by Thomson Reuters that draws on the publication and citation data from the **Web of Science**. InCites enables a range of reports to be created, including evaluations of citation impact and productivity at the level of individual researchers through to benchmarking research performance at the institutional and national level.

Scopus

Scopus is a citation database provided by Elsevier. It indexes publication and citation data for peer-reviewed literature, including journals, books and conference proceedings. Scopus enables users to search for documents, authors or organisations and can be used to perform publication, collaboration and citation analyses.

Web of Science

Web of Science is a citation database provided by Thomson Reuters. It indexes publication data and citation data for peer-reviewed literature, including journals and conference proceedings. Web of Science enables users to search for documents, authors or organisations (the latter via an Advanced Search) and can be used to perform publication, collaboration and citation analyses.

Access to publication-based research performance tools

All four systems listed above are subscription-based databases managed by the Library and can be accessed via the A-Z list of databases provided by the Library http://kx7gx4pm8t.search.serialssolutions.com/. For more information on these systems contact the Library at researchonline@ecu.edu.au

Other Systems

Research Online

Research Online is ECU's institutional repository http://ro.ecu.edu.au/. Research Online captures metadata for the publication outputs produced by ECU-affiliated authors, and where possible, facilitates open access to them.

The Library can use the reporting functionality of Research Online to create reports that detail the usage statistics associated with a School's outputs. This can include full text downloads, metadata page hits, and the geographical distribution of users who have viewed a set of records.

For more information on reporting options available in Research Online contact the Library at researchonline@ecu.edu.au

Altmetrics

Altmetrics is an emerging form of research metrics which captures evidence of online references to research outputs across a range of platforms, including social media networks (i.e. Twitter and Facebook), online citation managers (i.e. Mendeley), news sites, policy documents, peer review websites and Wikipedia. Altmetrics tools are available that aggregate these online engagement activities, including **Altmetric.com** http://www.altmetric.com/. **Altmetric.com** data is available at the article level on a number of publisher websites as well as in selected series in **Research Online**. Mendeley readership statistics is also available at the article level in **Scopus**.

Researchers can use their ORCID iD to register with **Impact Story**, a free service that enables researchers to assess the online impact of their research outputs. Impact Story is available at https://impactstory.org/

For more information on altmetrics contact the Library at researchonline@ecu.edu.au

Table of Research Performance Measures

Structure of the table

The **Table of Research Performance Measures** is subdivided into six sections. Sections 1-3 and 5 are based on each of the four ASPIRE indicators. Section 4 includes outputs-based performance measures in addition to those encapsulated by the outputs-based ASPIRE indicators and KPIs/MPIs. The sixth and final section describes other measures of research performance not captured in the previous five sections.

1. Research Income
2. Research Training
3. Research Outputs – Traditional Outputs and Creative Works
4. Research Outputs – Other Outputs-Based Performance Measures
5. Research Engagement
6. Other Research Performance Measures

The first four sections of the **Table of Research Performance Measures** are designed to illustrate the relationships between the relevant ASPIRE Indicators and Performance Indicator Framework KPIs and MPIs. The co-location of ASPIRE indicators and KPIs/MPIs is indicative of a similarity between these measures, but it is not meant to suggest that they are identical, and they should be treated as related but distinct evaluations of research performance.

Each of the first four sections of **Table of Research Performance Measures** also includes other measures that describe a similar aspect of performance as evaluated by the ASPIRE Indicator and/or KPIs/MPIs included in that section.

Note: There are some performance measures below not currently supported by reports available in any of the listed systems. For help with these performance measures please contact ORI directly at http://intranet.ecu.edu.au/research/for-research-staff/research-performance/research-performance-analytics

Research Income

MPI category	KPI/MPI	Related ASPIRE Indicators	Related ASPIRE Research 'Activity' Measures	Related ASPIRE Research Quality Measures	Other related measures of research performance	Research Performance Evaluation System that provide reports related to this indicator								
						RAS	EIMS	VIP-R (Favourite)	VIP-R (All folder only)	SciVal	InCites	Scopus/ Web of Science	Research Online (Library)	Altmetrics (Library)
Research and Creative Activity	MPI 7.1 Research income[7]	Research Income	Dollar Value of Categories 1-4 Income				Yes	Yes						
					HERDC Income per Research & Teaching and Research Only Staff FTE (or 10 FTE)			Yes						
					HERDC Income per Level B and Above Staff FTE (or 10 FTE)			Yes						
					HERDC Income per Academic Staff FTE (or 10 FTE)				Yes					
					ERA Research Income (Cats 1-4) per 2 or 4 Digit FoR code			Yes						
					Income by Industry Partner per 4 digit FoR code			Yes						
		Research Income		Number of Category 1 Grants			Yes							
					Number of submitted grants[8]		Yes							
					Numbers of rewarded, unsuccessful and pending grants[9]		Yes							
					Number of grants per school[10]		Yes	Yes						

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[7] MPI 7.1 report not currently available in EIMS.

[8] For further assistance with this performance measure please contact ORI directly.

[9] For further assistance with this performance measure please contact ORI directly.

[10] For further assistance with this performance measure please contact ORI directly. Note that there is currently no ECU grants data in VIP-R beyond 2012.

Research Training

MPI category	KPI/MPI	Related ASPIRE Indicators	Related ASPIRE Research 'Activity' Measures	Related ASPIRE Research Quality Measures	Other related measures of research performance	Research Performance Evaluation System that provide data related to this indicator								
						RAS	EIMS	VIP-R (Favourite)	VIP-R (All folder only)	SciVal	InCites	Scopus/ Web of Science	Research Online (Library)	Altmetrics (Library)
	KPI 6: HDR Completions	Research Training	Number of Supervised Doctoral Completions and Number of Masters by Research Completions				Yes	Yes (Weighted)	Yes (Weighted or Unweighted)					
					Unweighted HDR Completions per Research & Teaching and Research Only Staff FTE (or 10 FTE)			Yes						
					Unweighted HDR Completions per Level B and Above Staff FTE (or 10 FTE)			Yes (per 10 FTE)	Yes (per FTE)					
					Unweighted HDR Completions per Academic Staff FTE (or 10 FTE)				Yes					
Research Training	MPI 8.3 Timely HDR completion rate	Research Training		Timely' Supervised Doctoral Completions (≤$ 4 Years EFTSL) an Masters by Research Completions (≤$ 2 Years EFTSL)			Yes							
Research Training	MPI 8.1 HDR Student Load						Yes							
Research Training	MPI 8.2 PREQ						Yes							
Research Training	MPI 8.4 HDR time to completion						Yes							
Research Training	MPI 8.5 HDR time to attrition						Yes							
Research Training	MPI 8.6 Supervisor capacity[11]													

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[11] Information for this performance measure is provided by GRS.

Research Outputs – Traditional Outputs and Creative Works

MPI category	KPI/MPI	Related ASPIRE Indicators	Related ASPIRE Research 'Activity' Measures	Related ASPIRE Research Quality Measures	Other related measures of research performance	Research Performance Evaluation System that provide data related to this indicator								
						RAS	EIMS	VIP-R (Favourite)	VIP-R (All folder only)	SciVal	InCites	Scopus/ Web of Science	Research Online (Library)	Altmetrics (Library)
	KPI 5: Weighted research publications[12]	Research Outputs						Yes						
					Weighted Publications per Research & Teaching and Research Only Staff FTE (or 10 FTE)			Yes						
					Weighted Publications per Level B and Above Staff FTE (or 10 FTE)			Yes (per 10 FTE)	Yes (per FTE)					
					Weighted Publications per Academic Staff FTE (or 10 FTE)				Yes					
		Research Outputs	Number of Publications: Books, Book Chapters, Journal Articles, Conference Papers			Yes	Yes	Yes		Yes	Yes	Yes		
		Research Outputs		Number of ERA-Listed Journal Articles and number of outputs indexed in Web of Science or Scopus			Yes			Yes	Yes	Yes		
Research and Creative Activity	MPI 7.2 Non-traditional research outputs (MPI data provided directly by ORI)	Research Outputs	Number of Creative Works (Original Creative Works, Live Performance of Creative Works, Recorded or Rendered Creative Works, Curated or Produced Substantial Exhibition or Events)			Yes	Yes	Yes						

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[12] KPI 5 report not currently in EIMS.

MPI category	KPI/MPI	Related ASPIRE Indicators	Related ASPIRE Research 'Activity' Measures	Related ASPIRE Research Quality Measures	Other related measures of research performance	Research Performance Evaluation System that provide data related to this indicator								
						RAS	EIMS	VIP-R (Favourite)	VIP-R (All folder only)	SciVal	InCites	Scopus/ Web of Science	Research Online (Library)	Altmetrics (Library)
		Research Outputs		Number of highly quality creative works as determined by internal peer review processes and measured by prestige of venue, extent, and/or contribution to knowledge			Yes							

Research Outputs – Other Outputs-Based Performance Measures

MPI category	KPI/MPI	Related ASPIRE Indicators	Related ASPIRE Research 'Activity' Measures	Related ASPIRE Research Quality Measures	Other related measures of research performance	Research Performance Evaluation System that provide data related to this indicator								
						RAS	EIMS	VIP-R (Favourite)	VIP-R (All folder only)	SciVal	InCites	Scopus/Web of Science	Research Online (Library)	Altmetrics (Library)
					Number of outputs by School/Research Centre and/or Publication Type[13]		Yes	Yes		Yes	Yes			
					Number of outputs by School/Research Centre and/or Publication Type and 4 digit FoR code[14]			Yes		Yes	Yes			
					Number of outputs by School/Research Centre and/or Publication Type and 4 digit FoR code per Researcher[15]			Yes		Yes				
					Citation Metrics					Yes	Yes	Yes		
					Downloads and metadata page hits to outputs								Yes	
					Online engagement with outputs (Tweets, Facebook mentions, Mendeley readership, mentions in news sites and peer review websites								Yes	Yes

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[13] In order to use SciVal or InCites for this measure it is currently necessary to import a publication set for the School/Research Centre – analyses are then performed on this publication set.

[14] In order to use SciVal or InCites for this measure it is currently necessary to import a publication set for the School/Research Centre – analyses are then performed on this publication set.

[15] In order to use SciVal or InCites for this measure it is currently necessary to import a publication set for the School/Research Centre – analyses are then performed on this publication set.

Research Engagement

MPI category	KPI/MPI	Related ASPIRE Indicators	Related ASPIRE Research 'Activity' Measures	Related ASPIRE Research Quality Measures	Other related measures of research performance	Research Performance Evaluation System that provide data related to this indicator								
						RAS	EIMS	VIP-R (Favou-rites)	VIP-R (All folder only)	SciVal	InCites	Scopus /Web of Science	Research Online (Library)	Altmetrics (Library)
Engaged Research	MPI 9.2 External grants/partners (MPI data provided directly by ORI)	Research Engagement		Number of External Collaboration Grants[16]										
Engaged Research	MPI 9.3 Publications and other outputs (MPI data provided directly by ORI)	Research Engagement		External Co-Authored/Created Outputs						Yes	Yes			
					National and International Collaboration					Yes	Yes	Yes		
					Academic-Corporate Collaboration					Yes				
Engaged Research	MPI 9.5 Commercialisation income[17]	Research Engagement	Dollar Value of Commercialisation Income											
					ERA Commercialisation Income per 2 or 4 digit FoR code			Yes						
		Research Engagement	Number of Accepted Invention Disclosures and Granted Patents/Plant Breeder's Rights[18]											
Engaged Research	MPI 9.1 Research projects with external partners (MPI data provided directly by ORI)													
Engaged Research	MPI 9.4 Projects with previous partners (Data provided directly by ORI)													
					Public and practitioner engagement with ECU scholarship								Yes	Yes

[16] For assistance with this performance measure please contact ORI directly.
[17] Information for this performance measure is provided by FBSC.
[18] Information for this performance measure is provided by FBSC.

Other Research Performance Measures

MPI category	KPI/MPI	Related ASPIRE Indicators	Related ASPIRE Research 'Activity' Measures	Related ASPIRE Research Quality Measures	Other related measures of research performance	Research Performance Evaluation System that provide data related to this indicator								
						RAS	EIMS	VIP-R (Favourites)	VIP-R (All folder only)	SciVal	InCites	Scopus/ Web of Science	Research Online (Library)	Altmetrics (Library)
Research and Creative Activity	MPI 7.3 Proportion of staff who are research active (MPI data provided directly by ORI)													
					Active/Inactive Researchers[19]		Yes							
					ASPIRE Allocations (data provided directly by ORI)									
					Internal and National ERA Metrics (2010-2015)			Yes						
					Institutional Benchmarking			Yes		Yes	Yes			
					National and International Benchmarking					Yes	Yes			

[19] In the Active/Inactive Researcher table researchers are deemed to be inactive if they have not published at least one accepted publication within the period selected. Inactivity data is only available for *Research Only* and *Teaching and Research* academic staff.

Further assistance

For further assistance with research performance analyses please contact:

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