



AI-BEI Portfolio



science, technology
& innovation

Department:
Science, Technology and Innovation
REPUBLIC OF SOUTH AFRICA



CSIR
Touching lives through innovation

AI adoption is active, but not yet embedded

01 APPLICATION

IN USE

Productivity and knowledge work

- Faster drafting, synthesis, reporting, discovery, minutes and analysis are already evident.

02 ADOPTION IS FRAGMENTED

CONSTRAINED

Access remains concentrated

- Full Copilot access is available to only a few senior staff, limiting broader experimentation and repeatability. Access, skills, tools and practices vary across functions, creating dependence on a small group.

03 INTEGRATION IS THE GAP

GAP

Not yet formalised

- AI is not formally implemented in workflows, governance, investment cycles, programme reporting or shared knowledge practices.

Where value is already being realised

Productivity Augmentation & reporting

- Meeting minutes
- Document drafting and editing
- Data analysis and report generation
- Portfolio reporting and decision support
- Microsoft 365 productivity

Knowledge & information services

- AI-assisted research discovery
- Systematic review support
- Publishing integrity and language support
- eDiscovery and records metadata
- AI-enabled subscription platforms

R&D, ethics & IP management

- Investment and trend analysis
- Research ethics administration
- Market and competitor intelligence
- Invention disclosure and IP screening
- Technology transfer and compliance support

Common value proposition: speed + quality support + traceability + more time for professional judgement

Specific use-case examples

EXAMPLES OF CURRENT USE CASES & POTENTIAL USE OF AI ASSISTANCE IN THE IPME OFFICE



CURRENT USE CASES (Ad hoc or Experimental)

How IPME Office currently uses AI assistance

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1 Insights from Cluster and BD&C quarterly reports
Draw insights from Cluster and BD&C quarterly reports on reasons for not achieving or exceeding KPI targets to enrich the quarterly report we submit to DSTI.
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2 Compare large sets of evidence data
Compare large sets of evidence data in support of KPI performance information/data from the OpCo Subcommittee evidence review process. The data includes, minimum evidence requirements for approval of KPI target achievement claims. It varies from contractual agreements, research plans, statements of work, technical reports, testimonials, etc. This can be done for year-on-year or quarter-to-quarter comparisons.
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3 Review Portfolio targets for 2026/27
Applied to review Portfolio targets for 2026/27 to assess if they are SMART and whether the strategic initiatives and routine services can be traced into the self-assessment element of the Portfolio Performance Assessment Framework.
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4 Customer satisfaction survey analysis
Used in the analysis of the customer satisfaction surveys as part of the Portfolio Performance Assessment Framework.
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5 Summarise and synthesise large official documents
Used to summarise and synthesis large official documents to inform the annual PESTEL contexts used in the strategic planning process.
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6 Knowledge management & knowledge sharing support
I can already on copilot search for "What are the PG activities at the CSIR?" also I prompt "How does a prolific scientist such as Suprakas manage his high-performance teams"

POTENTIAL USE

How AI can further enhance IPME impact

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1 Tracking & monitoring of strategic initiative implementation
Track and monitor strategic initiative implementation for Cluster, BD&C and Portfolios longitudinally. AI agents in PowerBI platforms can power performance information data analytics, insights and intelligence, systemic and longitudinal tracking/monitoring, as well as comparing performance across clusters and portfolios (KPI info and reporting data on strategic and routine initiatives). It can do all these autonomously.
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2 Forecasting of KPI targets and actuals
Forecast KPI targets and actuals using the current formular supplemented with Cluster and BD&C data on sales pipelines, technology and innovation pipelines, available budgets, available infrastructure, human resource availability, technical capabilities etc.
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3 AI-assisted evidence review for KPI submissions
AI can autonomously review evidence submissions from Clusters and Portfolios, cross reference with technical information and accept or reject a submission. The human teams can cross check the work. This will reduce the evidence review burden and will ensure that performance data is available earlier under tight reporting deadline pressures.
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4 Initial drafting of specifications for process & systems development
Support the initial drafting of specifications for process and systems development – ensure full coverage of all aspects of a process or system.
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5 Initial drafting of procurement specifications
Draft procurement specifications for sources of services for specialised niche areas such as Scenario development and Visioning.
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6 Enterprise-wide knowledge & institutional memory
Embed AI into the file plan and across other data and information portals to ensure a full enterprise-wide view of CSIR information. This can be opened as possible, and closed as necessary. This ensures institutional memory is available for all to ensure quality and consistency in outputs and maintains excellence in technical areas where past experimentation has created valuable insights on CSIR's scientific and industrial research advantage. Capture tacit know-how before it is lost as experienced individuals retire.
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7 Synthesis of impact narratives
AI can assist with the synthesis of impact narratives from available performance information, customer satisfaction surveys and case studies.



AI empowers IPME to generate insights, improve evidence quality, enhance decision-making and preserve institutional knowledge — driving greater impact and excellence at CSIR.



AI augments human expertise – humans validate, refine and decide.



Performance Information Trend Analysis and Visualisation

Maturing data analysis from ad-hoc queries to a structured, agent-driven capability



TODAY

Ad-hoc datasets & manual queries

Analysts pull data on request; insight depends on who is asking.



NEXT

Structured, governed datasets

Curated data models and a consistent dashboard layer across the portfolio.



TARGET

Agentic AI embedded in Power BI

Agents interrogate the data, surface anomalies and draft the narrative.

What the agent will power

1

KPI planning

Draft SMART-aligned targets and test measurability before sign-off.

2

KPI reporting

Auto-generate PA1*/PA2* performance narratives from live data.

3

SLA framework

Track service levels against the catalogue and flag breaches early.

4

Portfolio performance (PPAF)

Surface cross-portfolio insights and formulation gaps.

*PA 1 – Performance area 1 – Customer Satisfaction Survey

*PA 2 – Performance area 2 – Portfolio Self Assessment

AI-Assisted Discovery & Responsible AI - KMIS

AI-Assisted Discovery Workflows

The Information Specialist team integrates AI into research discovery workflows to elevate speed and rigor:

- ✓ Natural language searching: Moving beyond Boolean syntax to semantic intent matching.
- ✓ Terminology & synonym expansion: Automatically generating comprehensive scientific domain glossaries, generating keywords and synonyms.
- ✓ Search strategy development: Rapidly testing and refining complex literature search strategies.
- ✓ Screening & summarisation: Accelerating title/abstract screening for systematic literature reviews.

Responsible AI & Publishing Integrity

Governance & ethics

Guiding researchers on responsible AI use, disclosure requirements, and attribution principles aligned with institutional and international ethics standards.

Publisher compliance

Navigating the rapidly evolving AI policies across major publishing houses (e.g., Elsevier, Springer, IEEE) to ensure compliant manuscript submissions.

Embedded engagement

Reinforcing organisational guidance through embedded engagements directly within CSIR research groups.

Specialised AI enabled tools

iThenticate 2.0 & AI Module

Advanced similarity check and AI-generated text detection platform designed to protect CSIR's research integrity.

Detects matching text across 98+ billion web pages and 82+ million scholarly articles.

Flags potential uncredited generative AI content in research drafts.

Maintains institutional authorship transparency.

Writefull AI language engine

Automated academic writing guidance tailored specifically for scientific and technical publications.

Provides context-aware grammar, vocabulary, and phrasing improvements

Offers automated structural feedback tailored to scholarly standards

Accelerates manuscript preparation for non-native English researchers.

Publisher & Vendor AI Integrations - KMIS

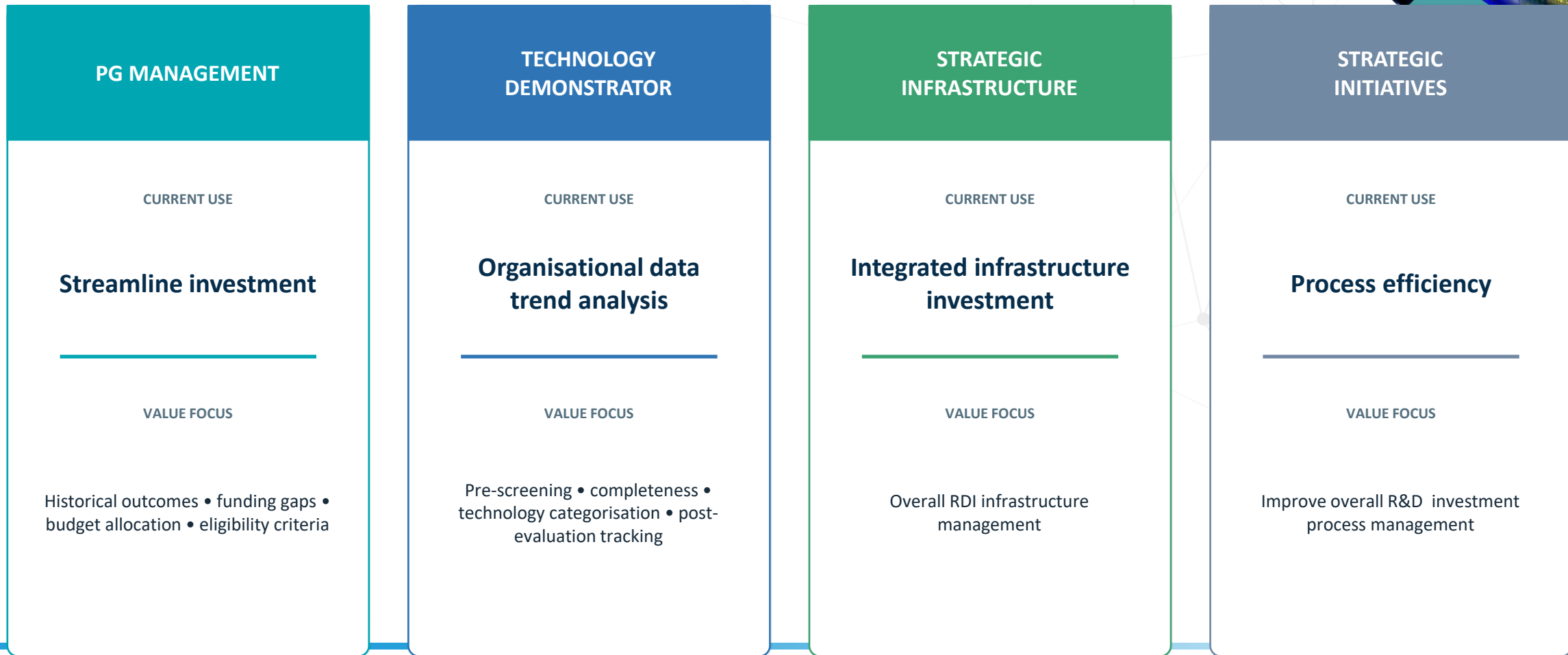
E-Resource subscription	AI Capability / Feature	Primary Benefit
EBSCO Host	AI Insights Module	Instant key takeaway extractions and paper summaries
Clarivate / ProQuest	Research Assistant & Quick Add	Conversational search & automated keyword expansion
Science Direct / Scopus	Reading Assistant & Scopus AI	Interactive full-text Q&A and thematic mapping
Oxford Academic	AI Discovery Assistant Chat	Conversational exploration of monograph content
JSTOR & ACM DL	Interactive Article Chat & Search	Full-text semantic interaction & beta research assistant

AI in Cataloging, ILL & Circulation (*Currently not in place*)

- ✓ Automated cataloging, AI extracts structured metadata directly from full-text PDFs to auto-generate MARC21/RDA records, assign subject headings (LCSH/MeSH), and ensure catalog authority control
- ✓ Intelligent ILL routing, Smart algorithms analyze partner holdings to route Interlibrary Loan requests to optimal sources, verify licensing compliance, and expedite digital document delivery
- ✓ Smart circulation, Predictive analytics forecast resource demand to optimize collection budgets, while conversational assistants handle 24/7 renewals, hold requests, and availability queries

Current use cases across the RDI portfolio Management

Four programme areas show a progression from analysis to decision and foresight support



Research ethics: administrative enablement, not ethics review

Current adoption focuses on secretariat and document support, with professional oversight retained

CURRENT FOCUS

Administrative support

D

Document drafting

- Policies, guidelines, procedures, EXCO presentations and briefing documents

M

Meeting support

- AI-assisted transcription and drafting of REC meeting minutes

S

Secretariat support

- Scheduling, records management and correspondence support

VALUE

EFFICIENCY

Less repetitive administration

CONSISTENCY

Improved formatting and proofreading

TURNAROUND

Faster reports, minutes and communication



BOUNDARY

**AI supports administration.
It does not replace the ethics review process.**

AI-ENABLED

IP and Technology Transfer Management

Strengthening invention disclosure, portfolio intelligence, commercialisation and NIPMO compliance

AI should augment professional judgement, not automate statutory accountability.

FASTER

SMARTER

TRACEABLE

VALUE = speed + evidence + portfolio visibility

1

DISCOVER

Mine project records and research outputs to surface potentially protectable results.

2

ASSESS

Accelerate prior-art, patent landscape, market and freedom-to-operate screening.

3

PROTECT

Support disclosure quality, classification, deadlines, prosecution decisions and portfolio review.

4

TRANSFER

Match technologies with partners; assist opportunity briefs, licensing scenarios and due diligence.

5

MONITOR

Track obligations, benefit sharing, statutory submissions, approvals and socio-economic outcomes.

Constraints and Adoption proposals

The constraints are enterprise-wide

The same four issues recur across the three portfolios

ACCESS & COST

Limited licences, tokens and uneven access constrain experimentation and repeatability.

SKILLS & PRACTICE

Capability gaps and inconsistent prompting, review and quality assurance practices.

DATA & GOVERNANCE

Confidentiality, POPIA, IP, source quality, traceability and approved-environment requirements.

WORKFLOW EMBEDDING

Use remains informal in many areas and is not consistently integrated into systems and processes.

Design principle: widen benefit without weakening review, confidentiality, traceability or accountability.

Proposed path to scaled adoption

Build evidence first, then standardise and integrate

1 FOCUS

Prioritise roles and low-risk, high-value use cases

Licence priorities • boundaries • quality assurance

2 PILOT

Test reusable workflows and capture evidence

Champions • prompt bank • templates • time and quality measures

3 EMBED

Integrate proven practices into portfolio work

Governance • reporting • repositories • wider access case

OUTCOME | Governed, repeatable and evidence-led AI adoption across the CSIR

Thank You