

# OPEN ACCESS REPOSITORIES AS AN ACCELERATOR FOR OPEN JOURNAL SYSTEMS AND ENHANCER FOR THE SA-SDGs HUB: SOUTH AFRICAN PERSPECTIVE

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# What are the 17 Goals?

The UNs' 17 Sustainable Development Goals (SDGs) provide a call to action to create a sustainable future for us all. They were adopted by all 193 world leaders who agreed to end all forms of poverty, fight inequalities, and tackle climate change.



# SDGs Context - South Africa

*“African leaders have responded to the SDG agenda by setting regional priorities within the Common Africa Position (CAP) on the post – 2015 development agenda (AU 2014) and later Agenda 2063”.*



# The relationship between Sustainable Development Goals (SDGs) and LIS

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- The African Union Agenda **2063** places prominence on *research* and *innovation* for *sustainable development*.
- An important development in the formulation of the Sustainable Development Goals is the universal recognition of the importance of *quality education in Goal 4*.
- The SDG Targets in **Goal 4** that are of particular *relevance* to the role of *Repositories, Data Stewards, Libraries* and *Information Specialists* is with alignment to **Goal 3 Ensure healthy lives** and promote well-being for all at all ages



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# SDGs Context - LIS SDG Challenge

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- The **Goal 4 (Education) Targets challenge:**
  - the issues of who are the **actual role players** and,
  - who bears the **responsibility** on the complex and inter-related issues of **accessibility** and **affordability** of knowledge resources.
- ILS/KM specialists have also to consider the appropriate **application** of the **4 interrelated** and **essential features** to the right to education as depicted in General Comment #13 of the United Nations Committee on Economic, Social and Cultural Rights (CESCR) namely:



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# Knowledge Management SDGs Application

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<b>Availability</b>	<b>Establishment of Communities of Practice that facilitate sharing of information, learning and cooperation in pursuit of practical sustainable solutions.</b>
<b>Accessibility</b>	<b>Roles in information literacy programmes and ecological literacy.</b>
<b>Acceptability</b>	<b>Making available open-source academic materials.</b>
<b>Adaptability</b>	<b>Training of researchers, policy makers, citizen science and public outreach support to ensure the application of knowledge in solving key global disaster health problems.</b>



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# SDGs Context - Knowledge Society Indicators in relation to SDGs

- Amount spent on Research & Development as a percentage of GDP
  - 15% of annual investment in R&D performed in SA comes from international partners.
- Qualitative measurement of use/access to ICT's
- Ability to produce high export technology
- Higher Education Internationalization
  - *“Process to integrate international, intercultural & global dimension into all aspects of higher education – to enhance the quality of education and research for all students and staff – to make a meaningful contribution to society”*
- Number of scientists in the country
- Number of Patents filed
- Number/impact of articles published in ranked (impact) journal



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# SDGs Context - Knowledge Generation Influencers

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- South African Government transformation objectives – a Knowledge Generation influencers knowledge society that competes globally: SDG #3 SDG #4 (influences the region)
- National Research & Development Strategy
- National Plan for Higher Education (NPHE)
- Human Resources Development Strategy for (S)A
- STEM (*Science Technology Engineering Maths*) Ten Year Innovation Plan (*Dept. of Science & Innovation*)
- National Development Plan
- Research Funding Framework
- South African Open Science Policy (Draft)



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# SDGs Context - What does this tell us?

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- How do we organise Knowledge Practitioners to better support the knowledge economy for sustainable development?
- How do we capture & communicate the value of data driven practices within the Sustainable Development Goals?



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# Open science – Accelerator for Sustainable Development Goals



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# The National Advisory Council on Innovation (NACI)

The National Advisory Council on Innovation (NACI) is appointed by the Minister of Science and Technology to advise him (and through him, the Ministers Committee and the Cabinet) on the role and contribution of innovation (including science and technology) in promoting and achieving national objectives, namely to:

- improve and sustain the quality of life of all South Africans
- develop human resources for science and technology
- build the economy
- strengthen the country's competitiveness in the international sphere.





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National  
Research  
Foundation

## List of National Research Foundation (SA)-Recognised Institutions

Universities	Research Councils	National Facilities & Institutions	Museums	Others
26	11	13	8	11



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# National – Institutional policies, practices and initiatives impacting research productivity



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# DHET Research Output Policy (South Africa)

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- The Department of Higher Education and Training (DHET), Research Output Policy (2015), provides a framework for the evaluation and subsidy allocation for research outputs produced by South African public higher education institutions (universities).
- The subsidization of research outputs forms a basis for sustaining research and promoting increased research productivity and other forms of knowledge generation required to meet national development needs.
- The Policy recognises three types of publications: **journal articles**, **book publications** and **published conference proceedings**.



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# DHET Creative outputs and innovations – HEIs, SA

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The Policy on the Evaluation of Creative Outputs and Innovations Produced by Public Higher Education Institutions in South Africa, recognises quality creative research outputs produced by public higher education institutions. The policy was published by the Minister of Higher Education and Training in Government Gazette (Vol. 40819 April 2017 no 395), for implementation in 2019:-

- Fine Arts and Visual Arts;
- Music;
- Theatre, Performance and Dance;
- Design;
- Film and Television; and
- Literary Arts.



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# South African SDG Hub: Overview

- Objective: to provide policy makers with access to relevant research generated by HEIs
- Key partner: UP library, HEIs and other Research Agents
- The hub address 3 dimensions of significance
  - National harvester
  - Access
  - Taxonomy
- Data: qualitative, unstructured, technical
- Hub is coordinated by a multidisciplinary team



**South African  
SDG Hub**



# South African SDG Hub: Overview

## Policy Makers



### Speaks 'policy'

No time to find and figure out repos and read and analyse articles

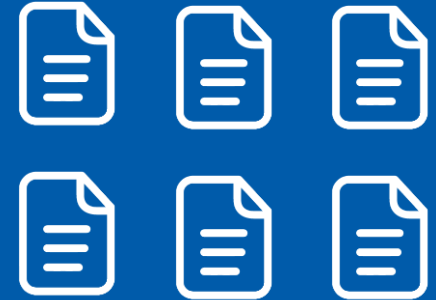
*Distance*



*Ways to try to shorten the distance:*

- *Centralisation of research*
- *Start translation from 'research' to 'policy' (NLP)*
- *Structuring through thematic clustering (NLP)*

Academic research distributed across repositories



### Speaks 'research'

Distributed across repos

Large number of articles per repo

# South African SDG Hub: Overview

## Harvest

Open access repository metadata  
Open access SDG training data

## Classify

Pytorch, NLP, Neural Networks  
Embed then classify

## Serve

Classification outcomes imported into frontend  
Indexed using Elasticsearch  
Multiple technology stacks

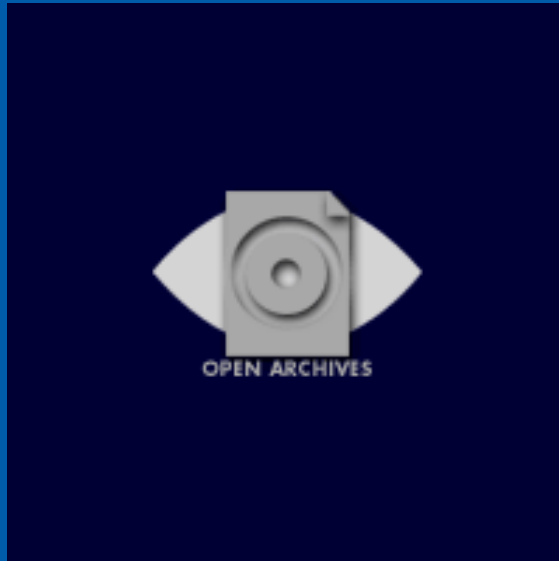


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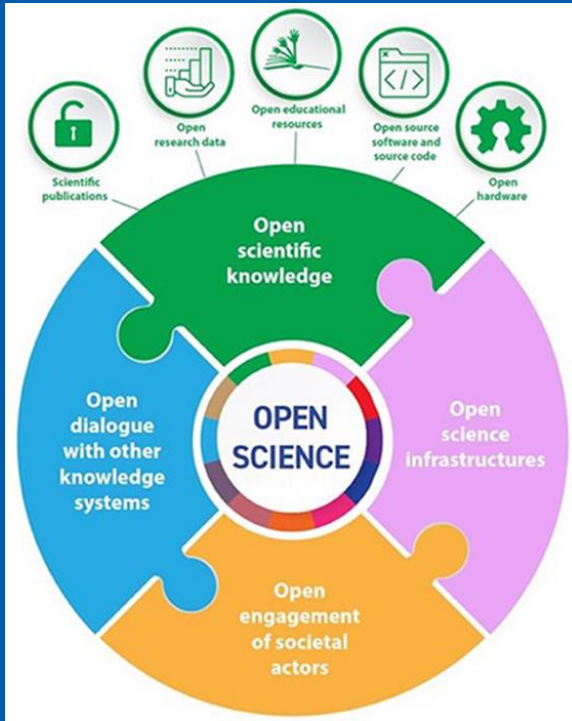
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# Technical Features: Harvest



- Large scale Open Access Repositories
- Currently harvested 38 repositories from SA and others around the globe (approx. 210k articles)
- Each repository is unique
- Harvester is continuously improved
- A challenge: metadata

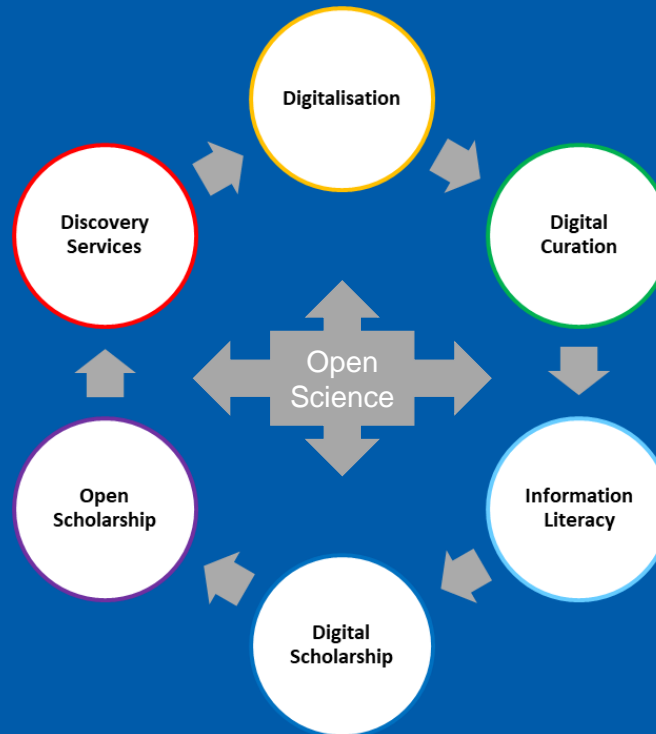
# Open Science



Leveraging HEIs' Open Access strategies to increase repository content

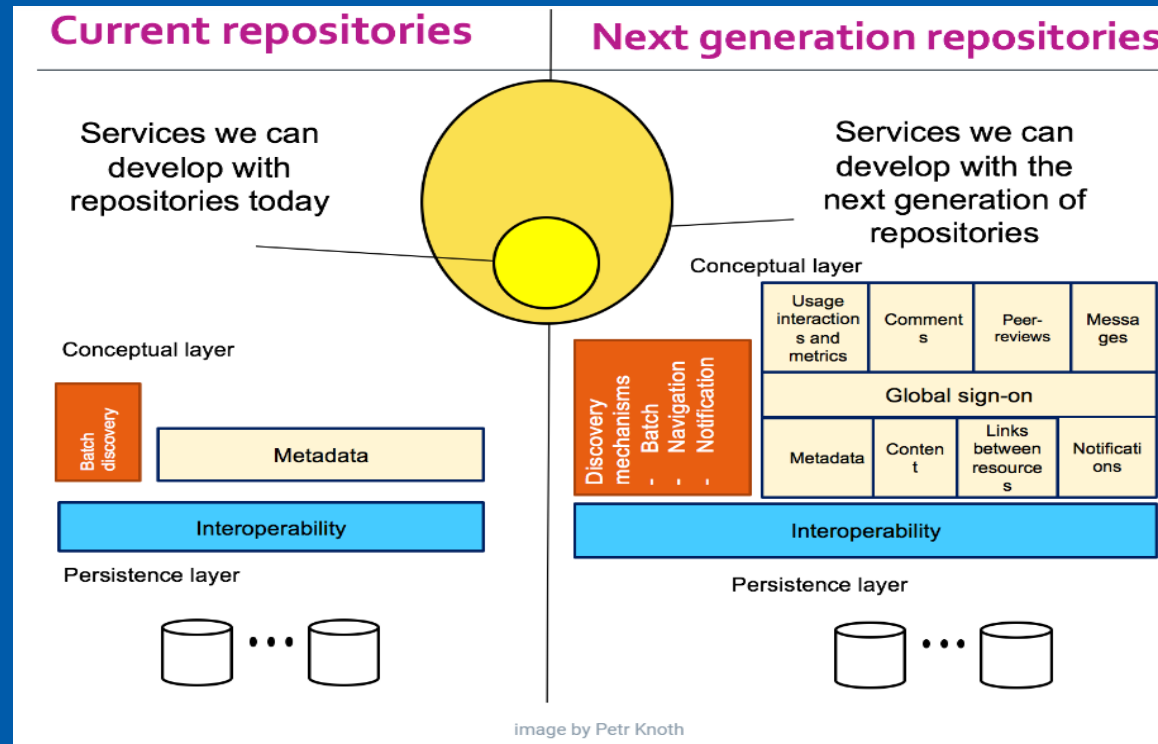
# Open Science workflows

Establish a Library Expert teams to develop workflow for digital curation of local repository content



Build discovery workflows and platforms by enhancing metadata of existing records (retrospective)

# South African HE Future Repositories



# South African HE Future Repositories

OJS	DSpace
<u>Managing and Publishing Scholarly Journals</u>	<u>Repositories</u> for Scholarly and /or Publishing Digital Content
The " <u>Submission</u> " workflow has 4 steps: <b>Submission, Review, Copyediting, and Production</b>	The " <u>Submission</u> " workflow in version 7 has 4 steps: <b>Describe, Describe, Upload File, Deposit License</b>
OJS has <u>17 roles</u> by default to make it easier to work on submissions or other things	DSpace has <u>6 roles</u> , namely: <b>Administrators, Editors, Final editors, Reviewers, Submitter, Anonymous</b>
OJS was developed by <u>Public Knowledge Project (PKP)</u>	DSpace was developed by <u>DuraSpace</u>

Role of OJS and Repositories, e.g, DSpace



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# South African Open Repositories

- Africa Journal Archive (Sabinet)
- African Higher Education Research Online
- CSIR Research Space
- Durban University of Technology
- HSRC Research Outputs
- National Research Foundation - Nexus Database System
- OpenSALDRU (Southern Africa Labour and Development Research Unit at UCT)
- OpenUCT
- SCIELO SA
- South African Genealogy - Family History research in South Africa - SA Genealogy
- South African National Veterinary Repository
- UCT CS Research Document Archive
- Research Document Archive
- University of Fort Hare IR
- University of Johannesburg IR
- University of KwaZulu Natal - UKZN ResearchSpace
- University of Limpopo IR
- University of Pretoria UPSPACE
- University of South Africa - UnisaIR
- University of Stellenbosch IR
- University of Stellenbosch LIBSpace repository
- University of the Free State KovsieScholar
- University of the Western Cape ETDs
- University of the Western Cape Research Repository
- University of the Witwatersrand, Johannesburg (WITS) (WIReDSPACE)



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# South African Open Data Repositories

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- Africa Health Research Institute Data Repository
- DataFirst – University of Cape Town
- eSango – Cape Peninsula University of Technology
- Human Sciences Research Council Research Data Service
- Kikapu - University of the Western Cape Institutional Research Data Repository
- South African Centre for Digital Language Resources
- South African Environmental Observation Network Data Portal – National Research Foundation
- South African Weather Service
- Square Kilometre Array – National Research Foundation
- SUNScholarData – University of Stellenbosch
- UP Data Repository – University of Pretoria
- ZivaHub – University of Cape Town



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# South African OJS Platforms (HEIs)

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- Cape Peninsula University of Technology - Open Journal System
- Durban University of Technology - Journals
- Rhode University - Hosted Journals
- Stellenbosch University - SUNJournals
- University of Cape Town - Open Journal System
- University of Johannesburg - UJ Library Open Journal System
- University of KwaZulu Natal - Open Journals@UKZN
- University of Pretoria - UP Journals
- University of South Africa - Unisa Press Journals
- University of the Free State - Kovsie Journals
- University of the Western Cape - UWC Library Online Publishing Support Service

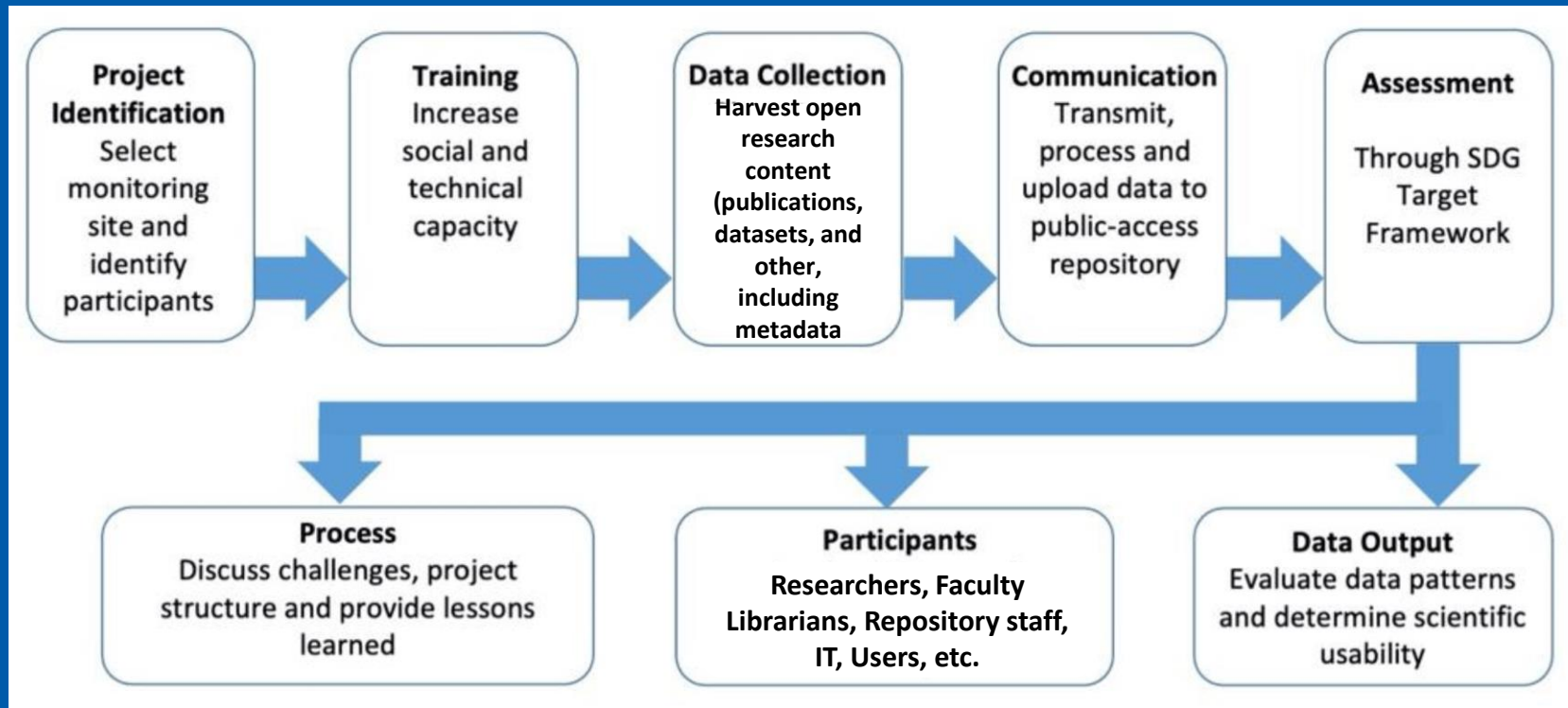


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# Proposal for Research Output (SDGs) Content Curation

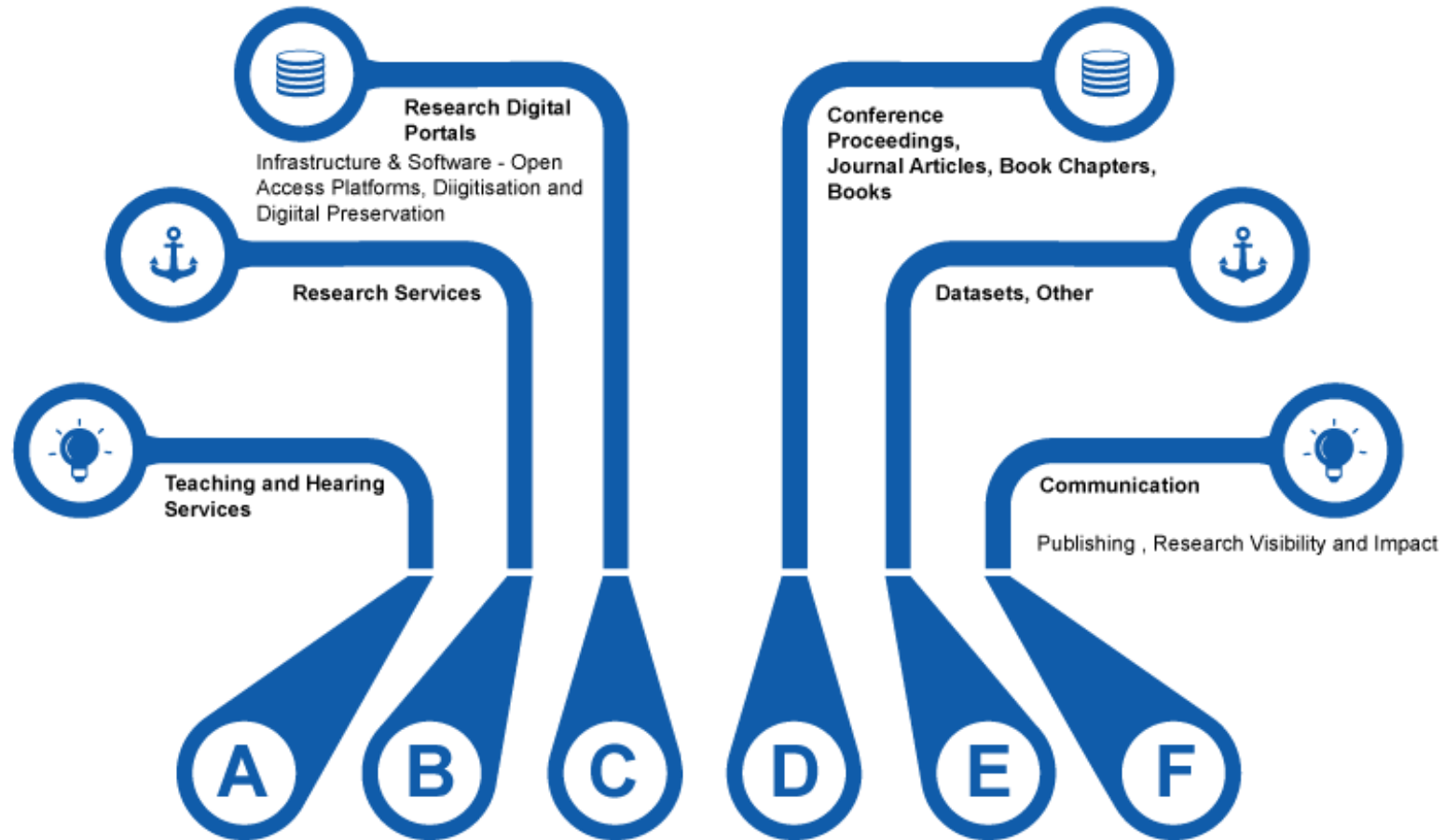


*Schematic of the SDGs Open Science Initiative*

# Aligning the Research Cycle to the SDGs Content Curation



# Open Scholarship: Metadata & Repositories Workflows



# SDGs: Research Stakeholders & Partnerships

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# Future of South African SDGs Hub & Repositories

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- Vocabulary definition and usage in practice
- More detailed classification information (as part of Metadata Quality Efforts)
- Shared national classification information – National Development Programme
- Linked Open Resources Integration
- More context information, more vocabulary
- Usage and more precision in discoverability
- Discoverability - critical to the success of repositories and OJS platforms is that their content is visible via other services, OA harvesters and searchability via HE libraries' catalogues
- National Repository Harvester



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