Implementing CKAN with Datacite DOI

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What we will cover...

• A little insight into CKAN and Datacite at IITA
  • IITA’s dream
  • Journey to...

• IITA data repository
  • Why Datacite
  • CKAN design
  • Architecture
  • Integration with APIs

• Features of IITA’s CKAN

• Doing more with Datacite...
  • Offerings
  • DOI minting
   • Integration of breeding database (Cassavabase) into CKAN

• Impact

• Credits

• Discussions
A little insight into CKAN and Datacite at IITA
IITA’s dream

IITA wished to have an institutional data repository that conforms to open access/open data.

Repository should be trusted with long-term access.

The repository must meet FAIR data repository expectations.

The repository should be acceptable and integratable to future CGIAR global data platform(s).

Must be accessible globally without any restriction.

Conforms to CGIAR agreed metadata standard.
Journey to... Trusted Repository

• Sustainability
• Security
• Long-term preservation
• Get credit for data use
  • **Visible**
  • **Findable - Accessible**
  • **Permanent Identifier.. Datacite DOI**
IITA Data Repository

CKAN is the platform!
Datacite DOI is the PID!
Why Datacite?

- Support data citation API’s
- Increase data visibility with 3rd party partnerships and integration
- Data use tracker
- Availability of citation formatter through http://citation.crosscite.org
- It has a supportive community
- It is easy to manage
IITA’s CKAN design overview
IITA’s Open Data (CKAN) Architecture

User Interface
- Datasets statistics
- Access control
- Datasets view
- Analytics view
- Search view
- API

Services
- Metadata
- System configuration
- User management
- Data scheming
- Harvesting
- Logging
- Datapusher

Storage
- Filestore
- Datastore
DataStore + DataPusher

DataStore

DataPusher

CKAN

Data File: CSV, Excel
Preview widgets
Data API (read only)

Database
PostgreSQL

DataStore and DataPusher relationship
CKAN and Datacite DOI Integration
How it works

• IITA adopts 2 methods of DOI minting
  • Auto-generation using python and Datacite API
  • Manual from Fabrica

• Auto-generation is for data coming from other research databases like Cassavabase

• Manual is for data shared through any of:
  • email,
  • data submission app or
  • shared-drive
DOI Minting

Auto DOI minting with Python

Data shared through email, drive or portal

Auto minting of doi using python

Data citation from Datacite doi... How it works

- IITA uses CGCORE v2 metadata standard
- It is merged with Datacite metadata and the minted doi
- This is transmitted to Crosscite
- The output citation styles is posted to CKAN
Data citation generation

- CGCORE metadata
- Datacite Metadata + DOI
- Crosscite API

Multi-styled Data Citation
Features of IITA’s Data Repository, CKAN

- IITA central institutional data repository features
  - Conforms to global FAIR and trusted repository requirements
  - PID – Datacite doi
  - AGROVOC
  - Tags
  - CGcore metadata v2
  - 10 Data citation styles/standards
  - Embargo period settings
  - Integration with Breeding database (Cassavabase)
  - Integration with DSpace
  - Integration with GARDIAN and other Big Data Platforms
  - Available in Google Data-search
  - Google Analytics
  - Data visualization
  - Data submission platform – beta stage

IITA’s Institutional Data Repository URL – http://data.iita.org
Doing more with Datacite doi ...
Doing more with Datacite offerings

• Datacite DOI facilitated multi-style data citation
• Integration with customized metadata for CGIAR, CGcore metadata, achieved seamlessly
• Setting out plans to have multirepository doi infrastructure
• Research databases without DOI, data citation, and CGCore metadata were integrated into CKAN
  • Started with Cassavabase
  • Musabase near completion
Doing more with Datacite DOI

Multi-style data citation

CGcore metadata
Doing more with Datacite doi – Cassavabase integration with CKAN
How it works

• Use unique identifier to identify IITA datasets in breeding database (studyDbId & programDbId)

• Define rest state as completed projects using certain parameters

• Create script to crawl breeding database to:
  • Identify IITA’s data
  • Data in rest state call up
  • Crawl db at off-peak with schedule

• Auto-review data and update with necessary doi, tags and CGcore metadata v2

• Data quality auto check (PII, ethical concerns, anonymization, license type)

• Final publishing
CKAN integration with API’s

IITA’s CKAN

BrAPI

JSON

Datacite API

Crosscite API
Integration schematic flow

Breeding dataset

Primary db. location

External

Partner’s database

Internal

Local database

BrAPI, CKAN API + Datacite API

Auto assign DOI, CGcore metadata

QA check

CKAN staging db..

CKAN API + CrossCite API + Web services

Live output

Back/local copy

CASSAVABASE TO CKAN DATA INTEGRATION
IITA BIGDATA BUILD-UP

Workflow by: Olatunbosun Obileye & Abduljelil Olalekan
Impact

• Better acceptance from researchers/scientists
• Increased research data visibility within and outside CGIAR – GARDIAN
• Compliance with FAIR data principle
• Improved partnership
• Enhanced data management practices in the institution
• More funding
Credits

• Martin Mueller
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Thank you