

Showcase: Biodiversity Exploratories Information System

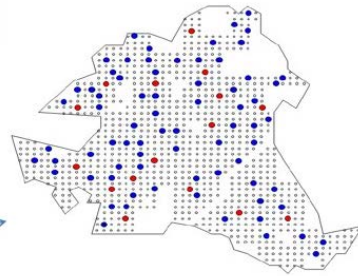
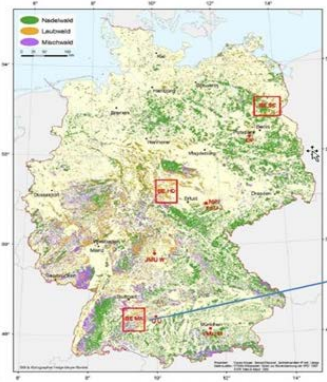
Report of our current stage of migration to the new BEXIS2 instance

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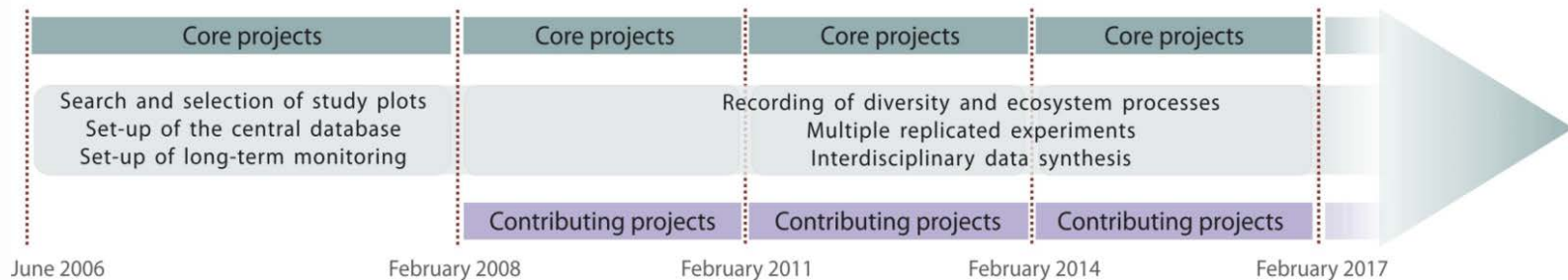


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DFG priority programme (Schwerpunktprogramm):
Exploratories for large-scale and long-term functional biodiversity research
= open research platform for functional biodiversity

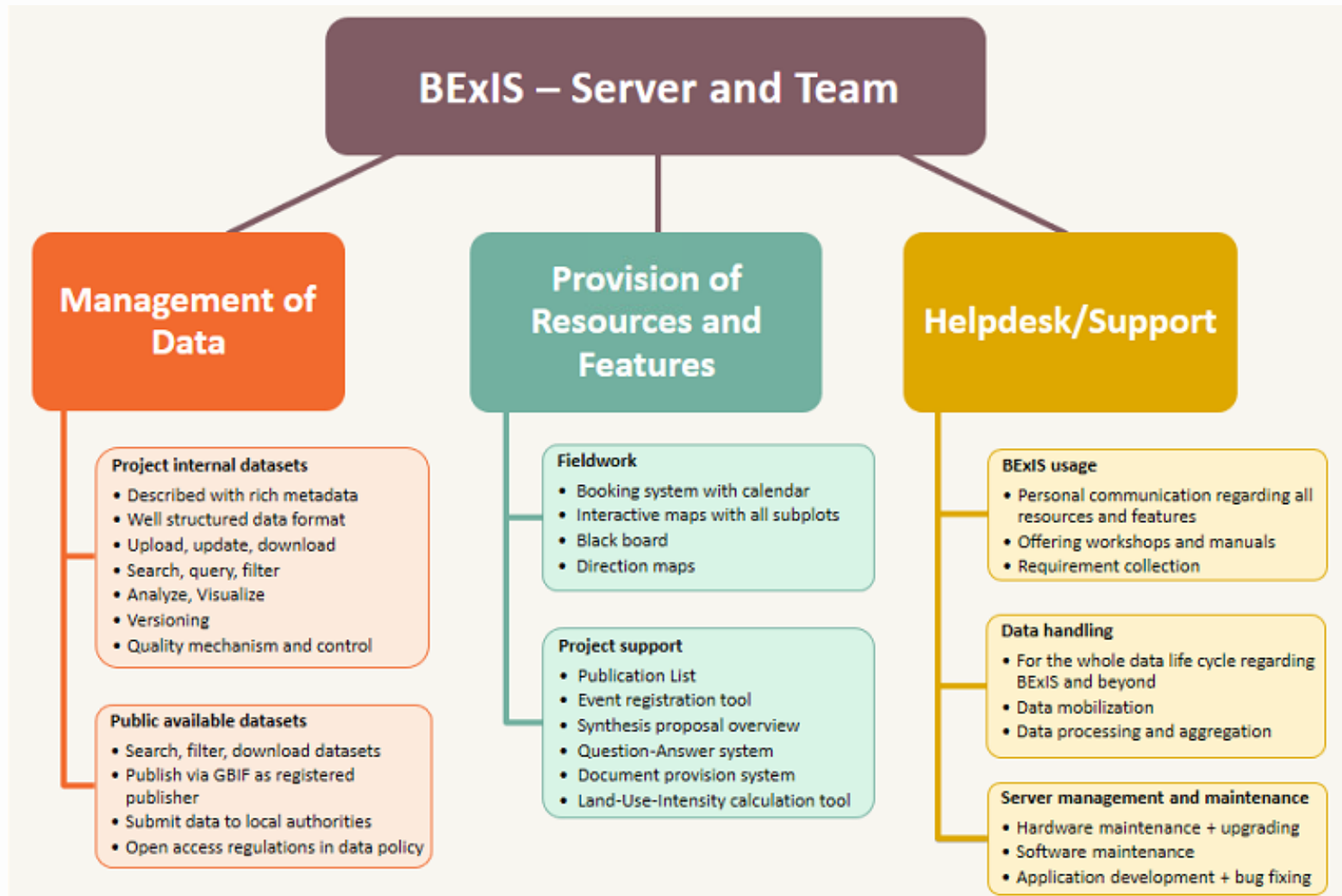


300 field plots in 3 areas in Germany
44 projects (current phase)
285 project members (ditto)



Research platform with long-term prospect

- Crucial for success of project:
- interchange of data among projects
 - integrative data analyses and data re-use
- = need for **central data repository** and additional functionalities to support research



BEXIS2 has focus on data.

BEXIS – Server and Team

Management of Data

Project internal datasets

- Described with rich metadata
- Well structured data format
- Upload, update, download
- Search, query, filter
- Analyze, Visualize
- Versioning
- Quality mechanism and control

Public available datasets

- Search, filter, download datasets
- Publish via GBIF as registered publisher
- Submit data to local authorities
- Open access regulations in data policy

Provision of Resources and Features

Fieldwork

- Booking system with calendar
- Interactive maps with all subplots
- Black board
- Direction maps

Project support

- Publication List
- Event registration tool
- Synthesis proposal overview
- Question-Answer system
- Document provision system
- Land-Use-Intensity calculation tool

Helpdesk/Support

BEXIS usage

- Personal communication regarding all resources and features
- Offering workshops and manuals
- Requirement collection

Data handling

- For the whole data life cycle regarding BEXIS and beyond
- Data mobilization
- Data processing and aggregation

Server management and maintenance

- Hardware maintenance + upgrading
- Software maintenance
- Application development + bug fixing

Move data

2 main work packages for migration:

Move data

Provision of additional
functionalities

Research data Move data

Research data
as
datasets

Additional data

Meta data

Data structure

Primary data

Authentication

Authorization

Account

individual need for migration

We have:
(as of Sep 2018)

> 1,200 data sets
> 20,000 variables
> 99,000,000 tuples

> 650 users
> 200 alumni
> 150 projects
> 12,500 data rights

Research data

Meta data

Data structure

Primary data

Done!
How?

Get data directly from BExIS database + auxiliary sources

Use of API calls to load data into BEXIS2

What progress since last?

Research data

Meta data

Data structure

Primary data

What progress since last?

Metadata:

- Done
- xsd needed (should exist anyway)

Data-structure:

- More or less done
- Time-consuming mapping of BEXIS vs. BEXIS2 concepts

Primary data:

- Working but data /data-structure problems need to be solved
- Versioning needs to be considered
- Matrix data needs solution
- Probably performance issues

Metadata:

- Still done (but enhancement planned)

Data-structure:

- Algorithm works
- Ongoing mapping

Primary data:

- Depends on data-structure mapping
- Versioning considered
- Matrix data as attachment (workaround)
- Performance issues considered

Additional data Move data

Research data
as
datasets

Additional data

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Data structure

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Authentication

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Additional data

Authentication

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Done!
How?

Get data directly from BExIS database (+ auxiliary sources)

Use of API calls to load data into BEXIS2

What progress since last?

Additional data

Authentication

Authorization

Account

What progress since last?

Additional data migration needed:

- Migration of authentication data (user names, passwords)
- Migration of authorization information (data rights, system access, ...)
- Both are done

Authentication data

- still done

Authorization data

- still done

Our BEXIS2 feature wait list :

- Module injection routine
- Party package (persons, projects, organizations, ...)
- Data request system
- Notification system

Account data

- Done
- Business administration module (BAM) in BEXIS2
- Own (instance specific) PartyTypes.xml
- List of project members with their project times
- Hardcoded transfer of respective objects

Additional data

Account

PartyTypes.xml

```
<DefaultPartyParameters>
  <PartyTypes>
    <PartyType.Name="Person".>
      <Attribute.Name="FirstName".type="String".isValueOptional="false".isMain="true".>
      </Attribute>
      <Attribute.Name="LastName".isValueOptional="false".isMain="true".>
      </Attribute>
      <Attribute.Name="personType".type="String".validValues="Member,Guest">
      </Attribute>
      <Attribute.Name="Phone".type="String">
      </Attribute>
      <Attribute.Name="Street".type="String".>
      </Attribute>
      <Attribute.Name="ZipCode".type="String".>
      </Attribute>
      <Attribute.Name="City".type="String">
      </Attribute>
      <Attribute.Name="ProjectName".type="String".condition="[personType]=='Guest'">
      </Attribute>
      <Attribute.Name="isPI".type="bool".condition="[personType]=='Member'">
      </Attribute>
    </PartyType>
    <PartyType.Name="Organization".>
      <Attribute.Name="Name".type="String".isValueOptional="false".isMain="true".>
      </Attribute>
    </PartyType>
    <PartyType.Name="Project".>
      <Attribute.Name="Name".type="String".isValueOptional="false".isMain="true".>
      </Attribute>
    </PartyType>
  </PartyTypes>
  <PartyRelationshipTypes>
    <PartyRelationshipType.Name="organizationEmployment".DisplayName="Organization.Employment".Description="for which institute is a person working for".IndicatesHierarchy="false".MaxCardinality="50".MinCardinality="1".>
      <PartyTypesPairs>
        <PartyTypesPair.SourceType="Person".TargetType="Organization".Title="employment".Description="for which institute is a person working for".conditionSource="[personType]=='Member'"/>
      </PartyTypesPairs>
    </PartyRelationshipType>
    <PartyRelationshipType.Name="projectMember".DisplayName="Project.Member".Description="in which project(s) is a person working for".IndicatesHierarchy="false".MaxCardinality="50".MinCardinality="1".>
      <PartyTypesPairs>
        <PartyTypesPair.SourceType="Person".TargetType="Project".Title="project.member".Description="in which project(s) is a person working for".conditionSource="[personType]=='Member'"/>
      </PartyTypesPairs>
    </PartyRelationshipType>
  </PartyRelationshipTypes>
</DefaultPartyParameters>
```

Provision of additional functionalities

2 main work packages for migration:

Move data

Provision of additional
functionalities

Provision of additional functionalities

What progress since last?

Our BEXIS2 feature wait list :

- Module injection routine
- Party package (persons, projects, organizations, ...)
- Data request system
- Notification system

Wait list dependent work packages:

- Refactoring our modules to fulfil module injection requirements
- Refactoring our modules to make use of party package
- Refactoring our modules to make use of notification system
- Migration of party data (names, organization, addresses, projects, ...)

Functionality migration:

- Refactored modules to follow module handler specs
- Refactored modules to integrate party package
- Refactored modules to use notification system

Provision of additional functionalities

Functionality migration in progress:

- In good progress (need for refactoring):
 - Field book (Resource booking management)
 - Event Management
 - Plot Map
 - Document sharing
 - LUI tool
 - Climate data integration
- To do:
 - webGIS
 - Data visualizations
 - Alumni administration
 - Owner information (dataset usage information)
 - Wiki?



Resource Booking Management



Graphical
Research Area Management



Event Registration



Document Upload



Climate Data Integration



LUI Calculation Tool



Photo Gallery



Question-Answer System



Data Visualization



Wiki

2 main work packages for migration:

Move data

Data migration in good progress:

- **Done:**
 - Metadata
 - Data-structure (ongoing)
 - Primary data
 - Authentication data (user names, passwords)
 - Authorization information (data rights, system access, ...)
 - Account data (names, organization, addresses, projects, ...)
 - Additional features data (Field book, Plot map, ...)
- **To do:**
 - Adapt to releases
 - Mapping of data-structure from new datasets

2 main work packages for migration:

**Provision of
additional
functionalities**

Functionality migration in progress:

- **Refactoring done**
- **Development still in good progress :**
 - **Resource Booking Management**
 - **Event Management**
 - **Graphical Research Area Management**
 - **Document Upload**
 - **LUI Calculation Tool**
 - **Climate data integration**
- **To do:**
 - **Photo Gallery**
 - **Question-Answer-System**
 - **Data visualizations**
 - **Alumni administration**
 - **Owner information**
 - **Wiki**
 - **webGIS?**

Thanks!