



EUROPEAN DISTRIBUTED INSTITUTE OF TAXONOMY (EDIT)

**WP5: Internet Platform for Cybertaxonomy
(M5.1.3.1)**

INFORMATION SCIENCE & TECHNOLOGY COMMISSION (ISTC)

REPORT

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INFORMATION SCIENCE & TECHNOLOGY COMMISSION (ISTC)

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FOREWORD

The *Information Science & Technology Commission* (ISTC) is part of *European Distributed Institute of Taxonomy* (EDIT) which is funded by the European Union's Sixth Framework Programme Sub-priority 1.1.6.3 "Global Change and Ecosystems", *Network of Excellence*.

Within EDIT, the ISTC is organised by Work-Package 5 (WP5) *An Internet Platform for Cybertaxonomy* under the work-package milestone (M5.1.3) which states:

"Informatics Committee: Setting up an Informatics Committee to facilitate the dialogue and collaboration between I & IT [IST] departments and to act as the key body proposing procedural changes and adaptations. Ensure interoperability through an infrastructure built on services, ensure (as far as possible) compatibility of components to ease replicated installations. Develop mechanisms for the certification of EDIT platform components" (EDIT Annex I - "Description of Work" p. 116)

This document acts only as a guideline towards formal agreements on the integration of IT resources between EDIT partner institutions. The report is a result of the first ISTC meeting held at the Botanic Garden and Botanical Museum Berlin-Dahlem, November 6 – 7.

1. INTRODUCTION TO EDIT AND WORK-PACKAGE 5

The *Information Science & Technology Commission* (ISTC) is an initiative of the EU funded *European Distributed Institute of Taxonomy* (EDIT). Work-Package 5 (WP5) *An Internet Platform for Cybertaxonomy* is one of the focal points of EDIT as it is directed at the practical application of methods developed in information science and biodiversity informatics for use in revisionary taxonomy and taxonomic field work. At the same time EDIT hopes to facilitate the integration of biodiversity informatics and IT resources within participating institutions.

During the first 18 month period of the project we will set out to analyse the pre-requisites for the establishment of co-operative processes, model the information domain and particularly the work processes. We will also provide first practical applications in a rapid prototyping approach addressing identified bottlenecks. Points that need to be addressed on the organisational side include forming inter-institutional coordination structures to identify parallel activities, inventory techniques (and procedures used in these activities), investigate possibilities for harmonised procedures and/or techniques, and pursue the integration of the data holdings of the participating institutions. An in-depth modelling effort of the revisionary work process and of taxonomic field work in the context of inventory and monitoring projects will be carried out with respect to the necessary analysis of the taxonomic work process. In conjunction with these efforts, we will reach out to identify existing electronic tools for taxonomists, test their usability and where necessary provide developer time to improve their interoperability. The aim of EDIT is to build a distributed computing platform that assists taxonomists by providing certified and tested existing labour and time saving tools in order to do taxonomy expediently and via the web. Although the approach in the short and medium term will be strictly pragmatic and product oriented, room will be left to think about long term integration of taxonomy into a broader eScience environment.

The character of EDIT as a joint effort of large taxonomic institutions with high level support in the institutional hierarchy provides a unique opportunity to build sustainable structures, if acceptance of the tools by the taxonomic researcher can be assured. In order to achieve this, EDIT has already begun to enlist taxonomists to test, document software and provide feedback on various existing taxonomic tools.

More information about EDIT and WP5 can be found at www.e-taxonomy.eu (currently under construction).

2. GOALS AND TERMS OF REFERENCE OF THE ISTC

2.1 Terminology

EDIT Partner: A signatory to the EDIT Consortium Agreement (CA).

EDIT 3rd Country Participant: An institution or consortium that has signed the CA but does not receive funding through the project because of its location outside the area qualified for funding by the EU Research Framework Programme.

Cybertaxonomy: See discussion on EDIT WP5 Wiki <http://ww3.bgbm.org/EDIT/cybertaxonomy>. Until a clearer definition is established, the term *Cybertaxonomy* will be referred to as “[cyber]taxonomy”.

ISTC: Information Science & Technology Commission. The ISTC is run through EDIT WP5.

IST Department: Any institutional department, committee or inter-institutional group that is responsible for IT research, development and integration as well as interaction with taxonomists and [cyber]taxonomic projects.

Resource: A IST person or IST department, database, or service which can be used to accomplish a goal.

Short term denotes processes and tasks to take place within the next 18 months; **Medium term** within the current project’s duration (until 2011) and; **Long term** is beyond that period.

Tool: A software program that contains one or more functions that can extract, edit, search or compile data relevant to taxonomy (e.g. database, geo-referencing tool).

2.2 Discussion of Terms of Reference Document

Background: To help to overcome the fragmentation of taxonomic institutions and to assist taxonomists to organise their work more efficiently, the ISTC has been organised by EDIT WP5 in order to:

1. Establish contact between IST departments and/or IST committees within EDIT partner institutions.
2. Acknowledge and support WP5 EDIT activities that aid IST integration.
3. Promote communication between IST departments of EDIT partner institutions.
4. Establish a Statement of Requirements for IST resources across all EDIT partners.

The purpose of the ISTC is:

1. To define key areas that can benefit from cross institutional integration in order to help the development of [cyber]taxonomy.
2. Provide input and feedback with regard to the WP5 work plan.
3. To discuss possible short and medium term goals over a period ending in 2011.
4. To discuss possible long term goals for a common framework for inter-institutional projects extending beyond 2011.
5. Collaborate with existing related [cyber]taxonomic projects and to initiate further projects.
6. Draft formal agreements on the integration of IST and human resources between EDIT partner institutions. Presently however, the ISTC is in no position to **ratify or sign any document** relating to its goals.

2.3 Short-term and Medium-term Goals

The short and medium term goals of the ISTC (until 2011) are to:

1. Define the key areas for integration that will assist EDIT researchers and developers in creating a [cyber]taxonomic platform.
2. Participate in establishing an integrated platform by changing or adapting resources in order to reach a common goal.
3. Advise on the annual revision of the WP5 workplan (see 6.2).

The long term goals of the ISTC (beyond 2011) are to:

1. Develop and maintain a [cyber]taxonomic platform.
2. Maintain and continue further integration of European and other IST and human resources by actively participating in upcoming EU projects

The ISTC recommends including an additional goal:

3. Establish and/or maintain dialogue between IST departments and developers of European and other institutions that wish to integrate their own resources.

2.4 ISTC Group Communication

A mailing list (edit-istc@bgbm.org) has been established between all ISTC members. An ISTC wiki (<http://ww3.bgbm.org/EDIT/IstcRelated>) is also available to all ISTC members¹. All WP5 reports and project documents will be stored in the WP5 Wiki <http://ww3.bgbm.org/EDIT/Welcome>.

3. INTEGRATION OF EUROPEAN + US & RUSSIAN IST DEPARTMENTS

3.1 Determining Resources A: Dorkeld Report (WP5.1.2)

Dorkeld Report: Franck Dorkeld (INRA)² is responsible for WP5 D5.1.2 Documenting Informatics and IST (I&IT) departments and will present a confidential report outlining the IST structure of several EDIT partner institutions. The report will cover certain aspects of each IST department including:

- Access and link to the internet
- Servers
- Individual computers
- Programming language
- Database management systems
- Security
- Participation and/or interaction with existing taxonomic projects

The report will also include **recommendations for future integration (Month 10)**.

3.2 Determining Resources B: Status of European, US IST Departments

Points relating to operation 3.2 are outlined in 3.1.

3.3 Integration of Resources A: Licences, Software & Hardware

Resources such as licences, software & hardware can be integrated either by sharing a common licence or by allowing inter-institutional access. In order to effectively outline a path

¹ Details concerning the EDIT WP5 website can be found under point 6.1.

²The task will be handed over to Patricia Mergen (RMCA) in December 2006.

to integration, the documentation of IST resources of each institution must be established as well as the willingness of each partner to allow access to other institutions and individuals.

3.4 Integration of Resources B: Sharing of Knowledge & Human Resources

The problem of citation and copyright are an issue with any sharing of knowledge. A strict guideline detailing a citation process that acknowledges the authors of certain data needs to be established. IST Human resources, such as the sharing of developers or modellers is necessary in case where partner institutions are lacking such skills.

The ISTC recommends that EDIT WP5 developers and modellers visit EDIT partner institutions in order to facilitate an EDIT teaching/training program (as has been the case in WP5.2). Such training programs can be funded by existing EU Projects such as Erasmus, Marie Curie Fellowships or SYNTHESYS.

4. CATEGORIES FOR TOOLS FOR TAXONOMISTS

The tools and resources category for taxonomists acts as a classification scheme that covers all tools and resources used in the production of the [cyber]taxonomic platform. The ISTC recommends that the same categories for tools also be used for IST and human resources.

These categories are as follows:

- Descriptive
- Taxonomic Identification
- Nomenclatural
- Taxonomic Core Module (database & management)
- Geographic
- Communication
- Bibliographic
- Image Processing
- Publication
- Field

The ISTC is currently discussing the accuracy and merit of the classification in the ISTC wiki (<http://ww3.bgbm.org/EDIT/SoftwareCategories>).

5. CERTIFICATION PROCESS

5.1 Certification Process Models

An EDIT certification model or models needs to be established in order to assess tools for [cyber]taxonomy. Existing models (TDWG) are either too specific or too general in relation to existing tools for [cyber]taxonomy. A rigid EDIT [cyber]taxonomic certification should also be recognised by other certification processes (TDWG etc.). Existing tools that will be incorporated into the certification process are being documented during the taxonomic modelling process (WP5.2.1) and will be classified once the taxonomic model is complete (see 4).

5.2 Goals of EDIT Certification

EDIT certification aims to:

1. Assess current tools for [cyber]taxonomy based on a list of requirements.
2. Promote the use of standardized [cyber]taxonomic work practises worldwide.

The ISTC recommends that two further goals be included in the EDIT certification:

3. The identify the necessary criteria for certification (e.g. security, documentation and guarantee of sustainability).
4. Encourage the availability of high quality of [cyber]taxonomic data to all [cyber]taxonomists.

The above goals are being further refined by the ISTC (see the ISTC Wiki: <http://ww3.bgbm.org/EDIT/Certification>)

5.3 (Preliminary) Criteria for EDIT Certification

A list of preliminary criteria for EDIT certification should be established by drafting a *List of Requirements for Standardization of Tools used in the Cybertaxonomic Work Process*. This list will be drafted once current tools are identified and the WP5 taxonomic modelling has been completed (due in late July 2007). The ISTC recommends that:

- Possible criteria include stability and longevity of tools, adherence to existing standards, adherence to the taxonomic work process, and interfacing.
- Criteria used in other tools (e.g. OpenGIS) and fields (e.g. astronomy) may be assessed for their compatibility to EDIT aims and adopted if appropriate.
- Appropriate testing criteria for EDIT certification must also be assessed using current standards and guidelines (e.g. ISO/IEXC PDTR 15504).

6. WP5 EDIT WEBSITE

At present the WP5 website is under construction. The ISTC recommends that the preliminary WP5 website be incorporated into the existing EDIT website as a sub domain (wp5.e-taxonomy.eu) rather than a separate domain (e.g. www.cybertaxonomy.org).

7. SECOND 18 MONTH PLAN (OUTLINE & ACTIVITY DEFINITION)

All EDIT work packages are assessed annually by an independent Scientific Advisory Board (SAC). The board makes further recommendations that affect the work plan and finances of each work package. The EDIT work plan for the next 18 month period was presented to the ISTC who have recommended that:

1. Further tool/resource categories (descriptive/taxonomic tools, Communication tools etc.) should be added as activities rather than as operations within activity 5.2.
2. A operation dedicated to modelling the [cyber]taxonomic platform should be added into activity 5.2.

The revised WP5 work plan has been drafted (including additional costing) for presentation to the Scientific Advisory Council on November 14, 2006.

8. LONG TERM VISION FOR THE PLATFORM

A list of expectations discussed by the ISTC:

1. Establish a standard [cyber]taxonomic model.
2. The sharing of licences between EDIT partner institutions.

3. The promotion of a [cyber]taxonomic standard to encourage taxonomists to use [cyber]taxonomic tools.
4. The documentation and classification of [cyber]taxonomic tools and resources in order to assist integration efforts between EDIT partner institutions.
5. The integration for the [cyber]taxonomy platform needs to be efficient.
6. Collaboration between institutions to be increased to avoid duplication of efforts.
7. Provide a repository for electronic taxonomic data.
8. To promote [cyber]taxonomy as a new way to do taxonomy.
9. To promote [cyber]taxonomy as major component of all taxonomic training.
10. Establish a standard that assess the quality of data.
11. Promote standards that taxonomists trust.
12. Assess the effectiveness and quality of [cyber]taxonomic tools.

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