



ORGANIZATION OF THE INTERNATIONAL CONSORTIUM OF ZOOMORPHOLOGY STANDARDS¹

Last amended **Month Year**

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¹ This document is in large parts based on various documents from the Taxonomic Databases Working Group (TDWG; also known as Biodiversity Information Standards; <http://www.tdwg.org/>), with some passages being identical. The respective sources are listed in the references at the bottom of the document.

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1. NAME AND PURPOSE

The International Consortium for Zoomorphology Standards (herein called "ICZS") is a not-for-profit, scientific and educational association formed to establish international collaboration among the creators, managers and users of morphological information about Metazoa (i.e. multicellular animals).

ICZS:

1. develops, adopts and promotes standards and guidelines for the recording and exchange of morphological data and metadata about multicellular animals;
2. promotes the use of its standards through the most appropriate and effective means;
3. acts as a forum for the discussion of zoomorphology standards related topics by organizing symposia in meetings and through the ICZS web site that provides a collaborative infrastructure that effectively supports standards development;
4. undertakes any other activities that are judged useful to the organization.

2. GENERAL STRATEGY OF ICZS²

Morphology is one of the oldest biological disciplines. Central to morphology is a set of methods and techniques for producing data about anatomical and organizational facts about organisms. Morphology thus provides important data for various research fields within biology, as for instance ecology, evolutionary biology, physiology and taxonomy. Whereas molecular biology covers all aspects of the sub-cellular levels of biology, morphology takes in a central position within supra-molecular biology, i.e. all levels from sub-cellular to multicellular organism. Morphology thereby not only provides essential data, but, with morphological terminology, also a reference system for all supra-molecular biological entities. The importance of this reference system is comparable only to taxonomy for referencing individual organisms to species and higher taxonomic groups. It provides the general terms for correctly referencing the supra-molecular objects of study in biology.

Unfortunately, this referencing system has its problems. Morphology has no commonly accepted, taxon-independent terminology (i.e. the linguistic problem of morphology). Biologists are dealing with variable usage of morphological terms due to semantic differences from author to author, which can cause misunderstandings in communication as well as misinterpretations of morphological information. The high degree of structural complexity and an overwhelming variety and diversity of anatomical forms and

² This chapter is based on various scientific publications, of which the respective sources are listed in the references at the bottom of the document.

biological functions is one of the reasons for the terminological problems, but also the various historical terminological traditions in different taxonomic groups, the change in meaning of anatomical terms through history, the tradition of essentialist thinking within morphology and taxonomy, and the idiosyncrasies of each individual morphologist, all of which are responsible for the semantic gaps in morphological terminology.

Besides the terminological problems, morphology is also lacking standards about which additional information must be provided in order to establish operational transparency, which at its turn should enable a third party to correctly interpret a specific type of morphological data or even to reproduce data. This data about data is generally referred to as metadata.

The importance of databases and online data harvester services in biomedical sciences constantly increases and with it the importance of organizing and standardizing their contents, which facilitates sharing of data across databases and between scientists. More and more online tools and applications take in central functions in everyday scientific tasks. As a consequence, many scientists do not produce data themselves anymore, but, instead, explore the data that is available through the internet, combine and integrate different datasets and analyze them in order to answer questions which have not been answered by the original data providers. This new approach has been called eScience and it requires data to be available, to be easily accessible via the internet and to be compatible with one another. Already today, the internet functions as a large knowledge base and data repository for the scientific community and standardization of data and metadata have become increasingly important. Therefore, the establishment of commonly shared standards for specific types of data is becoming increasingly important for every scientific discipline in order to take part in this new trend in science. Central for the success of a discipline to be part of this trend is to establish a high degree of semantic transparency for the data it produces. Many communities already started to develop standards for their specific types of data.

ICZS's main mission is to develop terminological standards and metadata standards for guaranteeing the highest degree of reproducibility, comparability, and intersubjective testability of morphological data, and to improve their compatibility between different databases and their communicability between researchers and between researchers and databases.

Central to the general organization of ICZS is the clear distinction between 'raw data', data and metadata and the recognition of four fundamental aspects required by any modern data standard, i.e. content, nomenclatural, concept and format standards. This basic conceptual framework is reflected in many ways in the overall organization of ICZS.

2.1 Distinguishing 'Raw Data', Data and Metadata in Zoomorphology

Just like in any other empirical science, the systematic manipulation of the objects of study and their simultaneous or subsequent scientific observation with the goal to produce various kinds of empirical evidence stands also in morphology at the core of research. Scientific observation usually involves observation by eye or measurements and recordings conducted with the help of specific instruments. Empirical sciences require this kind of evidence for testing alternative explanatory/predictive hypotheses and to justify (on the basis of basic principles from logics and the philosophy of science) the preference of one theory over its contestants. Hypotheses and theories, however, can only be related to textual statements, and principles of logic and the philosophy of science can only be applied to the realm of propositions.

'Raw Data'

Unfortunately, the individual impressions and instrumental recordings (e.g. photographs) resulting from observation and measurement usually do not have the form of textual propositions. Therefore, experimental and observational experience must be translated into textual statements and usually also must be recorded, documented and organized using a specific scientific terminology, before they become data. Non-textual recordings, including photos and drawings, represent '**raw data**'. In order to turn into data, 'raw data' must be annotated or described.

Data

In general, data are hypotheses about the existence of things and events and their properties and relations that are grounded on and substantiated by observational experiences. **Zoomorphological data** can be characterized as descriptive propositional statements about the existence of some particular Metazoan organisms and/or parts of them, their spatial and temporal relations to each other, the specific intrinsic properties they exhibit and the particular behavior they show under certain conditions. This does include also statements about a particular equivalence or patterns of similarity between different anatomical structures.

Metadata

In order to meet the general demands of operational transparency and overall reproducibility, data should always be accompanied by a detailed documentation of all relevant information that is required for any third person to reproduce the findings. This includes information regarding the experimental design, the source, preparation and treatment of the biological objects being studied (i.e. species determination, sampling coordinates, preparations methods applied, etc.), the methods, procedures and concepts

applied and the parameters, values, adjustments, techniques and instruments used during data production. This information represents what is generally referred to as **metadata**.

2.2 Four Components of every modern Data and Metadata Standard

Data management in data repositories, the dissemination and retrieval of specific data through the internet and data harvester services such as GBIF (www.gbif.org/) presuppose data and metadata to be stored and communicated in a highly formalized and standardized form. This, and the exponentially increasing amounts of available biological data are the reason why many biological communities already have developed or are currently developing a general reporting structure that is commonly accepted in their community for the publication and dissemination of their respective types of data.

When developing a new metadata standard with a respective reporting structure, the community usually starts with identifying, discussing and agreeing upon which type of additional information must be included in a data report. This results in a list of information necessarily specified in addition to the data themselves and has been called the **minimum information convention**. Minimum information checklists are metadata standards that meet the requirement for executive summaries that should include all information necessary for understanding the studied phenomena, whereas the information must be available in a computer parsable form.

However, since a modern data and metadata standard must also guarantee a high degree of communicability and comparability, it should not only standardize its contents and the formats in which it is recorded and communicated, but also the scientific terminology used for recording and documenting them. Thus, when developing standards for the demands of data repositories and the semantic web, one has to deal with the following four questions, each of which gives rise to one basic aspect of a modern standard:

1. What is relevant content?
2. Which symbol, pictograph or term refers to which concept?
3. What does a concept mean?
4. What syntax should be used for content transmission and communication?

Every modern data and metadata standard should in fact cover, either explicitly or implicitly, four different aspects or types of standards that have to be coordinated and combined to a single standard:

Content Standard for Reproducibility and Operational Transparency

Content standards depend on the data type, the research topic and ultimately on the interests of the scientists using the data. They specify which metadata must be provided to guarantee a high degree of reproducibility and operational transparency of data production. Minimum information checklists provide content standards for metadata.

Nomenclatural Standard for Communicability

Nomenclatural standards establish stable and unambiguous links between a term and its corresponding concept or, in case of proper names, the particular entity it refers to (i.e. direct reference). It also includes the specification of relevant synonyms for a given concept or entity.

Nomenclatural standards for **proper names** provide a stable and unambiguous direct referential link between a proper name and a single real material entity or digital resource, usually established through some sort of ostensive definition that involves 'pointing' to the entity by using for instance a label placed on or inside of a collection jar or by writing a name on a photography. Persistent identifiers, such as globally unique identifiers (GUIDs), life science identifiers (LSIDs) and digital object identifiers (DOIs), establish direct reference in the internet and thus represent good examples for how to provide an electronic nomenclatural standard.

Nomenclatural standards for **general terms**, on the other hand, establish an unambiguous link between a general term and one particular concept through a (intensional) definition. They cannot provide a direct referential link between a general term and its corresponding referent, since general terms do not directly represent class concepts—after all, you cannot physically point to a class. Controlled vocabularies like the Darwin Core (www.tdwg.org/activities/darwincore) and ontologies provide modern nomenclatural standards for scientific general terms.

Concept Standard for Semantic Transparency

Concept standards specify the meaning of each term used in the documentation of data and metadata. They specify the semantic content of a concept through a definition that provides the meaning to a general term. Thus, concept standards establish a high degree of semantic transparency. The definition should not only specify a set of ontologically essential properties, but also a set of epistemological recognition criteria. This combination of ontological definition and epistemological recognition criteria allows, as far as possible, an unambiguous reference of a general term to its real correlates. Controlled vocabularies like the Darwin Core (www.tdwg.org/activities/darwincore) and ontologies provide modern concept standards for scientific general terms.

The combination of a concept and a nomenclatural standard can establish a high degree of communicability between individual researchers and a high degree of comparability between different data sets.

Format Standard for Compatibility and Computer Parsability

Format standards facilitate the communication between human individuals, between machines, and between machines and humans. They specify in which scheme or formal syntax information should be presented, transmitted or stored. This typically includes the specification and standardized use of special file formats or application programming interfaces for data exchange.

Especially the communication between databases or between specific instruments requires information to be communicated in a highly formalized and computer parsable format. Knowledge representation languages, such as the commonly used XML and HTML formats, represent well established format standards for the internet, whereas for semantically transparent vocabularies the Resource Description Framework (RDF) and the RDF-based semantically extended Web Ontology Language (OWL) are commonly used.

Although knowledge representation languages provide a format standard, the degree of freedom for expressing some given information is still very high. As a consequence, a given particular information can be organized within for instance an OWL file in significantly different ways, which can ultimately lead to incompatibilities. Therefore, format standards usually go beyond the specification of a particular knowledge representation language and require the additional specification of some formalized reporting scheme or model for a data and metadata record.

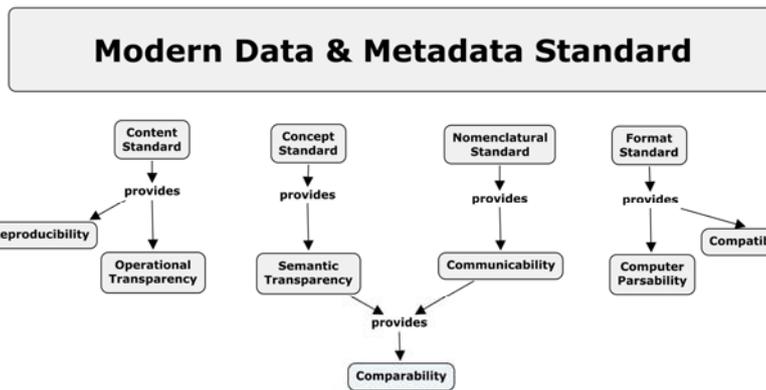
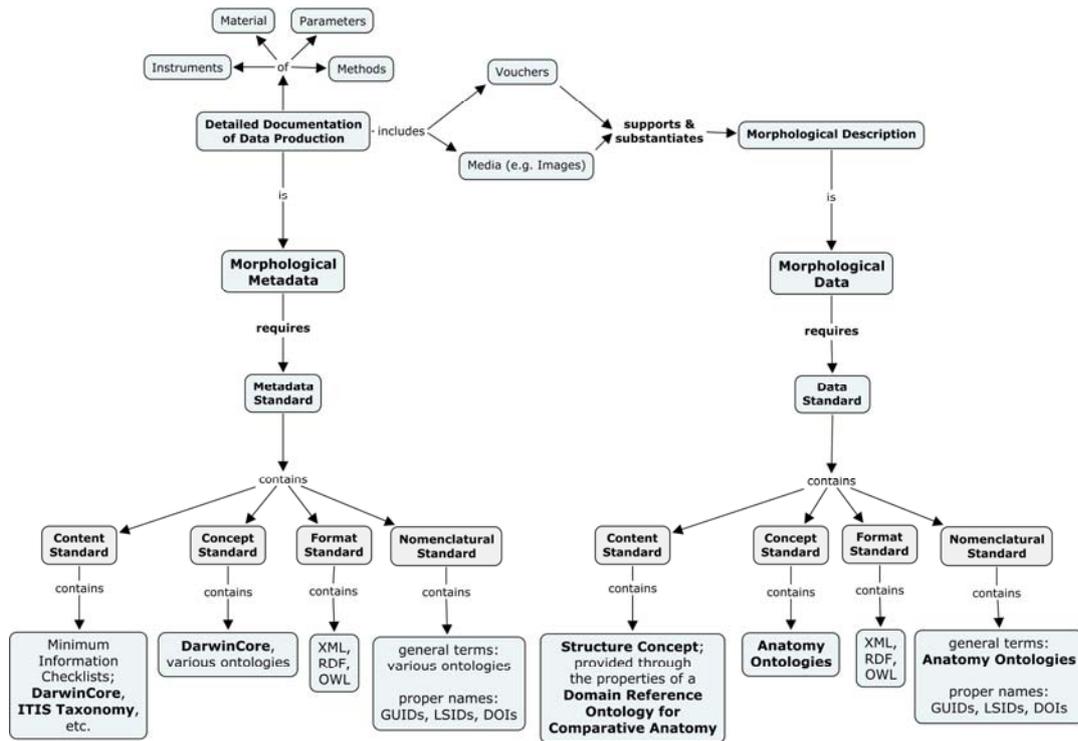


Figure 1: Relations and dependencies between data and metadata and the role of data and metadata standards.

2.3 Implementation in ICZS

The actual development of ICZS standards is done by the zoomorphology community. ICZS provides a well organized internet platform that allows cooperative collaboration of many individual morphologists. Contributions will be organized within Interest Groups (see *GROUPS*), which are dedicated to different particular aspects of zoomorphology standardization. While new Interest Groups can be formed and later dissolved again, ICZS maintains several *Permanent Interest Groups*, which represent the backbone of the standardization initiative.

The systematic distinction between raw data, data and metadata introduced above and the necessity to develop comprehensive standards that include all four aspects of standardization (i.e. content, nomenclature, concept and format) is reflected in the approach followed by the ICZS and in its general organization. The Permanent Interest Groups, for instance, include a *Raw Data*, a *Metadata* and a *Data Interest Group*, each of which is responsible for developing respective standards. The Metadata Interest Group, for instance, develops minimum information checklists for all different kinds of morphological data types, and thus contributes metadata content standards. The *Morphological Data Reporting Scheme Interest Group*, which is another Permanent Interest Group, is responsible for developing an overall general format standard for all different kinds of morphological information. Moreover, the central role of the ICZS Glossary, to which all Groups contribute defined terms in a standardized way, will provide the necessary concept and nomenclatural standards.

3. MEMBERSHIP

Membership is open to individuals and other legal entities, including institutions, organizations, companies, and government agencies. It consists of two classes:

1. individual members and
2. institutional members (other legal entities).

Membership is acquired by written notification to the Chair or Secretary (both members of the Executive Board).

Members are entitled to vote and can be elected for specific offices.

Membership ends upon written resignation addressed to the Chair or Secretary.

4. GENERAL ORGANIZATION

ICZS is organized into the following main levels:

1. Executive Board
2. Editorial and Advisory Board
3. General Discussion Forum

4. Groups: Interest Groups with and without associated Task Groups
5. Members
6. the Scientific Community

The different levels communicate with each other and with the public through the web site of ICZS.

5. EXECUTIVE BOARD

ICZS is governed by an Executive Board consisting of the officers elected by the membership as defined by Article 5 of the Constitution of ICZS and one Convenor from each Interest Group. Up to two additional individuals can be appointed to the Executive Board by the officers, who hold office for a period not exceeding three years. These additional individuals do not necessarily have to be members of ICZS.

The Executive Board:

1. provides leadership to ICZS;
2. promotes improving the overall organizational architecture and web site of ICZS;
3. promotes ICZS to the broader community;
4. organizes the day to day affairs of ICZS;
5. guides Task Groups and Interest Groups on integration issues;
6. provides framework for and advice to Interest Groups;
7. may appoint an individual or group of individuals to perform specific work or an ongoing function for ICZS;
8. administers the assets;
9. has power to apply for legal status for ICZS;
10. has other powers as stated elsewhere in the Constitution and any by-laws;
11. provides timely notification of progress towards goals and
12. otherwise acts to fulfill the goals of ICZS.

The Executive Board shall report to the membership at least once each calendar year.

5.1 Executive Board Election and Terms

Each year in **MONTH** the officers shall be elected from the membership by online vote. An officer must be a member of ICZS. No member may hold more than one office at a

time. The Chair will normally hold office for a period not exceeding three years. All other officers will normally hold post for a period not exceeding six years.

Should a vacancy occur during the term of office, the Executive Board is empowered to fill it from the membership until the next year, at which time the position will be filled by general election.

In addition to the individual officers that are elected from the membership, one Convenor from each Interest Group is part of the Executive Board. Convenors represent the interests of their respective Interest Group within the Executive Board and ensure effective communication between Executive Board and Interest Groups in ICZS. Convenors hold office for a period not exceeding six years.

Each new year in **MONTH** the following individual officers shall be elected from the membership (either new or reinforced in office).

5.2 Chair

The Chair:

1. presides at meetings of the Executive Board;
2. is entitled to sign jointly with one other officer on behalf of the ICZS;
3. enacts such functions as are assigned by the Executive Board;
4. holds office for a period not exceeding three years.

5.3 Secretary

The Secretary:

1. operates the secretariat;
2. keeps, distributes, and publishes minutes of symposia organized by the ICZS;
3. sends notices of symposia organized by the ICZS to the membership and notices of meetings of the Executive Board to its members;
4. distributes proposals and organizes votes;
5. holds office for a period not exceeding six years.

Communication with the Executive Board should be via the Secretary who must arrange a proxy from among Executive Board members for any significant period of unavailability.

5.4 Outreach

The outreach officer is responsible for 'push & pull' communication with heads of organizations, middle managers of organizations who have or should have staff that are members of ICZS, and members of other organizations in order to accredit them as 'linking members'.

The outreach officer has the following tasks:

1. identifies barriers to overcome in attracting members and participants;
2. ensures that the web site of ICZS is user friendly for potential members, participants, clients and the public;
3. actively seeks opinion of potential members, participants and clients about the effectiveness of the initiative in addressing their needs;
4. promotes the creation of a "What's in it for me" to join the initiative for the ICZS web site;
5. gathers testimonies for expressing the need of developing common standards in zoomorphology;
6. prepares a brief annual outreach plan for the Executive Board;
7. after coordination with Executive Board prepares and publishes documents, flyers, brochures, advertisements, presentations and posters that promote ICZS to potential members and clients;
8. develops initial contact with potential institutional members, clients and collaborative agencies on behalf of the Executive Board;
9. actively seeks potential sources for funding;
10. holds office for a period not exceeding six years.

All these tasks may be either performed by an individual outreach officer in person, or by a respective Outreach Interest Group. In the latter case the Convenor of the Outreach Interest Group is automatically the outreach officer of the Executive Board.

5.5 Treasurer

The Treasurer:

1. is entitled to sign jointly with one other officer on behalf of ICZS;

2. maintains the membership list;
3. reports finances annually to the membership;
4. collects membership dues if membership includes the payment of a fee;
5. arranges audits;
6. administers the assets of ICZS in conformance with instructions from the Executive Board;
7. holds office for a period not exceeding six years.

5.6 Regional Secretaries

Have the responsibility to represent the interests of ICZS members on the Executive Board and to represent ICZS in appropriate meetings and other activities. Regional Secretaries hold office for a period not exceeding six years.

6. EDITORIAL AND ADVISORY BOARD

The Editorial and Advisory Board not only provides independent advice from standards experts who are not member of ICZS or in any other way involved with activities organized by ICZS, but also organizes evaluations of proposals.

Membership to the Editorial and Advisory Board consists of three classes:

1. regular members that are appointed by relevant organizations (e.g. GBIF, TDWG), scientific societies, museums, morphological journals, morphological databases as their representatives;
2. regular members that are appointed by the Executive Board to provide technical advice;
3. regular members that are appointed by the Executive Board to function as Editors, i.e. a General Editor for all ICZS and an Editor for every active Interest Group;
4. temporary members that are appointed by the Executive Board to review proposals.

The Editorial Board has the following functions:

1. the General Editor evaluates new proposals for Interest Groups (see *DEFINED PROCESSES*);
2. an Interest Group Editor evaluates new proposals for Task Groups that will be associated to their Interest Group (see *DEFINED PROCESSES*);

3. an Interest Group Editor forms the Evaluation Panel that reviews and finally decides on submitted Standards Documentation Forms from one of her/his Task Groups (see *DEFINED PROCESSES*);
4. an Interest Group Editor forms together with the Convenor of the respective Interest Group the Evaluation Panel that reviews and finally decides on submitted Glossary Term Proposal Forms (see *DEFINED PROCESSES*);
5. an Interest Group Editor decides in close communication with the Interest Group Convenor whether proposed changes to an ICZS approved and recommended standard require the review process of a newly proposed standard, and in case it does not, they review the proposal;
6. the Editorial Board reviews and makes recommendations for the charters, performance (milestones) and outputs of all currently active Groups together with members from the Advisory Board and publicly documents this review on the ICZS web site;

The Advisory Board has the following functions:

1. advises the Executive Board on any technical, organizational and publicity related issues relevant to ICZSs;
2. reviews and makes recommendations for the charters, performance (milestones) and outputs of all currently active Groups together with the Editorial Board and publicly documents the review on the ICZS web site;
3. provides advice to interest groups;
4. provides a platform for communicating and collaborating with companies (e.g. optics, software) and other organizations;

7. GENERAL DISCUSSION FORUM

The General Discussion Forum provides a communication platform for all members of ICZS as well as all who are interested in the activities of ICZS. It should be restricted to the discussion of very general topics of interest, as for instance possible changes to the constitution or the overall organization of ICZS. The General Discussion Forum is also used for the communication of announcements and notifications from the Executive Board.

The need for establishing a new Interest Group and a new Task Group, as well as for adding a new term to the ICZS Glossary is discussed in the General Discussion Forum.

8. GROUPS

Groups take in a central position within ICZS. Members (and non-members) organize themselves in groups in order to discuss specific topics relating to standards in zoomorphology (i.e. Interest Group) and in order to collaboratively develop specific standards (i.e. Task Group).

Each Group must appoint a Convenor. Convenors hold office for a period not exceeding six years (Task Group Convenors not exceeding three years). The Convenor is the main contact person for all issues concerning the Group and represents the interests of the Group. A Convenor must be member of ICZS and an ICZS member can only be the Convenor of one Interest Group at a time.

The Convenor of an Interest Group (not of a Task Group!) is automatically a member of the Executive Board.

Each Group needs a Formal Charter with a public summary (< 1 page). The Charter includes a formal plan with clearly defined specifications and membership (see *FORMAL DOCUMENTS*). The Charter of a Task Groups is more specific than that of an Interest Group.

Participation in a Group consists of two classes:

1. members of ICZS who applied for membership to the respective Group;
2. non-member participants and contributors, who may continuously or sporadically contribute.

Any ICZS member can be member of several Groups at the same time.

All Groups must publicly document their work and make all their outputs and outcomes publicly available (e.g. tools, formats, tutorials, technical info). All Groups must work on and contribute terms and definitions to the general ICZS Glossary. The performance and outputs of all currently active Groups are reviewed by the Editorial and Advisory Board. The results of these reviews are publicly documented on the ICZS web site.

Groups consist of two classes:

1. **Interest Groups** are dedicated to the discussion of various aspects of a specific topic relating to zoomorphology standards and to the organization of ICZS and
2. **Task Groups** are dedicated to the development of a specific zoomorphology standard or an organizational standard for ICZS and are organized within Interest Groups.

8.1 Interest Groups

Interest Groups are dedicated to the discussion of various aspects of a specific topic relating to zoomorphology standards or to the organization of ICZS. Interest Groups are used for exchanging information, keeping current with developments in the field and discussing relevant concepts and methods. Interest Groups must also work on and contribute terms and definitions to the ICZS Glossary.

Each Interest Group must appoint a Convenor. The Convenor is the main contact person for all issues concerning the Interest Group and represents the interests of the Interest Group. Interest Group Convenors hold office for a period not exceeding six years. The Convenor of an Interest Group (not of a Task Group!) is automatically a member of the Executive Board, represents the interests of her/his Interest Group within the Executive Board and ensures effective communication between the Board and the members of the Interest Group. The Convenor must be member of ICZS and every ICZS member can only be the Convenor of one Interest Group at a time.

Each Interest Group needs a Formal Charter with a concise public summary (< 1 page). The Charter includes a formal plan with clearly defined specifications and membership (see *FORMAL DOCUMENTS*).

Only ICZS members can become members of an Interest Group. However, everybody can participate in and contribute to an Interest Group.

An Interest Group can have one or more Task Groups associated to it that are considered to be organized within that Interest Group. The need for establishing a new Task Group is discussed within its respective Interest Group.

Interest Groups provide support environment for the products (i.e. outcomes and outputs) of all of their past and present Task Groups. This includes providing links on their web page to any demonstrations, pilot studies or implementations of all of their respective output standards.

The need for establishing a new Interest Group is discussed within the General Discussion Forum. The establishment of a new Interest Group is organized according to the defined process Proposing a new Group (see *DEFINED PROCESSES*) and evaluated by the General Editor.

An Interest Group can be dissolved again, if it has no products to support (no Task Group has ever been formed that produced a standard).

The performance and outputs of all currently active Interest Groups are reviewed by the Editorial and Advisory Board. The results of these reviews are publicly documented on the ICZS web site.

8.2 Permanent Interest Groups

Although new Interest Groups can be established and, under certain circumstances, dissolved again, some Interest Groups have a special status as they represent Permanent Interest Groups that cannot be dissolved.

Standards related Permanent Interest Groups

ICZS has five Standards related Permanent Interest Groups (see *GENERAL STRATEGY OF ICZS*):

1. the **Data Interest Group** is dedicated to the discussion and development of standards for zoomorphological data, in particular to the development **of common criteria for morphological terminology**, which may result in the development of a general *Metazoan Anatomy Reference Ontology*, and the contribution of general morphological terms to the ICZS Glossary. Moreover, it will assist in transforming the ICZS Glossary into an ICZS Ontology;
2. the **Metadata Interest Group** is dedicated to the discussion and development of **content standards for zoomorphological metadata**, in particular to the development of *minimum information checklists* and the contribution of terms to the general ICZS Glossary that refer to specific methods, techniques and instruments that are required for the documentation of metadata;
3. the **'Raw Data' Interest Group** is dedicated to the discussion and development of standards for zoomorphological 'raw data' and their **long-term storage** in data repositories and the development of criteria for evaluating the **trustworthiness of respective data repositories**;
4. the **Morphological Data Reporting Scheme Interest Group** is dedicated to the discussion and development of a standardized scheme for storing and communicating morphological data and metadata (and 'Raw Data') that will establish a **general format standard** for morphological information;
5. the **Publication Interest Group** is dedicated to the discussion and development of **standards and recommendations for zoomorphology related publications** (i.e. traditional paper journals, but also open access online journals and the publication of data in databases and repositories), in particular to standards referring to figures and figure captions, citation practices and recommendation regarding accessibility of data and metadata used in publications.

Organization related Permanent Interest Groups

ICZS has one Organization related Permanent Interest Groups:

1. the **Defined Processes & Formal Documents Interest Group** is dedicated to the discussion and improvement of all Defined Processes within the organization of ICZS and all Formal Documents used in ICZS.

8.3 Task Groups

Task Groups are dedicated to the development of a specific zoomorphology standard or an organizational standard for ICSM. Each Task Group is associated to one particular Interest Group, within which it is organized. Organizationally, a Task Group is thus part of its associated Interest Group.

Only ICZS members can become members of a Task Group. All members of a Task Group are automatically also member of the associated Interest Group. Irrespective Task Group membership, everybody can participate in and contribute to a Task Group.

Each Task Group must appoint a Convenor. The Task Group Convenor must be member of ICZS. The Task Group Convenor is the main contact person for all issues concerning the Task Group and represents the interests of the Task Group. Task Group Convenors hold office for a period not exceeding three years. The Convenor of a Task Group IS NOT AUTOMATICALLY a member of the Executive Board.

Each Task Group needs a Formal Charter with a public summary (< 1 page). The Charter includes a formal plan with clearly defined specifications and membership (see *FORMAL DOCUMENTS*).

The need for establishing a new Task Group is discussed within its relevant Interest Group (i.e. on its discussion list). In case none of the existing Interest Groups seems to be adequate, a new Interest Group must be established first, before establishing the respective Task Group. The establishment of a new Task Group is organized according to the defined process Proposing a new Group (see *DEFINED PROCESSES*) and evaluated by the Editor of the Interest Group to which it will be associated.

A Task Group must work on and contribute terms and definitions to the general ICZS Glossary for the Standards it develops.

A Task Group must make its current work status publicly visible on its central web page.

Every Task Group Charter dictates the lifespan of the Task Group (i.e. entails a Sunset Clause). In case a Task Group fulfills its task (i.e. Sunset Clause), it will dissolve. The

associated Interest Group then is responsible for providing the support environment for the products (i.e. outcomes and outputs) of the Task Group.

The performance and outputs of all currently active Task Groups are reviewed by the Editorial and Advisory Board. The results of these reviews are publicly documented on the ICZS web site.

9. ICZS STANDARDS

It is the overall goal of ICZS to develop data and metadata standards for zoomorphology. ICZS provides a web platform for the zoomorphology community to collaboratively develop these standards and make them publicly available through the ICZS web site.

Standards are developed by Task Groups. Everybody, not only the members of the respective Task Group, can participate in the process of developing a new standard (see *DEFINED PROCESSES*) and can propose contributions to the Task Group for the developing standard (i.e. Early Draft) by using the Contribution to Early Draft Proposal Form (see *FORMAL DOCUMENTS*). A new standard is submitted to the Editor of the respective Interest Group by using the Standards Documentation Form (see *FORMAL DOCUMENTS*). It undergoes a defined review process, including public review and a review by an every time newly formed Evaluation Panel that consists of all Convenors and Editors of currently active Interest Groups and additional appointed external (independent) experts (see *DEFINED PROCESSES*), before it is being approved, incorporated and openly published as one of ICZS' recommended standards.

All ICZS standards are documented in a standardized form using the same Standards Documentation Form template (see *FORMAL DOCUMENTS*). ICZS assigns a unique ID and a running version number to every approved standard as well as any entry within this standard. The unique ID of a particular entry within a standard is composed of the ID of the standard and a string that unambiguously differentiates the entry from all other entries within the standard. This enables unambiguous reference of every aspect of an ICZS standard, which is important not only for general communication and referencing, but also for various ICZS processes (e.g., for the discussion of specific aspects of a standard that is currently in development, for the review and evaluation of a newly submitted standard or for requests for changing specific entries within an approved standard).

10. ICZS GLOSSARY

The ICZS Glossary takes in a central function within ICZS. All Interest Groups and their Task Groups contribute terms and definitions to it, thereby providing all relevant concept and nomenclatural standards for 'raw data', metadata and data standards (see *GENERAL STRATEGY OF ICZS*). The ICZS Glossary covers all terms referring to methods, techniques, and instruments relevant for a specific type of morphological data or metadata.

The ICZS Glossary is an openly published resource that is accessible through the ICZS web site. Each term has its own unique ID (i.e. URI) with a running version number and its own Wiki page.

Contributions to the ICZS Glossary must be first discussed in the General Discussion Forum, from which they will be forwarded to the appropriate Interest Group. New terms must then be proposed to the responsible Interest Group using the Glossary Term Proposal Form (see *FORMAL DOCUMENTS*).

Whereas the ICZS currently represents a controlled vocabulary, it may evolve into an OWL ontology in the future.

11. DEFINED PROCESSES

In order to support overall transparency of decision processes, to establish easy accessibility and to allow for easy participation of members and non-members alike, ICZS has established a set of Defined Processes that provide standards for various processes within ICZS.

The Defined Processes & Formal Documents Interest Group is responsible for changes to any established Defined Process. Establishing a new Defined Process requires the establishment of a respective Task Group within the Defined Processes & Formal Documents Interest Group that develops a new type of defined processes.

Central to all defined processes is the submission of a proposal. Any submitted Proposal will be publicly displayed on the ICZS web site with its current decision status (i.e. in development, submitted, decision pending, reviewed, revision pending, public review, approved/declined). The evaluation criteria with which the Editorial Board and appointed external reviewers review any proposal must be made publicly available on the web site of ICZS.

11.1 Proposing a new Group

Proposal of a new Interest Group or a new Task Group proceeds according to the following steps:

1. the need for a new Interest Group must be publicly discussed within the General Discussion Forum and the need for a new Task Group within the discussion list of its associated Interest Group;
2. the process of initiating the establishment of a new Group can be started by any individual or institutional member of the ICZS and requires the completion and submission of the respective Group Proposal Form (see *FORMAL DOCUMENTS*);
3. in case of establishing a new Interest Group, the proposal must be send to the General Editor of ICZS, in case of establishing a new Task Group, the proposal must be send to one of the Interest Group's Editors;
4. the respective Editor evaluates the Proposal Form within 14 days after submission and may appoint members of the Editorial Board and External Reviewers to provide reviews;
5. the Review Report of the Proposal is publicly posted on the ICZS web site;
6. in case the Proposal has been approved, the Group is automatically established and will receive access to the respective web resources of ICZS, and if the newly established Group is an Interest Group, the Convenor of the Interest Group is automatically also member of the Executive Board;
7. if the Proposal requires some revision, the Review Report points out all the topics in need of revision;
8. a revised Proposal Form with comments can be re-submitted within 30 days after Review Report submission.

In case the Editor needs more time to evaluate the initial proposal, the person who submitted the proposal must be notified of the delay within the 14 days timeframe and must be given a new decision date.

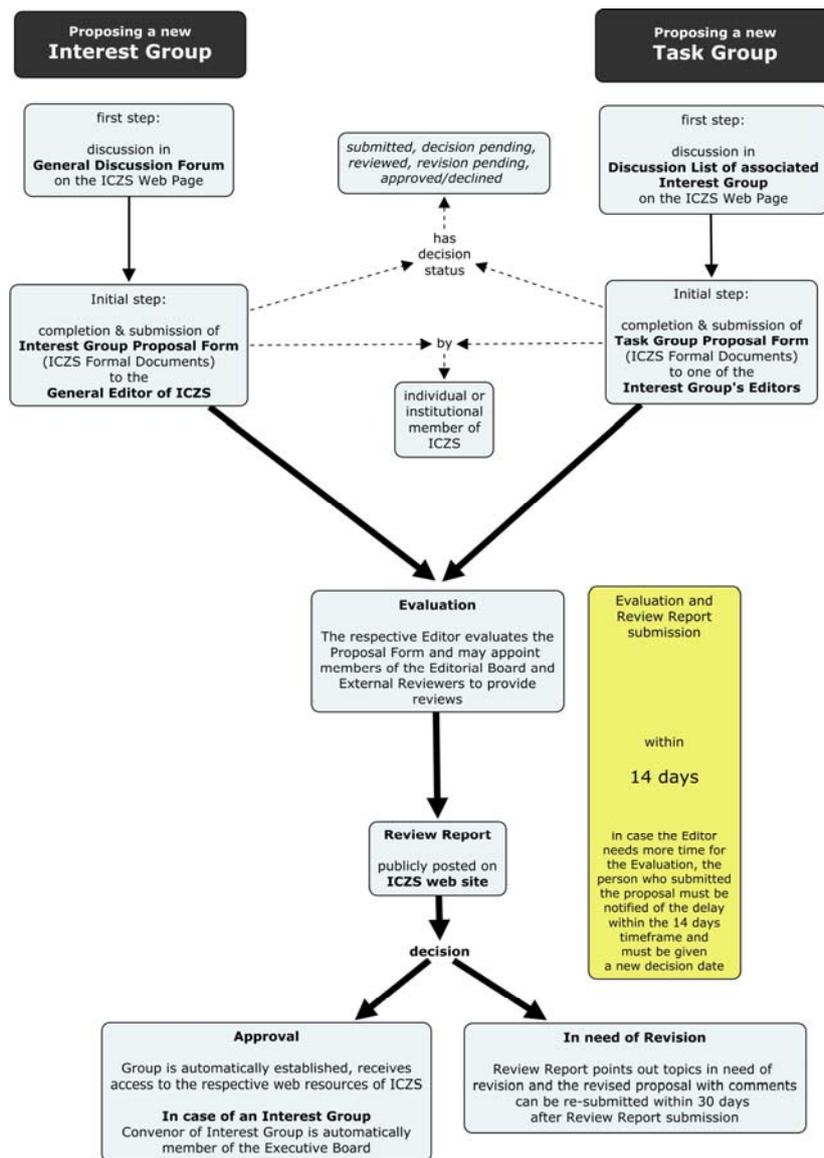


Figure 2: Flowchart of the Defined Process of proposing a new Group.

11.2 Developing and Establishing a Standard

Only Task Groups can develop and propose a new ICZS standard—developing a specific standard is the main reason why Task Groups are formed in the first place. Everybody can participate in the process of developing a new standard, not only the members of the respective Task Group.

Setting up an Early Draft

With the formation of a new Task Group, the Convenor of the Task Group creates a formal documentation folio associated with the development using the Standards Documentation Form template provided by ICZS (see *FORMAL DOCUMENTS*). This documentation folio is used for documenting the current stage of development, listing all entries that currently belong to the Early Draft of the developing standard.

The Convenor of the Task Group makes the Early Draft public through the web page of the Task Group and keeps it up to date regarding any changes that occur.

Each entry in the Early Draft has a unique ID and a running development version number, as does the entire standard itself. These IDs can be used in communication for referring to specific entries of the developing standard.

The Early Draft is open to any public commenting and thus undergoes public review, which will usually result in further updates to the draft.

Contributing to the Early Draft

Every contribution to the Early Draft for a new standard must be first discussed in the discussion forum of the respective Task Group, before it can be formally proposed to be included in the draft. Proposing a contribution to the Early Draft proceeds according to the following steps:

1. anybody can submit a proposal to the respective Task Group using the Contribution to Early Draft Proposal Form (see *FORMAL DOCUMENTS*);
2. the proposal receives an issue number and is placed in the issue tracker;
3. the proposal is made public through the web page of the Task Group and is open for public discussion (i.e. public review);
4. the public review will last for a period of at least 30 days with the goal to achieve an overall consensus;
5. the proposal may undergo revisions during this process;
6. the Convenor of the Task Group will finally decide whether the last version of the proposal will become part of the Early Draft of the standard.

Standard Submission and Review

When the Task Group decides the draft is complete and the new standard has successfully been developed, the following steps are taken:

1. the Task Group Convenor submits the standard in a well documented standardized format using the Standards Documentation Form template (see *FORMAL DOCUMENTS*) to the Editor of the Interest Group the Task Group belongs to, alongside with all associated contributions to the ICZS Glossary;
2. the completed Standards Documentation Form and all additions to the ICZS Glossary are openly published on the web site of the Task Group and can be commented upon by the public throughout the review process (i.e. Public Review);
3. the Editor forms an Evaluation Panel within 7 days after submission of the Standards Documentation Form. In addition to any appointed independent experts, the Evaluation Panel consists of all Convenors and Editors of currently active Interest Groups;
4. the Evaluation Panel reviews the submitted Standards Documentation Form and thereby considers all comments and criticism from the Public Review, and within 21 days after submission the Review Report is openly published on the web site of the Task Group, and if the report asks for revisions, it will clearly point out all the topics in need of revision by referencing their corresponding IDs and will specify the time frame for re-submission;
5. if the submitted Standards Documentation Form and/or the contributions to the ICZS Glossary require revision, a revised Standards Documentation Form and/or revised additions to the ICZS Glossary can be re-submitted within a time frame specified in the Review Report;
6. in case the standard and the contributions to the ICZS Glossary have been approved, the final approved version becomes part of the set of ICZS recommended standards and the ICZS Glossary.

Developing & Establishing a new Standard

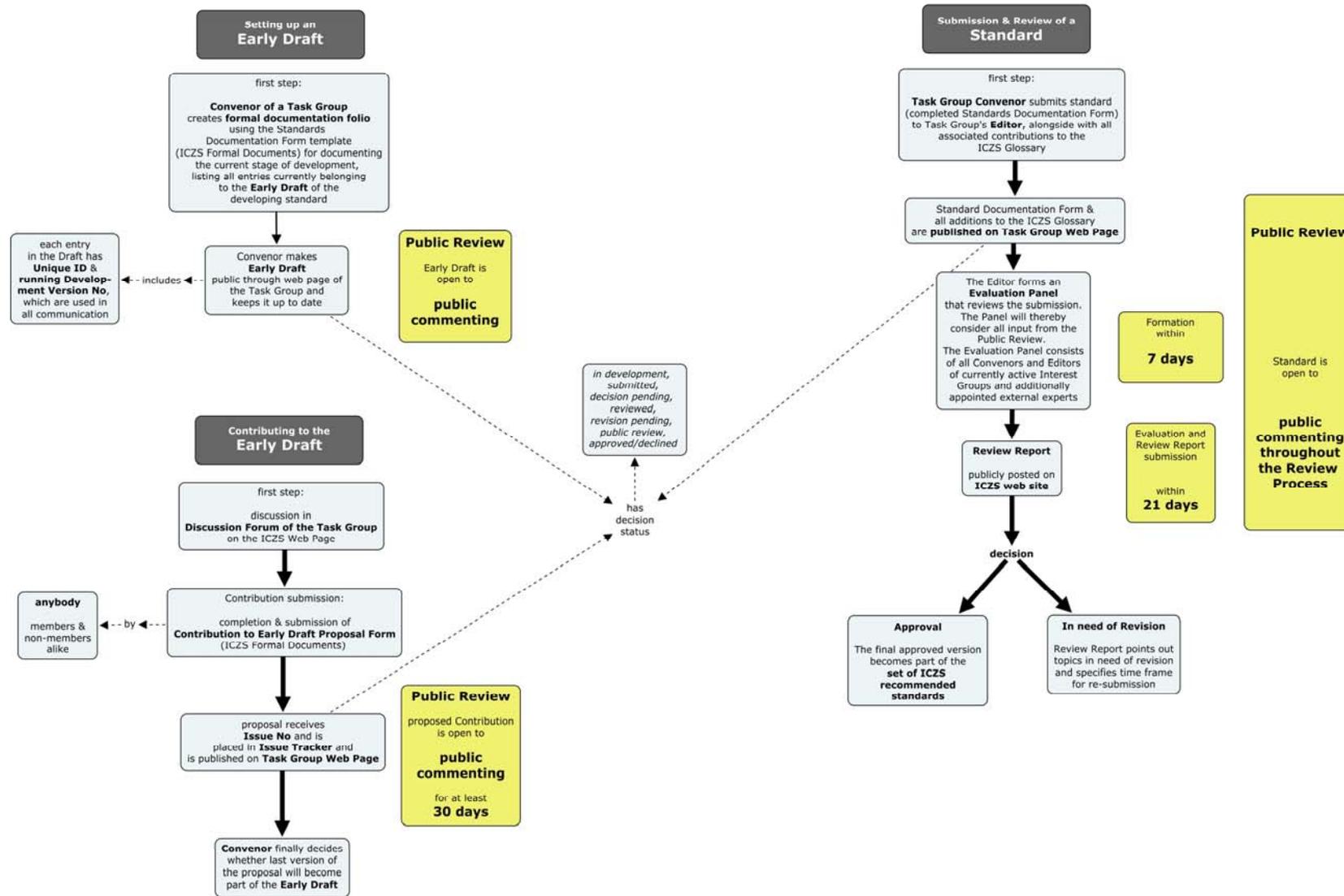


Figure 3: Flowchart of the Defined Processes of setting up an Early Draft of a new standard to be developed by a Task Group, of contributing to this Early Draft, and of submitting and reviewing a new standard.

Maintenance of a Standard

After a standard has been approved, the respective Task Group has usually met its Sunset Clause and is dissolved into its associated Interest Group. This Interest Group is thereafter responsible for providing support for the standard, including the provision of links to any demonstrations, pilot studies or implementations of the standard.

Every approved standard keeps the unique ID from its development phase, but the running development version number is replaced by a new running version number, as does any entry within this standard. The unique ID of a particular entry within a standard is composed of the ID of the standard and a string that unambiguously differentiates it from all other entries within the standard.

11.3 Making Changes to an established Standard

Science is in constant flux and the requirement and specifications for standards also change through time. Moreover, people make mistakes and statements can be linguistically incorrect or ambiguous. Therefore, well established standards may require corrections and modifications.

The need for changing an established standard must be discussed on the discussion forum of the responsible Interest Group. If changes are required for any of the recommended standards, the following applies:

1. any minor changes (linguistic or formatting changes and corrections, additions of further examples and comments) to the standard after its approval can be approved by the Convenor and the Editor of the respective Interest Group;
2. substantial changes to the standard, including the addition or deletion of particular entries or significant changes of definitions must be publicly proposed and exposed to public review;
3. a member of ICZS must submit a completed Standards Change Proposal Form (see *FORMAL DOCUMENTS*) to the Editor of the responsible Interest Group, listing at least four additional members of ICZS who support the proposal;
4. the proposal receives an issue number, is placed in the issue tracker and is openly published on Task Group's web page, where it can be commented upon (i.e. Public Review);
5. within 7 days after submission of the Standards Change Proposal Form, the Editor, in close communication with the Convenor of the Interest Group, decides whether the proposed changes require the review process for a newly submitted standard (see

Developing and Establishing a Standard) or whether it can be decided separately without having to re-evaluate the complete standard;

6. if the proposed changes can be reviewed without having to evaluate the standard as a whole, the Editor and the Convenor review it and openly publish the Review Report on the web site of the Interest Group within 21 days after submission of the Change Proposal Form, thereby considering all comments and criticism from the Public Review;
7. if the submitted changes require revision, a revised Standards Change Proposal Form can be re-submitted together within a time frame specified by the Review Report;
8. in case the changes have been approved, the final change proposal will be implemented.

Whenever an ICZS standard entry has been substantially changed, the entire standard as well as all the entries that have been changed receive a new version number (the ID remains the same) and the old version will be stored in the central database (under the same ID, but with a lower version number). This allows the ICZS standards to be always up to date while having all the older versions still available through the central database. Older versions can be accessed via their ID and the respective version number.

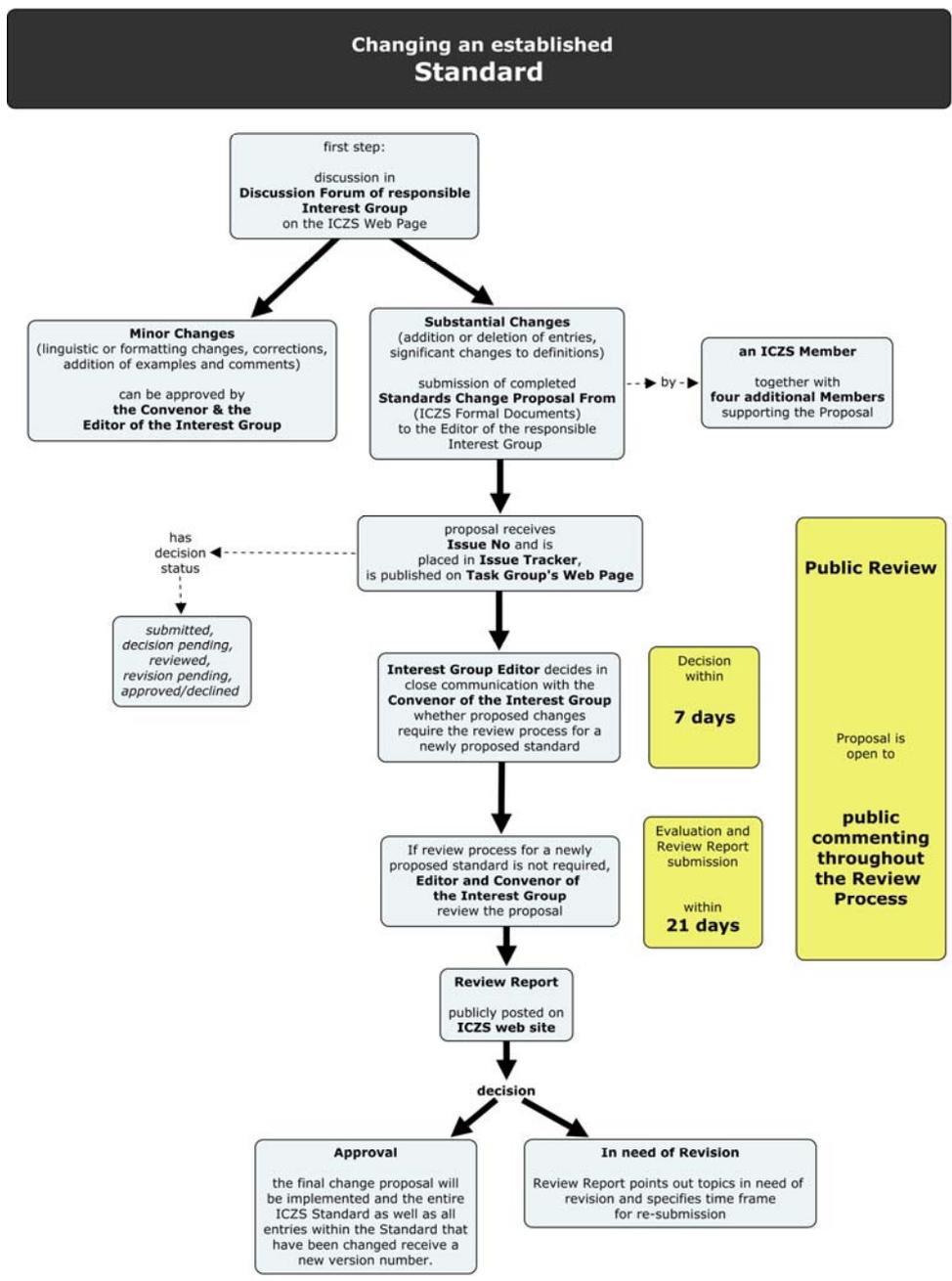


Figure 4: Flowchart of the Defined Processes of changing an established ICZS Standard.

11.4 Adding a new Term to the ICZS Glossary

Contributions to the ICZS Glossary must be first discussed in the *General Discussion Forum*, from which they will be forwarded to the appropriate Interest Group. New terms must then be proposed using the **Glossary Term Proposal Form** (see *FORMAL DOCUMENTS*) to the respective Interest Group. The following steps apply:

1. anybody can submit a proposal to the Editor of the respective Interest Group using the Glossary Term Proposal Form (see *FORMAL DOCUMENTS*);
2. the proposal receives an issue number and is placed in the issue tracker and is openly published on Interest Group's web page, where it can be commented upon (i.e. Public Review) and the Convenor of the Interest Group keeps it up to date regarding any changes that occur;
3. the Editor and the Convenor of the Interest Group decide whether the proposal is complete and whether it requires an external review and thus the formation of an Evaluation Panel, thereby considering all comments and criticism from the Public Review;
4. if it requires an Evaluation Panel, the Panel consists of, in addition to any appointed independent experts, all Convenors and Editors of currently active Interest Groups;
5. the Interest Group Convenor and the Editor or, if an external review is required, the Evaluation Panel reviews the submitted proposal, thereby considers all comments and criticism from the Public Review, and within 21 days after submission the Review Report is openly published on the web site of the Interest Group;
6. if the report asks for some revision, it will clearly point out all the topics in need of revision and will specify the time frame for re-submission;
7. in case of approval, the final version will become part of the ICZS Glossary.

Every approved ICZS Glossary entry receives its own unique ID with a running version number.

The responsible Interest Group is responsible for providing support for all of its ICZS Glossary entries.

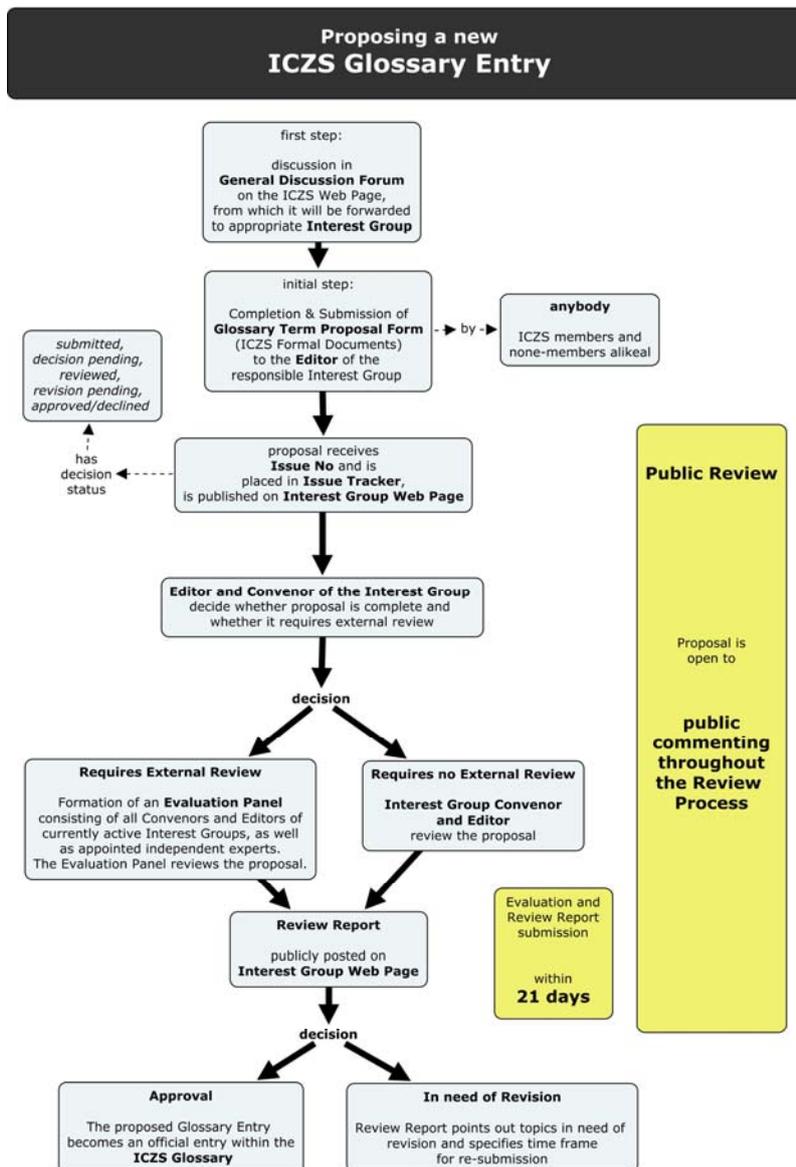


Figure 5: Flowchart of the Defined Processes of proposing a new Glossary term.

11.5 Making Changes to an ICZS Glossary Entry

The need for changing an approved ICZS Glossary entry must be discussed on the discussion forum of its responsible Interest Group. If a change is required, the following applies:

1. a member of ICZS must submit a completed Glossary Entry Change Proposal Form (see *FORMAL DOCUMENTS*) to the Editor of the responsible Interest Group, listing at least four additional members of ICZS who support the proposal;
2. the proposal receives an issue number and is placed in the issue tracker and is openly published on Interest Group's web page, where it can be commented upon (i.e. Public

- Review) and the Convenor of the Interest Group keeps it up to date regarding any changes that occur;
- within 7 days after submission of the Glossary Entry Change Proposal Form, the Editor and the Convenor of the Interest Group decide whether the proposed change requires the formal review process for a newly submitted Glossary Term Proposal Form, thereby considering all comments and criticism from the Public Review;
 - if the proposed changes can be reviewed without having to involve the formal review process for a newly submitted Glossary Term Proposal Form, the Editor and the Convenor will openly publish the Review Report on the web site of the Interest Group within 14 days after submission of the Glossary Entry Change Proposal Form;
 - if the submitted change requires revision, a revised Glossary Entry Change Proposal Form can be re-submitted within a time frame specified by the Review Report;
 - in case the proposal has been approved, the final change proposal will be implemented.

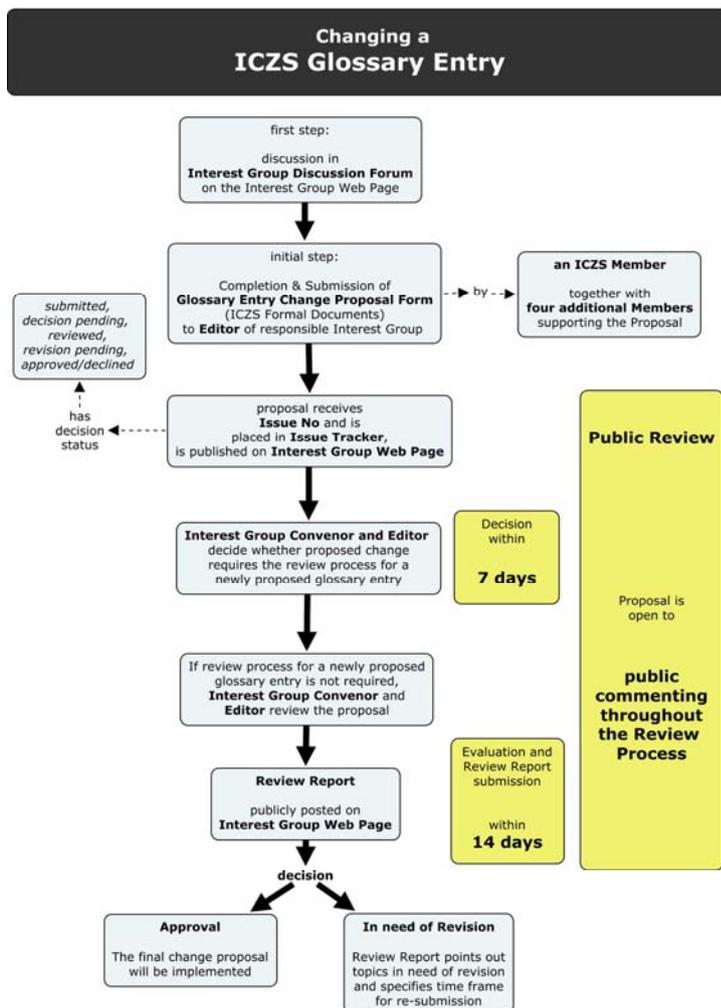


Figure 6: Flowchart of the Defined Processes of changing a ICZS Glossary Entry.

12. VOTING AND DECISIONS MAKING IN ICZS

ICZS strives to make decisions based on broad consensus rather than simple majority (see Article 9 ICZS Constitution). The Executive Board and Convenors of Groups may assess consensus through mechanisms other than voting, such as solicited reviews and public request for comment, except where voting is mandated in the ICZS Constitution. In other words, it is the overall philosophy of ICZS to avoid voting procedures wherever possible and, instead, to discuss and attempt to establish common consensus. If broad consensus cannot be reached, however, the Executive Board may arrange for an issue to be decided by a vote of the membership.

Each member is entitled to one vote. To pass, a proposal must receive a majority of votes.

The Executive Board shall specify the schedule and mechanism(s) for casting votes. Any voting procedure should afford every member an opportunity to vote in an expedient manner and should not unduly delay decision making. The Secretary shall authenticate, tally, and publish voting results.

13. FORMAL DOCUMENTS

In order to support overall transparency of decision processes, establish easy accessibility and allow for easy participation of members and non-member contributors, ICZS established a set of Formal Documents. The Formal Documents provide standard forms (i.e. templates) for documentation of proposals that are used in various processes within ICZS (see *DEFINED PROCESSES*) as well as for the documentation of approved ICZS standards and entries in the ICZS Glossary. They are available from the ICZS web page.

The Defined Processes & Formal Documents Interest Group is responsible for changes to any approved Formal Document. Developing and establishing a new Formal Document requires the establishment of a respective Task Group within the Defined Processes & Formal Documents Interest Group that develops the new 'standard' Formal Document.

All submitted forms will be openly published on the web site of ICZS and will be stored in a central database.

Formal Documents consist of three major classes and their subclasses:

1. Proposal Forms

(1) Group Proposal Forms

- i. Interest Group Proposal Form for proposing a new Interest Group;
- ii. Task Group Proposal Form for proposing a new Task Group;

(2) Contribution Proposal Forms

- i. Contribution to Early Draft Proposal Form for proposing a contribution to a Standard that is currently developed by a Task Group;
- ii. Glossary Term Proposal Form for proposing a new term for the ICZS Glossary;

(3) Change Proposal Forms

- i. Standards Change Proposal Form for proposing a change to an approved ICZS standard;
- ii. Glossary Entry Change Proposal Form for proposing a change of an entry of the ICZS Glossary;

2. Documentation Forms

(1) Standards Documentation Form for documenting a standard;

(2) Glossary Documentation Form for documenting the ICZS Glossary.

3. Review Reports

13.1 Proposal Forms

Proposal Forms are web-based templates that have to be completed when proposing a new Group or proposing a change of an approved standard or an entry of the ICZS Glossary.

Submitted Proposal Forms represent public documents that will be automatically published on the ICZS web site together with a specification of their current status (i.e. in development, submitted, decision pending, reviewed, revision pending, public review, approved/declined).

Group Proposal Forms

All Group Proposal Forms should have the same basic structure and design, including a formal Charter that concisely defines the Group's scope and mandate. The Charter must include a concise (< 1 page) summary of the Group's objectives.

Proposal Forms for Task Groups differ from those for Interest Groups. Only Task Group Proposal Forms require the specification of a working plan and a specification of the Task Group's lifespan (i.e. Sunset Clause) dictated by the specified standards development process steps. Moreover, since every Task Group is considered to be part of its associated Interest Group, the Charter of the Interest Group also applies to all its associated Task Groups. The input fields that refer to the Charter of a Task Group therefore imply to extend the Charter of its associated Interest Group.

All Group Proposal Forms have the following input categories in common that have to be specified when completing the form:

1. name of the Group;
2. date last modified;
3. summary of the Group's objectives (public description; < 1 page);
4. core group of at least 5 members with their contact details and a list of further potential members;
5. Convenor, who is, in case of an Interest Group, automatically also a member of the Executive Board;
6. home URL -> will be provided by ICZS after approval;
7. background: why is the Group proposed?
8. scope: how does the Group fit within ICZS and, in case of a Task Group, within its associated Interest Group?;
9. linkages to other Groups of ICZS and to external groups.

The following additional input categories are restricted to Task Group Proposal Forms:

10. goals
 - (1) anticipated outputs;
 - (2) anticipated outcomes (i.e. standard and ICZS Glossary entries);
11. specific milestone - the work plan;

12. anticipated strategy - specification of the steps involved in achieving the goals;
13. testing and validating the strategy;
14. Sunset Clause - dictated lifespan of the Task Group.

Contribution Proposal Forms

For proposing a contribution to a currently developed standard, a Contribution to Early Draft Proposal Form must be completed and submitted to the respective Task Group. The Contribution to Early Draft Proposal Form is a Formal Document with the following input categories:

1. the ID of the standard and the name of the responsible Task Group;
2. date last modified;
3. type of contribution (i.e. change to Early Draft, addition to Early Draft);

Change to Early Draft

4. specification of the entries to be changed by their IDs and the input fields to be changed;
 - (1) for each ID and input field specified above, a separate documentation of its new version;
 - (2) comment (why is this change proposed?) - in case the change will be approved, the comment will be displayed in the change history log for the new version of the Early Draft;
5. concise summary of the aspects to be changed and the reason (public description; < 1 page);

Addition to Early Draft

6. concise summary of the entry to be added and the reason (public description; < 1 page);
7. complete documentation of the additional entry.

For proposing a new ICZS Glossary term, a Glossary Term Proposal Form must be completed and submitted to the respective Interest Group. The Glossary Term Proposal Form is a Formal Document with the following input categories:

1. the name of the responsible Interest Group;
2. date last modified;
3. the term with abbreviation;
4. synonyms;
5. a definition or description;
6. recognition or identification criteria, if applicable
7. examples;
8. relevant references;
9. concise summary of why this term should be included in the ICZS Glossary (< 1 page).

Change Proposal Forms

All standards and ICZS Glossary entries that have been approved by ICZS are open for public commenting and critique and, thus, can undergo substantial revision that will result in changes or even deletions of definitions and entries in the standards and the ICZS Glossary.

Change Proposal Forms consist of two classes:

1. Standards Change Proposal Form for proposing a change to an ICZS approved standard;
2. Glossary Entry Change Proposal Form for proposing a change of an entry of the ICZS Glossary.

All Change Proposal Forms have the following input categories in common that have to be specified when completing the form:

1. name of the member proposing the change;
2. date last modified;
3. concise summary of what is to be changed and the reason (public description; < 1 page);
4. list of at least 4 additional ICZS members advocating this change with their contact details;
5. specification of the entries to be changed by their IDs and the input fields to be changed;

- (1) for each ID and input field specified above, a separate documentation of its new version;
- (2) comment (why is this change proposed?) - in case the change will be approved, the comment will be displayed in the change history log for the new version.

Standards Change Proposal Forms and Glossary Entry Change Proposal Forms differ from each other only with respect to the input fields to be specified (see point 5.).

13.2 Documentation Forms

Interest Groups and Task Groups must document all their output and publish it openly on the ICZS web site using one of the standardized Documentation Forms.

Documentation Forms consist of two classes:

1. Standards Documentation Forms are used for documenting a newly proposed or approved ICZS standard developed by a Task Group;
2. The Glossary Documentation Form is used for documenting the ICZS Glossary.

Standards Documentation Forms

When a Task Group develops a new standard, it creates a formal documentation folio associated with the development using a standardized template provided by ICZS. The template guarantees that all ICZS standards are presented in the same standardized format. This documentation folio should be concise, yet comprehensive enough to make implementations simple and standards readily available in a format that serves clients needs.

Each entry in the Early Draft of a developing standard has a unique ID and a running development version number, as does the entire developing standard itself. These IDs can be used in communications for referring to specific entries in the developing standard.

As soon as a standard has been approved by the ICZS, the running development version numbers are replaced by non-development version numbers.

Further specifications and details of the documentation form still must be developed...

Glossary Documentation Form

Each ICZS Glossary entry is documented using the same standardized Glossary Term Proposal Form template provided by ICZS. The template guarantees that all ICZS Glossary terms are presented in the same standardized format. In the Glossary Documentation Form all currently approved Glossary Term Proposal Forms are merged and integrated to a single document. This document should be concise, yet comprehensive enough to make implementations simple and standards readily available in a format that serves clients needs.

The Glossary Documentation Form is a Formal Document with the following input categories:

1. for the Glossary and each entry a unique ID (URI; provided by ICZS), that can be used for unambiguous reference;
2. for the Glossary and each entry a version number;
3. type of term (i.e. a classification provided by ICZS, including categories such as type of morphological structure, method, protocol, instrument type, substance type, [surely more to be added...]);
4. the term with abbreviations/acronyms;
5. synonyms;
6. a concise definition of the meaning of the term or, in case of a specific protocol, the description of it;
7. if applicable, specification of recognition or identification criteria that allow an unambiguous reference between general term and its real correlates;
8. examples;
9. comments;
10. relevant references (in particular important for protocols);
11. recommendations regarding value restrictions (e.g. domain and range specifications);
12. namespace policy;
13. documentation of past decision regarding the status of the entry and a history log of the changes made to this entry with links to the respective Proposal Forms;
14. schema:

- (1) generic XML schema (for developing XML schemas);
 - (2) simple XML schema (ready to use);
 - (3) textschema;
15. mappings to terms from other standards;
16. best practice advises can be made in case of method entries;
17. external comments from various ICZS discussion forums and from the wiki entry of the term, which are made after the Glossary entry has been approved.

13.3 Review Reports

All submitted Group Proposal Forms and Change Proposal Forms, as well as all Standards Documentation Forms and Glossary Term Proposal Forms are in need of a review (see *DEFINED PROCESSES*). Like the proposals themselves, the Review Reports will be openly published on the respective web site of ICZS.

All Review Reports have the following input categories in common that have to be specified:

1. type of review:
 - (1) Interest Group Proposal;
 - (2) Task Group Proposal;
 - (3) Contribution to Early Draft Proposal for a developing standard;
 - (4) Standard Submission;
 - (5) Change Proposal for an established Standard;
 - (6) Proposal for adding a new term to the ICZS Glossary;
 - (7) Change Proposal for an established ICZS Glossary entry;
2. decision (i.e. approved, in need of revision, declined) with short explanation;
3. detailed review from each reviewer;
4. steps to be taken for a possible revision with detailed description of what exactly needs to be revised, with specification of IDs and input fields to be revised;
5. specification of deadline for re-submission of a revised version;

6. general recommendations and comments.

14. ICZS WEB SITE & DATABASE

ICZS provides a web site for the zoomorphology community to collaboratively develop zoomorphology standards and make them publicly available. In addition, it hosts a database that serves as a central document repository for all submitted Proposal Forms and approved standards and glossary entries. The ICZS web site with its underlying database, thus, takes in a central role and function within the ICZS.

The ICZS web site will comprise various types of web pages, tools and techniques, including blogs, wiki pages, discussion forums and mailing lists for the Interest Groups and Task Groups and for the ICZS Glossary.

The ICZS web site and database serve the following functions:

1. the web site makes the entire organization of ICZS transparent;
2. provides an infrastructure through which the different levels of ICZS organization (i.e. Executive Board, Editorial and Advisory Board, General Discussion Forum, Interest Groups and Task Groups, Members and the scientific community) communicate with each other;
3. provides a communication and organizational platform for each of the ICZS Interest Groups and their Task Groups with a Convenor-controlled documentation area for each Group;
4. is a collaborative infrastructure that effectively supports standards development by providing a communication and organizational platform for the zoomorphology community to participate in and contribute to the development of common zoomorphology standards;
5. enables members and non-members alike to participate in various processes and decisions;
6. provides a tool for making all steps of the development of a standard transparent;
7. openly displays all submitted Proposal Forms with their current decision status (i.e. in development, submitted, decision pending, reviewed, revision pending, public review, approved/declined) and a documentation of their decision history;

8. provides an up-to-date status of the developmental stage of all currently developing standards;
9. openly displays all Review Reports;
10. provides ready access (open and free) to all ICZS products, including all approved high quality standards documentations and the entire ICZS Glossary, with each standard entry and each Glossary term possessing its own wiki page;
11. stores all submitted Proposal Forms, Review Reports and all submitted or approved Documentation Forms with all their respective past and current versions;
12. facilitates in the Defined Processes by:
 - a. triggering next steps through automatic notifications to respective members, ICZS positions, Editors or Evaluation Panels;
 - b. automatically tracking version numbers and recording a development history log;
 - c. automatically publishing Standards Documentation Forms and Glossary Documentation Forms on the ICZS web site when approved (e.g. submission of a Glossary Term Proposal Form automatically triggers its review process, assigns a unique ID with a version number and publishes the Proposal Form on the web page of the respective Interest Group);
13. provides a specific common web page on which the milestones and schedules of all ICZS Task Groups are automatically gathered, together with their current status.

As the ICZS web site takes in such a central position within the ICZS, all of its pages, as well as all Documentation Forms and Proposal Forms of the ICZS, should conform to a consistent design with a common "look & feel". The ICZS web site should present a consistent interface with all relevant and important information easily and directly accessible. It must be user friendly and easily accessible for potential members, participants, clients, sponsors and the general public.

In order to lower the barrier for ICZS members and non-members to get involved in more than one ICZS Group, the web pages of all Interest Groups and Task Groups must share a common design and architecture with identical workspace environments and identical supporting tools and services. The wiki pages of all ICZS Groups should display the summary of their charter (< 1 page) directly on their front page, together with latest news and a calendar of past and future events and the current work status of all their tasks.

Last Modified: **Day Month Year**



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remaining points & comments

- *Copyrights & Intellectual Property Rights (see links in "Existing TDWG Processes")*
- *Links & communication/contact to other standards organizations & subgroups*
- *external review/evaluation of the overall organization, web site, and established processes of ICZS through independent third party*
- *all talks/presentations that are given in the name of the initiative must be put online on the web site - named after the scheme: "Author_AbbreviatedTitle.ppt"*
- *do we want to use google code site for discussion of terms etc for task groups and interest groups?*
- *?use of open journals system for "publishing" the standards within the initiative (additionally to manuscripts) (see, <http://pkp.sfu.ca/?q=ojs>)?*
- *The following web sites of standards organizations or organizations with a similar scope are considered to provide examples for good web site designs:*
 - *www.codata.org*
 - *www.exchangenetwork.net/index.htm*
 - *good top level, excellent introduction to newbies (network basics, basic documents, purpose), join network, governance, history <-- all not exceeding 1 page*
 - *www.ggf.org/ggf_abt_structure.htm*
 - *www.ggf.org/ggf_docs_final.htm*
- *Typo3 is used by many standards organizations for developing their web site.*

References

"Existing TDWG Processes" 2006?

"Best current practice in standards organizations similar to TDWG" 2006

"Standards development process" 2007

"Executive Committee Roles & Responsibilities" 2008

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