LTER IMC GWG Charge 2008

The initial goal of the Information Management Committee Governance Working Group (IMC GWG) is to explore, document and learn from the ways the IMC participants have conducted their governance. This effort involves identifying elements of governance by reviewing governance structures, practices, and decision-making in the formal and informal work we do.

The IMC GWG will prepare a summary to inform IMExec and IMC about governance in terms of organizational framework and with examples of collaborative activities and mechanisms that support Network science and long-term information infrastructure. In preparing these materials, the IMC GWG will rely on information from the IMC and broader community relating to the LTER strategic planning process.

Structure - how we organize to get work done
Practice - method, custom, or habit; way we do our business, formal & informal
Decision making - formal end

List of deliverables to IMC:

(possible names: best practices, operations manual, membership guidelines and decision-making criteria?)

Do these deliverables meet the charge of the IMC GWG?

- ✓ Handbook for IMC – pull imexec out as one aspect
  - ✓Definition of governance and Principles of good governance (see background slides 4&5)
  - ✓History and current membership
  - ✓Terms
  - ✓Annual reports are submitted to EB and cover activities from one IMexec winter meeting to the next
  - ✓Notes from 2007 Annual Meeting:

IMEXEC

✓IMexec serves continued role as steering committee for IM Community. Keep same number of members, 6, plus chair(s). Anyone from the site IM team can be nominated, but each site has one vote.

✓IMexec members are assigned tasks which are documented on the website and can be updated as necessary.

- ✓Each working group assigned liaison on IMexec
  - ✓GIS data management issues
  - ✓Other working groups…

✓IMexec must have communication with NISAC regularly. NISAC liaison to IMexec, default co-chair, rec agenda and schedule communication with individual.

✓IM on EB shall participate in IMexec activities.

✓IMexec chair should be supported to work in IM leadership activities for the larger committee.

- ✓Expectations for IMexec members – encourage engagement beyond just showing up to the annual meeting - IMC members are encouraged to step up to leadership positions within the committee and at the network level – i.e. working groups, databit editors –network-level im benefited from commitment from individual Ims, and this is critical to the success of network-wide IM projects
  - ✓Liaison with working groups
  - ✓Other roles (secretary, event/meeting planning, website editors)
    - ✓Develop handbooks and/or training for next members charged with leading those activities

List of deliverables to IMC:

- ✓ Meetings as discussed in 2007:
- Plan meetings in a way to broaden our exposure.
- Keep annual meeting or stretch to 18 mo. – KEEP ANNUAL MTG
- Open meeting up to other guests and fresh ideas
- How do we maintain productivity on our products?
- Create registration process for more guests.
- Maintain opportunity to speak to LTER IM issues, 1 day
- Quarterly VTC updates for information exchange and business items
- IMexec plus meet with outside conferences?
- Working groups meet in person and VTC.
- Year 1 2008 Stand Alone Broader Community Meeting with 1 LTER Business Day (away from ESA)[1],[2]
- Year 2 2009 ASM with 1 Business Day
- Year 3 2010 Annual LTER IM Committee/Community Meeting (away from ESA)[2]
- [1] registration fee and look into funding opportunities to support logistics coordination
- [2] require additional funds from site to support IM team members travel and attendance
- Change up the venue!
- In addition, fund face to face working group meetings and VTC
- Mobilize imexec and others to attend other large info science conferences

List of deliverables to IMC:

- ✓ HistoryDB (see draft in excel format)
  - ✓ On-line queries possible, for example to search for a list of formal documents – think about interest, support, and platform in the future
  - ✓ Classification of activities:
    - ✓ Activity type (ex: meeting)
    - ✓ Entities involved (ex: imexec and LNO)
    - ✓ Activity qualifier (ex: leadership and meeting planning)

List of deliverables to IMC:

- ✓ Develop a decision-making/Leadership reference guide – create opportunities for feedback - round robin, forums over collaboration technology – in notes, pass along information through an IMexec member.
- ✓ Need timeline for decisions? For digestion and feedback from people?
- ✓ Guidelines for how consensus works – definition is very important!!!
- ✓ Imexec decide on venue and format of annual meeting – see 2007 discussions and consensus.
  - ✓ Timeline of decisions both formal and informal in historyDB

- ✓ Organization Diagram showing interactions between LTER committees and NSF over time
  - ✓ Describe the structure of the organization
  - ✓ Describe how we communicate
- ✓ Mission statement for IMC (last, but not least) – revise from 1998 (slides 12-14)

BACKGROUND:
1a. Existing Material:
Governance

The process of governance typically rests on a *governance system* or *framework*. The *formal* elements of this system (constitutions, bylaws, conventions) define how the process is supposed to function in a particular setting. But in practice, the *informal* decisions, accepted practices, or unwritten codes of conduct that people follow are often equally important in determining how governance works.

BACKGROUND:
1a. Existing Material:
Principles of Good Governance

- Legitimacy and voice: Participation and consensus orientation
- Direction: Strategic vision
- Performance: Responsiveness; effectiveness and efficiency
- Accountability: Accountability & transparency
- Fairness: Equity

UN Development Program, "Governance and sustainable human development, 1997"

1a. Existing Material: LTER By Laws

Long Term Ecological Research Network Bylaws
Revision 2.0, May 18, 2006
Article I

Name

Article I, Section 1. Name: The name of the network is the Long Term Ecological Research Network (LTER Network).

Article I, Section 2. Purpose: The purpose of the LTER Network is to promote the advancement and applications of long-term ecological research in the United States and internationally. This is accomplished through communication and coordination of research, education, and information management activities, and through synthesis activities across sites and ecosystems and among other related national and international research programs.

1a. Existing Material: LTER By Laws

Long Term Ecological Research Network Bylaws
Revision 2.0, May 18, 2006
Article I

Article V, Section 2. Composition: The Executive Board shall be composed of the elected Chair of the Science Council serving as Chair of the Executive Board; nine Members selected by individual Sites on a rotating basis; an Information Manager; the Executive Director of the Office, and, as needed, a Chair-Elect. All members of the Executive Board shall act in behalf of and are accountable to the membership of the LTER Network. Members will serve as liaisons to LTER Network committees and perform other functions as delegated by the Chair.

V, 2.4 Information Management Representative

The LTER Information Management (IM) Committee shall select one member from among them to serve as the Information Management Representative to the Executive Board. The IM Committee shall determine the method by which the Representative is selected. The Information Management Representative is a non-voting member of the Executive Board and shall serve a single three (3) year term. In addition to the responsibilities shared by all Executive Board members, the Information Management Representative shall serve as the liaison between the Executive Board and the Information Management Committee providing insight on informatics, technology implementation, and human-technology infrastructure issues as well as on design and implementation of federated information system activities. In the event that an Information Management Representative is removed or not able to fulfill his or her term, the IM Committee will choose a replacement to complete the term.

1a. Existing Material: LTER By Laws

Article VII
Other Committees

Article VII, Section 1. General: Other committees, consisting of Network-wide Standing, Targeted Standing, or Ad Hoc, may be created by resolution adopted by the Executive Board. Each committee shall have only the lawful powers specifically delegated to it through the charge to the committee approved by the Executive Board. The Executive Board shall evaluate all committees on an annual basis. Any committee may be dissolved by a vote of the Executive Board. Committees may have representation at Executive Board meetings at the discretion of the Executive Board. Committee Chairs shall report on their work at least annually to the Executive Board and at such other times as directed by the Chair. Chairs and members of committees receive no compensation except for reasonable expenses.

Article VII, Section 2. Network-Wide Standing Committees: One or more Networkwide standing committees may be formed by the Executive Board for each major scientific, educational, or research program identified by the LTER Network. Members shall include one Representative from each Site. Network-wide Standing Committees, once formed, shall elect their own Chairs. The Chairs of each Network-wide Standing Committee are non-voting members of the Science Council.

Article VII, Section 3. Targeted Standing Committees: One or more Targeted Standing Committees may be formed by the Executive Board. A Targeted Standing Committee shall be formed to address specific, long-term scientific or administrative issues that require particular kinds or combinations of expertise. Targeted Standing Committees do not require representation from all sites to meet their charge. Targeted Standing Committees, once formed, shall elect their own Chairs. An individual from any of the LTER Sites may be a member of a Targeted Standing Committee. The Chairs of each Targeted Standing Committee are non-voting members of the Science Council.

Article VII, Section 4. Ad hoc Committees: The Executive Board may create such ad hoc committees as may be deemed desirable, the members of which shall be appointed by the Executive Board. Each such committee shall have only the lawful powers and term of operation/existence specifically delegated to it by the Executive Board. Ad hoc committees may have representation at Executive Board and/or Science Council meetings at the discretion of the Executive Board.

2a. Existing Materials:
Communication & Structure: Update Vision
Strategic Vision for the Long-Term Ecological Research Network Information System – 1998 – modified in NIS strategic plan

Statement of Purpose

Our goal is to promote ecological science by fostering the synergy of information systems and scientific research.

Vision Statements

* Pursue information systems development and implementation from the context of ecological research needs

* Conduct information management in a nested context of site, research network, national, and international levels

* Emphasize the timely and effective transformation of data into information and the ease of access to that information

* Ensure the long-term preservation and availability of information

* Ensure appropriate information system development through information management research

* Develop human resources necessary for the continuing evolution of LTER information systems

ECOLOGICAL INFORMATICS:

FINDING ANSWERS FOR LONG TERM ECOLOGICAL RESEARCH

1998 Vision Statement for the Information Management group: LTER Network

Definition of The Issues

Complex issues confronting scientists and policy makers require interdisciplinary collaboration and synthesis at much larger spatial and temporal scales than are typical in traditional ecological studies. Synthetic, data intensive projects will be even more common in the future and require increased access to data and metadata distributed across multiple sites. The major challenge to the LTER information management group is to make information available to ecologists in forms they can locate and use. A plethora of technological tools is available to produce solutions to this challenge. Keeping abreast of the changes in technology and the potential benefits to ecologists while meeting site and network level goals is a challenge in itself. We recognize that this new science and new technology interact to evolve the role of informatics in ecology. In this complex research environment, all scientists need some background in information science and computational ecology. A third challenge to the information managers is to facilitate the development of a new generation of scientists that are "info-literate".

Statement of Purpose

Our goal is to promote ecological science by fostering the synergy of information systems and scientific research.

Vision Statements from 1996

Pursue information systems development and implementation from the context of ecological research needs

Conduct information management in a nested context of site, research network, national, and international levels

Emphasize the timely and effective transformation of data into information and the ease of access to that information

Ensure the long-term preservation and availability of information

Ensure appropriate information system development through information management research

Develop human resources necessary for the continuing evolution of LTER information systems

Pursue information systems development and implementation from the context of ecological research needs: We approach information management from an ecological research perspective, guiding our development by the research uses of the information system and evaluating the system implementation in the light of specific research projects. Information management is an integral part of the LTER research platform, and provides crucial infrastructure for the LTER research enterprise.

Conduct information management in the nested context of site, research network, national, and international levels: Site-oriented agendas must be balanced with broader (network, national, and international) level goals. Network solutions should consider and facilitate local site solutions while local site solutions should take into account the strategic plans developed at the network level.

Emphasize the timely and effective transformation of data into information and the general availability of that information: The LTER community expects us to continually find better ways to access and use existing data to answer increasingly complex questions with minimum difficulty. Meeting these expectations will require new data products and information interfaces. Developers of environmental databases must address many issues including the storage and integration of a variety of data types, a large range of both temporal and spatial scales and sizes, and increasingly sophisticated analytical requirements. Design of any information system must assure data quality, protection, and availability while considering cost and efficiency. While sites independently build information systems to meet their own needs, an information system at the network level may require the development and implementation of standards for LTER.

Ensure the long-term preservation and continual accessibility of information: Long-term research requires a data management environment that provides for the long-term availability of data and metadata. Preservation implies that appropriate quality control checking has been performed on the data set, and that the associated metadata is sufficient and complete for interpretation of information in the future. Potential users of this information include scientists, academicians, managers, policy makers, as well as the public. Data publication of selected high-quality data sets should be pursued.

Ensure appropriate information system development through information management research: The information management system of the LTER must facilitate current needs, anticipate new technical horizons, and be extensible to new technology and research requirements. Research into new information system technologies must be conducted to ensure appropriate system development for LTER, with external resources cultivated when necessary. The LTER network should provide a testbed for new technological solutions, providing a means for implementation and improvement of the research platform. Publication of innovative implementations of new technology should be explored. Historically, we have explicated the necessary components each site should develop to provide acceptable data management at a site level in support of an operational network of sites, and this role will continue.

Develop human resources necessary for the continuing evolution of LTER information systems: As we move into the 21st century, we must ensure that the intellectual capital in this area exists for the next generation of long-term ecological research. We see a need to continue developing training materials and curricula in the area of information management. The Data Management Committee meetings are essential to maintaining our collective expertise, and other workshops will be necessary as we move toward a network development focus.

Status of LTER Information Science

Data and information management plays an important role at LTER sites and has since the inception. Data managers at LTER sites met formally for the first time in 1988 and have continued to meet annually. The group was established as a standing committee of the LTER coordinating committee in 1996 as demands for network information resources increased. Activities of the group focus on site and network-level data and information management issues.

Information systems designed for Ecology: LTER has pioneered the use of bottom-up and research-driven approaches to informatics. Discipline specific working groups are the key to success in developing a network information system. Information managers form the integrative "glue" that is the interoperability layer of the system. Scientists know data and its uses but do not know the information technology available to them to solve problems. Information managers know information technology but do not understand the subtleties involved in the storage and use of the data. By forming these integrative working groups, bringing together disciplinary specialists with information specialists, strong productive partnerships have been formed to solve real-world issues in ecology.

Distributed informatics laboratory: The LTER Network is a testbed for ecological information management tools and techniques. The breadth of expertise and infrastructure in the LTER network has allowed the distributed testing and evaluation of tools for ecologists without the costs of network level implementation. For example, software is most often designed for to provide business solutions, whether a given package will function as a tool for ecologists is never clear.

The "LTER cycle" includes the following:

individual sites test different hardware and software approaches

successful approaches "ported to" the network and beyond

unsuccessful approaches are abandoned

The "LTER cycle" is being successfully demonstrated today as LTER approaches are being used at field stations and research sites around the world. LTER sites have become a distributed laboratory for the testing of informatics solutions.

Back to school: LTER information managers have been sponsoring and contributing to data management training, courses, workshops, and students for almost two decades. These activities have led to the accumulation of experiences and materials that are enabling formalization of a curriculum for next-generation scientists that melds ecology and informatics.

One-stop shopping: The LTER information system has the goal of providing "one-stop shopping" access to ecological data and metadata. Prototypes of modules for a network information system have been developed that take advantage of the latest in web to database connectivity. These include a streamlined data catalog, site description and personnel database, and a network climate database. These systems take advantage of "centributed" mechanics, which leave the data at the site where it can best be managed while making it accessible through a common interface.

Strategic Plan

Promoting Ecological Science: LTER information managers see the importance of bringing leading edge capabilities in computing, communications, and information science to benefit and drive advances in ecological science. By recognizing that,

Ecological Information Systems are dynamic, in a continual state of evolution and refinement, and

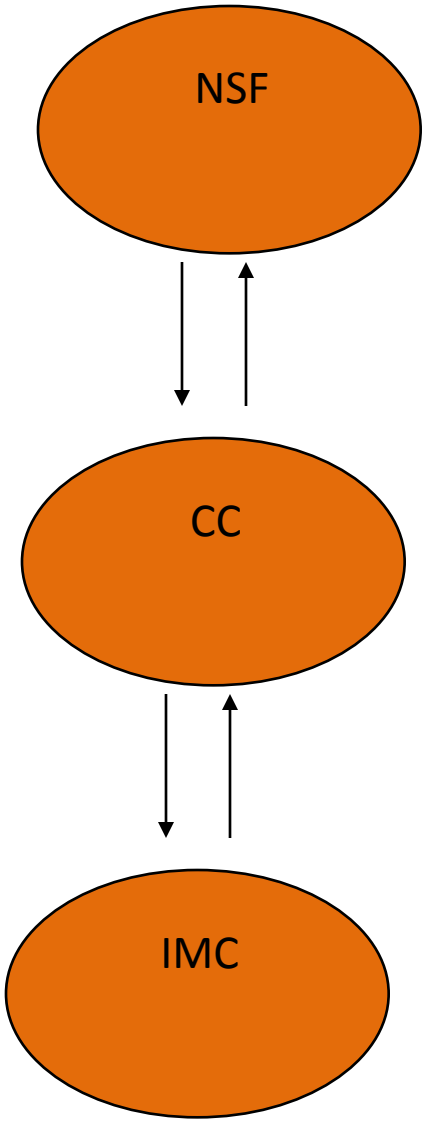
Eco-Informatics is an area of active research, as well as a discipline that supports ecological research,

LTER Information Managers are preparing to meet the information challenges of the next century.

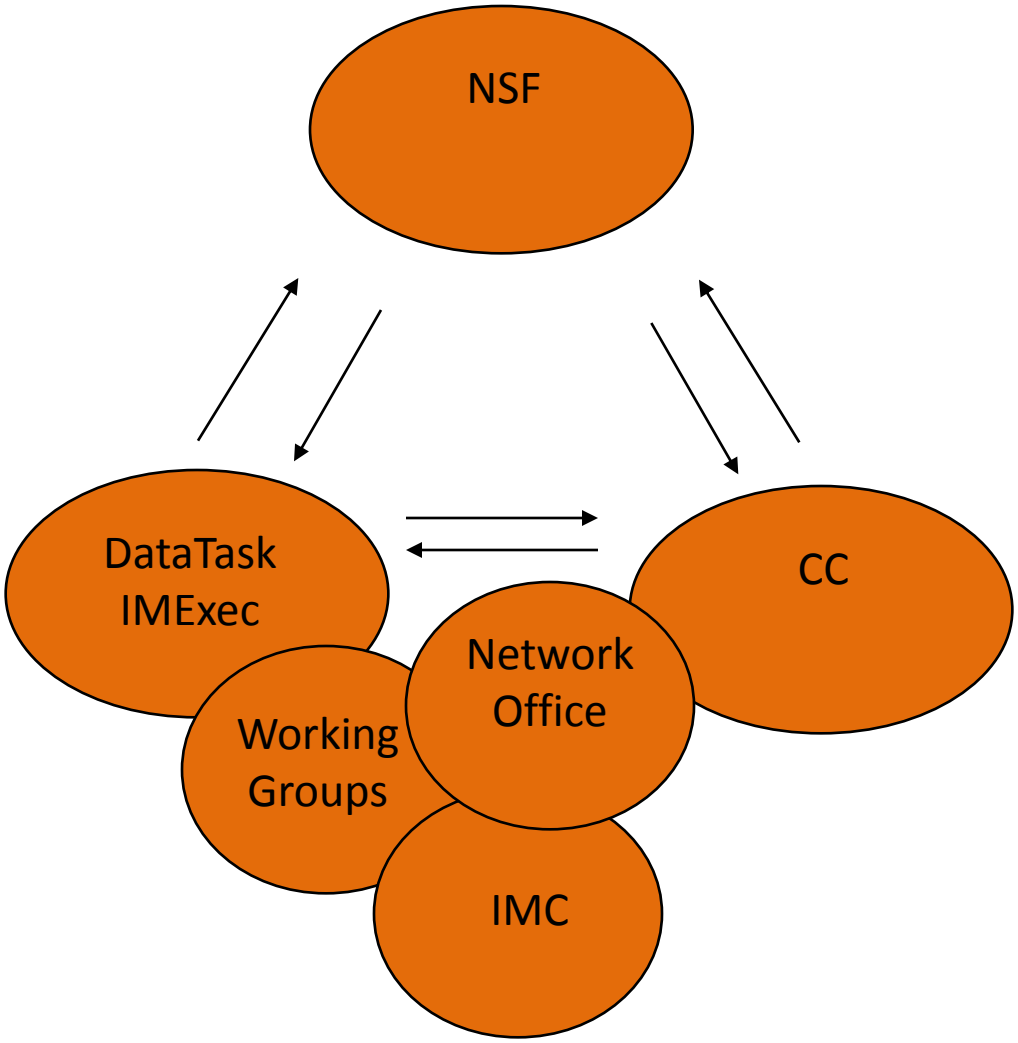
Developing an information system from a research perspective, linking closely to cross-site research groups and collaborating partners, and

taking advantage of improved tools and computational hardware particularly network technologies where LTER has a history of leadership, will help to promote ecological science by fostering the synergy of information systems and scientific research.

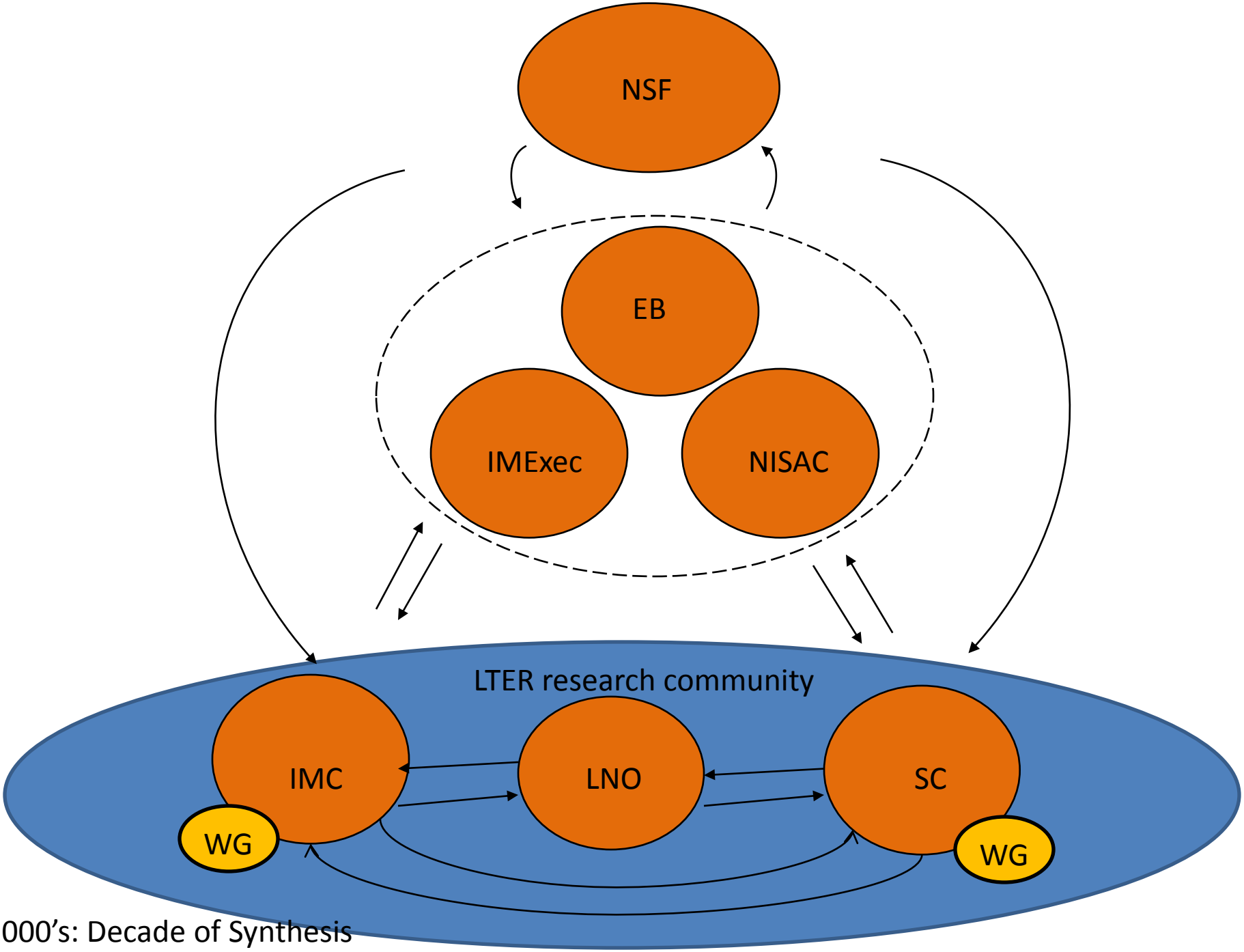
Striking a balance: Meeting standardized goals employing a variety of site-specific solutions has built strength into the LTER Network. Given that:
the diversity of science and organizational models at LTER sites demands flexible solutions to site information management challenges, and
meeting network-level goals requires a minimum level of homogeneity across sites (such as a Minimum Standard Installation for Database Development and Integration),
The strategy is to find solutions that are viable and beneficial at both site and network levels by continuing to draw on the strength in diversity that is an important benefit of the LTER Network.
Training the next generation: LTER information managers have emerged as a training resource for ecological information management. Thus far, successful demonstration of the utility of this program has been through:
outreach to biological field stations and marine labs
forging linkages with international LTER programs
The ultimate objective being to establish a formalized curriculum and training that would function as an Ecological Informatics Institute in a distributed environment.
Needs to Achieve Objectives
These ambitious but achievable objectives can be met, but only through the commitment of individuals, sites, and the network.
Individuals: the commitment and personal initiative to achieve the goals set forth.
Site: continued support for data managers to participate in network activities.
Network: continued support of data management working group meetings.
Ultimately, success will rely on the individuals who commit time to the development of publications, proposals, and solutions.



1980’s: Decade of Time Series



1990’s: Decade of Regionalization



2000's: Decade of Synthesis