Long Term Ecological Research Network Office (LNO)

STRATEGIC PLAN

March 1, 2005

LTER

The University of New Mexico

NATIONAL · SCIENCE · FOUNDATION
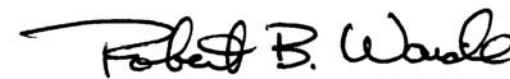
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Message from the Executive Director

As the Long Term Ecological Research (LTER) Network approaches the 25th anniversary of its founding, changes in the global environment have renewed the imperative to investigate ecological processes over long temporal and broad spatial scales. Synthesis and comparative research across sites and ecosystems have taken on increased importance, along with the need to collaborate on a global scale across international boundaries.

The LTER Network Office was created by the National Science Foundation to support and coordinate Network and cross-site activities. With twenty-six U.S. sites participating in the Network, rapidly advancing technology, and a growing collaboration with 30 countries participating from the international community (ILTER), the complexity of facilitating collaborations among sites and maintaining infrastructure such as the LTER information technology network has created new challenges for the Network Office. Housed at the University of New Mexico, the LTER Network Office (LNO) has recently entered into a second six-year contract with NSF to provide support to the Network. With that new contract has come a commitment to undertake the development of a long-range strategic plan to better evaluate and implement its role in this new environment.

Recent initiatives in the scientific community are advancing the goal of national and international scientific collaboration. As the LTER experience shows, such a goal can only be accomplished by a community with open communication and a strong commitment to share strategies and goals, metrics and achievements. By collaborating with the Network Strategic Planning initiative led by the Executive and Coordinating Committees, the LTER Network Office has created its own, linked strategic plan that will serve as a guide for the organization, and a communication tool to the entire LTER community.

*Any strategic plan reflects a snapshot of thinking within the construct of today's world. Significant changes in the global environment have already taken place, and the ramifications of these changes will influence the fundamental planning of organizations and nations. Therefore, we are committed to constantly assess the validity of this strategic plan by measuring our achievements against metrics and by monitoring the external environment. In this way the plan will be a useful **tool** for the Network Office, the Network, and NSF to achieve the vision of the LTER program.*

Robert B. Waide, Ph.D.
Director, LTER Network Office

The LTER Network

The LTER Network comprises 26 research sites, selected for the excellence of the research conducted at each site as well as the potential of the site for long-term studies.

AND – H.J. Andrews Experimental Forest LTER, Oregon

ARC – Arctic Tundra LTER, Alaska

BES – Baltimore Ecosystem Study LTER, Maryland

BNZ – Bonanza Creek Experimental Forest LTER, Alaska

CAP – Central Arizona-Phoenix LTER, Arizona

CCE – California Current Ecosystem LTER, California

CDR – Cedar Creek Natural History Area LTER, Minnesota

CWT – Coweeta LTER, North Carolina

FCE – Florida Coastal Everglades LTER, Florida

GCE – Georgia Coastal Ecosystem LTER, Georgia

HBR – Hubbard Brook LTER, New Hampshire

HFR – Harvard Forest LTER, Massachusetts

JRN – Jornada Basin LTER, New Mexico

KBS – Kellogg Biological Station LTER, Michigan

KNZ – Konza Prairie LTER, Kansas

LUQ – Luquillo Experimental Forest LTER, Puerto Rico

MCM – McMurdo Dry Valleys LTER, Antarctica

MCR – Moorea Coral Reef LTER, French Polynesia

NWT – Niwot Ridge LTER, Colorado

NTL – North Temperate Lakes LTER, Wisconsin

PAL – Palmer Station LTER, Antarctica

PIE – Plum Island Ecosystem LTER, Massachusetts

SBC – Santa Barbara Coastal Ecosystem LTER, California

SEV – Sevilleta LTER, New Mexico

SGS – Shortgrass Steppe LTER, Colorado

VCR – Virginia Coast Reserve LTER, Virginia

LNO – LTER Network Office, University of New Mexico, Albuquerque, NM

LTER Network Vision, Mission and Goals

Network Vision: A society in which exemplary science contributes to the advancement of the health, productivity, and welfare of the global environment that, in turn, advances the health, prosperity, welfare, and security of our nation.

Network Mission: To provide the scientific community, policy makers, and society with the knowledge and predictive understanding necessary to conserve, protect, and manage the nation's ecosystems, their biodiversity, and the services they provide.

The LTER Executive and Coordinating Committee have developed a set of Network Goals and a prioritized set of Objectives, Tasks and Metrics under each of those Goals.

Understanding: To understand a diverse array of ecosystems at multiple spatial and temporal scales.

Synthesis: To create general knowledge through long-term, interdisciplinary research, synthesis of information, and development of theory.

Information: To inform the LTER and broader scientific community by creating well designed and well documented databases.

Legacies: To create a legacy of well-designed and documented long-term observations, experiments, and archives of samples and specimens for future generations.

Education: To promote training, teaching, and learning about long-term ecological research and the Earth's ecosystems, and to educate a new generation of scientists.

Outreach: To reach out to the broader scientific community, natural resource managers, policymakers, and the general public by providing decision support, information, recommendations and the knowledge and capability to address complex environmental challenges.

LTER Network Office Mission

The Network Office supports the Vision of the LTER Network. Specifically, the Mission of the Network Office focuses on its role to provide service to LTER sites and the Network:

LTER Network Office Mission: To provide a central point of contact and collective expertise to support the objectives of the LTER Network by:
- *Providing an efficient computational and communication infrastructure*
- *Developing and deploying state-of-the-art techniques in information management*
- *Maintaining a strong public outreach program*
- *Coordinating interactions with other scientific networks, agencies, and entities*
- *Providing administrative support*
- *Contributing to an efficient and effective environment in which site, cross-site, and synthetic research and education can be conducted*

In addition, the LTER Network Office supports the efforts of the NSF with regard to the LTER Network by implementing new ideas and initiatives. Finally, the LNO provides expertise and experience to the ecological community in support of efforts to develop national networks and standards.

LNO Organizational Environment

The LTER Network Office responds to the needs and objectives of the LTER Network as defined by the LTER bylaws, the LTER Network Strategic Plan, and specific guidance from the LTER Executive and Coordinating Committees. The Cooperative Agreement between the National Science Foundation and the University of New Mexico contains a Scope of Work that describes the LNO obligations to NSF. As the contracting entity, the LNO operates under the rules and regulations of the University of New Mexico (UNM). The LNO is responsible for integrating the potentially competing needs of these organizations.
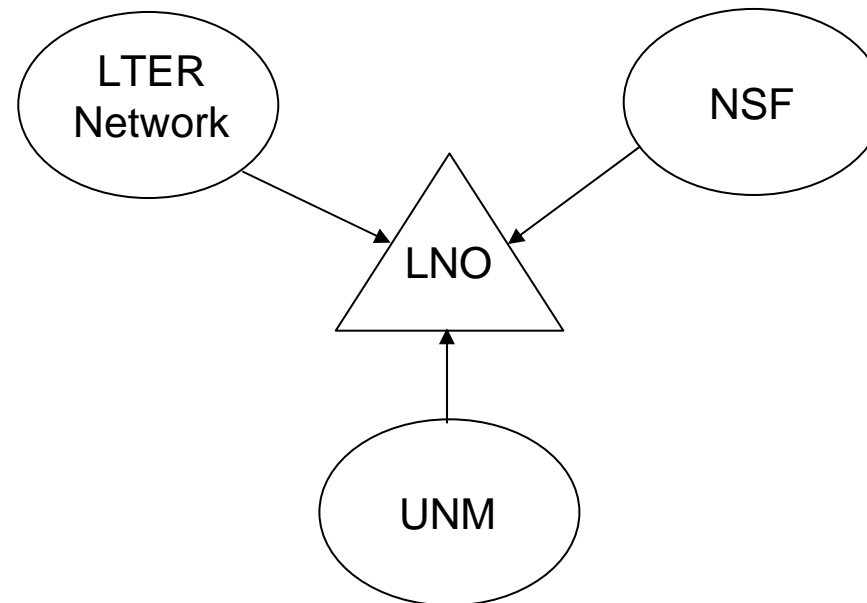
LTER Network Organizational Structure

The LTER organizational structure has evolved over twenty years. The complexity of the relationships that have resulted complicate communications and have given rise to questions concerning the efficiency of the structure to accomplish new missions.

LTER

• Site funding (Grants)
• Assessments

National Advisory Board

NSF

Exec.

LTER Network Coordinating Committee

• NET Funding
• Assessments

• Special requests
• Services
• Surveys

Cooperative Agreement:
• Network Office administration
• Computational and communication infrastructure
• Information management
• Network development, community outreach and training
• Publications and public outreach
• Synthesis
• Network IS design and development
• Strategic planning for LTER

• Pertinent Coordinating Agreement support services
• Other Services as requested
• Publications and Web Site
• Meeting coordination:
    - Executive Committee
    - Coordinating Committee
    - National Advisory Board
    - ILTER
    - All Scientists meeting
    - Workshops

Network Office (LNO)

———— Flow of information and services
———— Funding

Network Office Organizational Structure

The LNO organizational structure has evolved over the past years to respond to increased needs of both the user community (LTER sites and scientists) and NSF. The LNO finds itself in constant need of prioritizing workload in order to improve function. More and more, the need has arisen for cross-organizational teamwork to achieve goals. One of our key strategies will be to evaluate the effectiveness of this organization and implement changes as necessary.
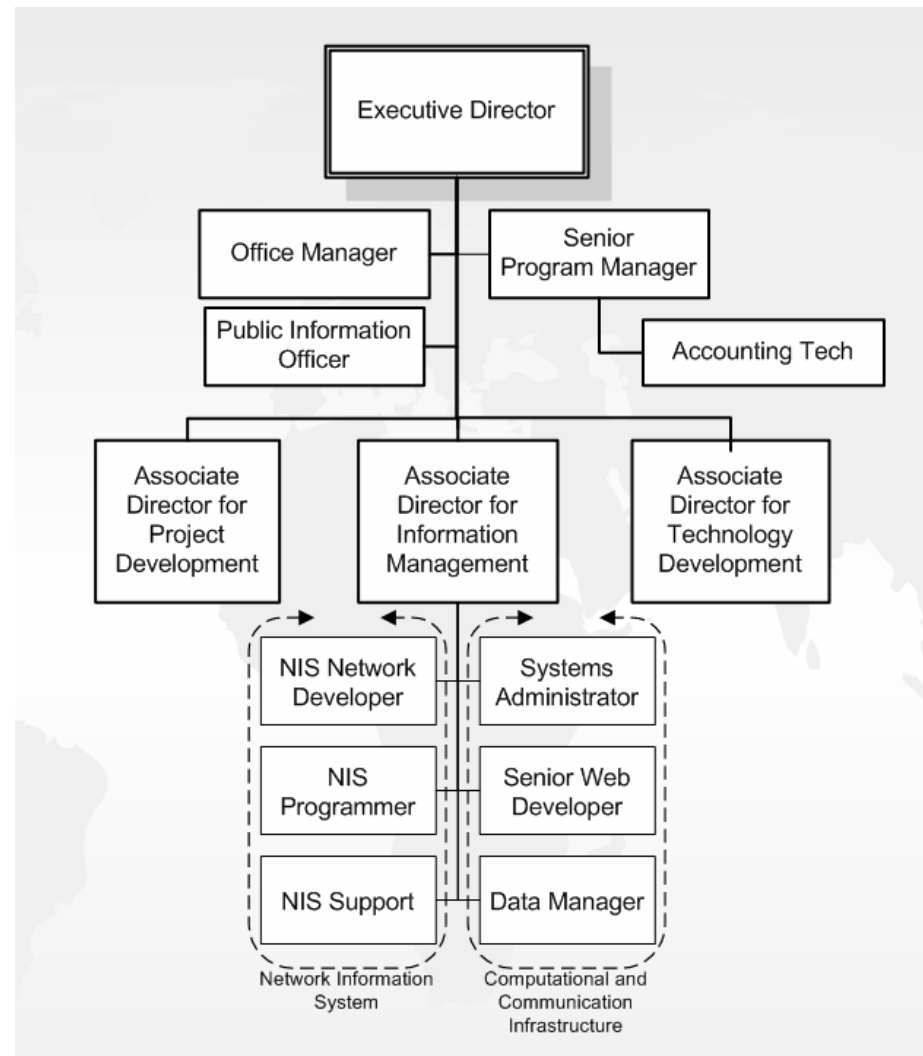
Network Office Tasking

The LTER Network Office is contracted through the University of New Mexico with NSF to provide support and coordination functions for the LTER Network. The formal contracting agreement is called the Cooperative Agreement (No. DEB-0236154), and contains detailed requirements for accomplishing the mission of the Office. Among these are 10 key tasks which represent the primary responsibilities of the Office:

1. Network Office Administration and Service Activities
2. Computational and Communication Infrastructure
3. Information Management and Methods Development
4. Network Development, Community Outreach and Training
5. Publications and Public Outreach Development
6. Synthesis Facilitation
7. Network Information System Design and Development
8. International LTER
9. Education
10. Strategic Planning for LTER Network

Network Office Task Integration

The integration of the primary functions of the LTER Network Office with its core vision and mission is graphically depicted here. Supplements to the LNO Cooperative Agreement that support Core Task Areas overlap with the outer circle. Other funded grants stand outside the outer circle.
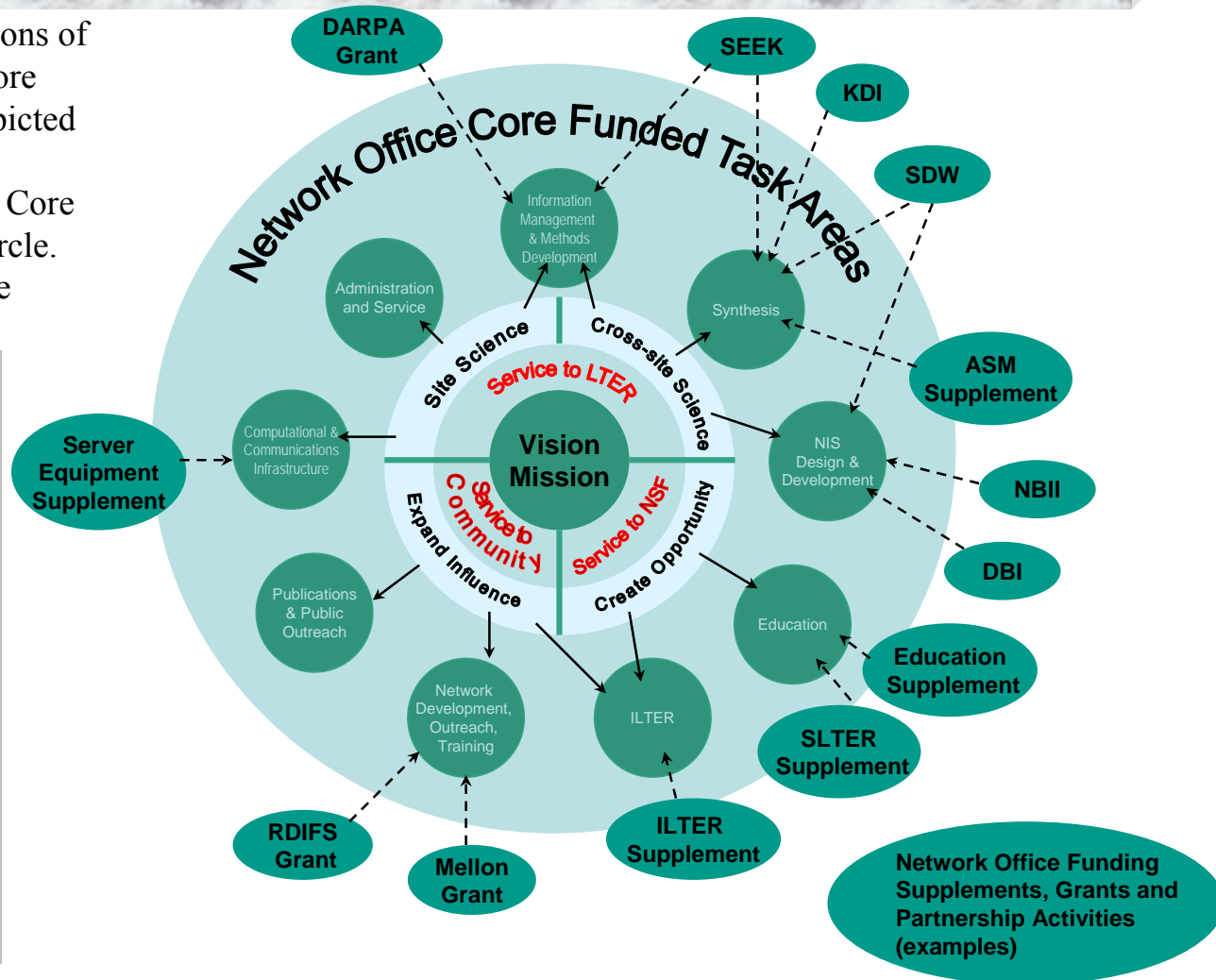
Acronyms:
- DARPA – Defense Advanced Research Projects Agency
- SEEK – Science Environment for Ecological Knowledge
- KNB – Knowledge Network for Biocomplexity
- SDW – Spatial Data Workbench
- ASM – All Scientists Meeting
- NBII - National Biological Information Infrastructure
- DBI – Division of Biological Infrastructure
- SLTER – Schoolyard LTER
- ILTER – International Long Term Ecological Research Network
- RDIFS – Resource Discovery Initiative for Field Stations
- NIS – Network Information System

Strategic Planning Process

With the assistance of an external consultant, Innovative Technology Partnerships, LLC, the Network Office adopted a process for creating this strategic plan. As indicated below, the process is never complete, with new information coming from metrics and surveys along with external drivers contributing to a constant refinement of strategies and goals:

Contextual Scan
- Review past assessments
- Collect and review data from Network sites, NSF and others
- Develop stakeholder set and organizational flow schematics
- Examine external drivers

Planning Meetings
- Review contextual scan
- Identify driving forces
- Identify strengths, weaknesses, opportunities and threats
- Identify issues

Issues Development
- Issues analyses
- Strategic discussions
- Collaboration with Network and National Advisory Board

Strategic discussions occur in every step

Monitor and Feedback
- Gather performance data
- Report status in public meetings
- Monitor external events
- Improve process

Strategy Deployment
- Publish Draft Strategic Plan
- Revise and publish
- Publish summary pamphlet
- Brief and involve all stakeholders

Strategy Development
- Identify strategies, tactics, actions and teams
- Prioritize
- Develop time lines, metrics and milestones
- Assign responsibilities

Issues Development

KEY ISSUE: How can the LTER Network Office meet the growing and competing demands of the NSF and the Network while enhancing its role to help guide the development of the Network in its third decade?

QUESTIONS RELATIVE TO KEY ISSUE:

- How can the LTER Network Office meet the growing demands of NSF and the user community?

- Can the LTER Network Office play a role in the long-term growth strategies of the Network?

- What long term organizational relationships are necessary to assist growth and success?

- How can the LTER Network Office influence policy, legislation and public opinion?

Strategy Development

Following the refinement of the Issues, four strategies were developed that will drive the Network Office over the next contract period. Actions under each of these four strategies are detailed in the following pages, and will continue to be refined as input from the All Scientists surveys and subsequent site surveys are gathered and analyzed. The four strategies are:

Strategy #1 – Prioritizing Work

Strategy #2 – Long Term Growth

Strategy #3 – Defining Relationships

Strategy #4 – Increasing Impact

Strategy #1 – Prioritizing Work

Strategy #1: Develop methods and processes to prioritize work, submit proposals for new concepts, and communicate changes

Actions:

For the benefit of the LTER Network
- Through surveys administered to individuals and sites, identify and document key existing and desired services and develop a priority list for these services (Executive ~~Director~~) **Completed**
- Work with the LTER Executive and Coordinating Committees to finalize an approved list of priorities for LNO activities that are not automatic (Executive Director)

For the benefit of NSF
- Develop process for providing Network Office cost estimates for new initiatives (Executive Director)
- Develop communication plan for Network Office and Network sites to disseminate new achievements and procedures (Public Information Officer) **Ongoing**

For the benefit of the LNO
- Determine what critical procedures exist within the LNO, establish whether these procedures are clearly defined, and propose new procedures where necessary (AD for Information Management) **Ongoing**
- Establish process for prioritization of LNO activities in support of LTER sites, the LTER Network, NSF, and other clients (Executive Director) **Completed**

Strategy #2 – Long Term Growth

Strategy #2: Develop long-term growth strategies with the Network and submit proposals to accomplish them

Actions:

For the benefit of the LTER Network
- Work with Executive and Coordinating Committees to develop strategies for network growth, initially through the development of a planning grant (Executive Director) **Ongoing**
- Directly facilitate and engage in synthesis discussions and other Network-wide initiatives (Executive Director)
- Work with the Network Information System Advisory Committee to develop IT plans that meet Network needs and address federal and international requirements (AD for Information Management) **Completed**
- Leverage opportunities arising from the development of new national networks such as NEON (AD for Project Development) **Ongoing**
- Work with the Technology Committee to identify infrastructure needs and develop long range plans for maintenance and replacement (AD for Technology Development) **Ongoing**

For the benefit of the LNO
- Identify diversity issues and develop short range and long range plans for achieving balance in Network Office staff (Executive Director)

Strategy #3 – Defining Relationships

Strategy #3: Identify organizational relationships that will leverage the expertise of the Network Office and the science of the Network

Actions:

For the benefit of the LTER Network

- Develop process and procedure for assessing Network Office effectiveness (Executive Director)
- Document current organizational relationships and reporting structures (AD for Project Deve~~Completed~~
- Identify partnership opportunities with other organizations and associations and develop plan for establishing those partnerships (AD for Project Development)
- Work with the LTER Planning Team to identify particular strengths among LTER scientists within the network, and form "virtual coalitions" of these scientists, to call upon to accomplish strategies such as #4, Increasing Impact (Executive Director)

For the benefit of the LNO

- Review and implement a new organizational model within UNM (e.g. independent center) in light of objectives, including the need for a Program Manager position for day-to-day oversight of this new center (Executive Director) **Completed**
- Clarify relationship of LNO senior staff to UNM by developing, testing, revising, and implementing an evaluation process for research faculty (Executive Director) **Completed**
- Develop job task list for critical LNO personnel and succession plan/options (AD for Information Management)
- Identify team building opportunities, including external consultant support (Executive Director)

Strategy #4 – Increasing Impact

<u>Strategy #4:</u> Help increase the influence of the LTER Network on policy, legislation and public opinion

Actions:

For the benefit of the LTER Network
*   Examine public opinion, both local and national, and work with Network scientists to leverage education, outreach, and training aspects of Network to effect long-term change (Executive Director)
*   Work with the Coordinating Committee to develop of an "ecological message" and identify the Network as a national and international voice of ecological research (Public Information Officer)
*   Track the development of new NSF initiatives that directly affect the Network (AD for Project Development)
*   Develop plans for Sabatarrians and links with the AAAS fellow program and the Aldo Leopold Leadership Program (AD for Technology Development)

For the benefit of the LNO
*   Leverage education, outreach, and training resources at UNM under new Administration (Public Information Officer)

Implementation of Actions

Each action described under the four strategies will have an associated implementation plan with metrics for success.   These implementation plans will be developed over time and will form an addendum to the Strategic Plan. As an example of such an implementation plan, we address the final action under Strategy 1: <u>Establish process for prioritization of LNO activities in support of LTER sites, the LTER Network, NSF, and other clients</u>.

Establish process for prioritization of LNO activities in support of LTER sites, the LTER Network, NSF, and other clients

Task Leader: Executive Director

Team Members: LNO staff

An initial screening matrix was established in cooperation with the Executive and Coordinating Committees (see page 21). This screening matrix separates requests to the LNO for assistance into three categories. The first category of request involves activities with high impact on LNO resources and requires advice from higher authority (Chair, Executive Committee, Coordinating Committee) for prioritization. The second category represents requests for services clearly defined in the LNO Scope of Work (SOW). These requests are routinely accepted and priorities set within the LNO. The third class of requests fall outside the SOW and are routinely declined.

Screening matrix

	High Impact	Low Impact	Outside SOW
Characteristics	•Priority setting requires Exec/CC help •Each request balanced against other requests •Kinds of requests include facilitation of synthesis, IM service to network, new initiatives •Executive Director, Associate Directors, and selected staff involved in decision-making process	•Priority setting internal to LNO •Requests routinely accepted •Kinds of requests include database maintenance, administration, communication infrastructure, public outreach, training • Network developer, system administrator, database administrator determine priorities	•Priorities fixed in LNO Scope of Work •Requests routinely declined •Kinds of requests include ILTER, education

To track requests, a formal work flow process was developed (see page 23). This process includes timely acknowledgement of requests, assignment of priority and responsibility within work flows, notification when requests are fulfilled, and reporting capabilities. Metrics for success will be associated with each step in the work flow. During the first year of operation, we expect 80% success rates in meeting metrics, rising to 95% in the second year.

Requests made via e-mail, direct contact, or web forms

Various kinds of requests are funneled into a single work flow within 1 working day of receipt

Acknowledgement of request generated automatically

Routine requests claimed and given ticket number within 1 working day

Non-routine requests evaluated by project team and task assigned or rejected within 2 working days

Rejected tasks claimed by management for consultation with higher authority or determined to be outside SOW within 3 working days

Notification within 1 working day of completion

LTER Network Office Strategic Plan March 2005

To assign human resources to tasks, we began with a distribution of effort for each LNO staff member against all tasks in the Scope of Work (see page 25). As tasks are completed or added or as priorities change, the distribution of effort is modified.

	Executive Director	AD Information Mangement	AD Network Development	AD Technology Development	Systems Adminstrator	Senior Web Developer	Data Manager	NIS Programmer	NIS Support	NIS Network Developer	Senior Program Manager	Office Manager	Accounting Tech	Public Information Officer	Technical Editor
Administration and Service Activities	68										24	220	68		
Computational/Communication Infrastructure	5										8		23		
Information Management and Methods Development	20										8		23		
Network Development, Community Outreach, and Training	20										6		23		
Publications and Public Outreach	15										2		14		23
Synthesis	60										8		23		
NIS Design and Development	12										6		16		
Education	3										2		2		
International	5										2		2		
Planning	20										16	8	34		
Days allocated	228	0	0	0	0	0	0	0	0	0	82	228	228	0	23

The LTER Network Office Timeline captures critical events, and paints a long term picture of influencing issues. It was created to facilitate our strategic discussions and will be updated from time to time.
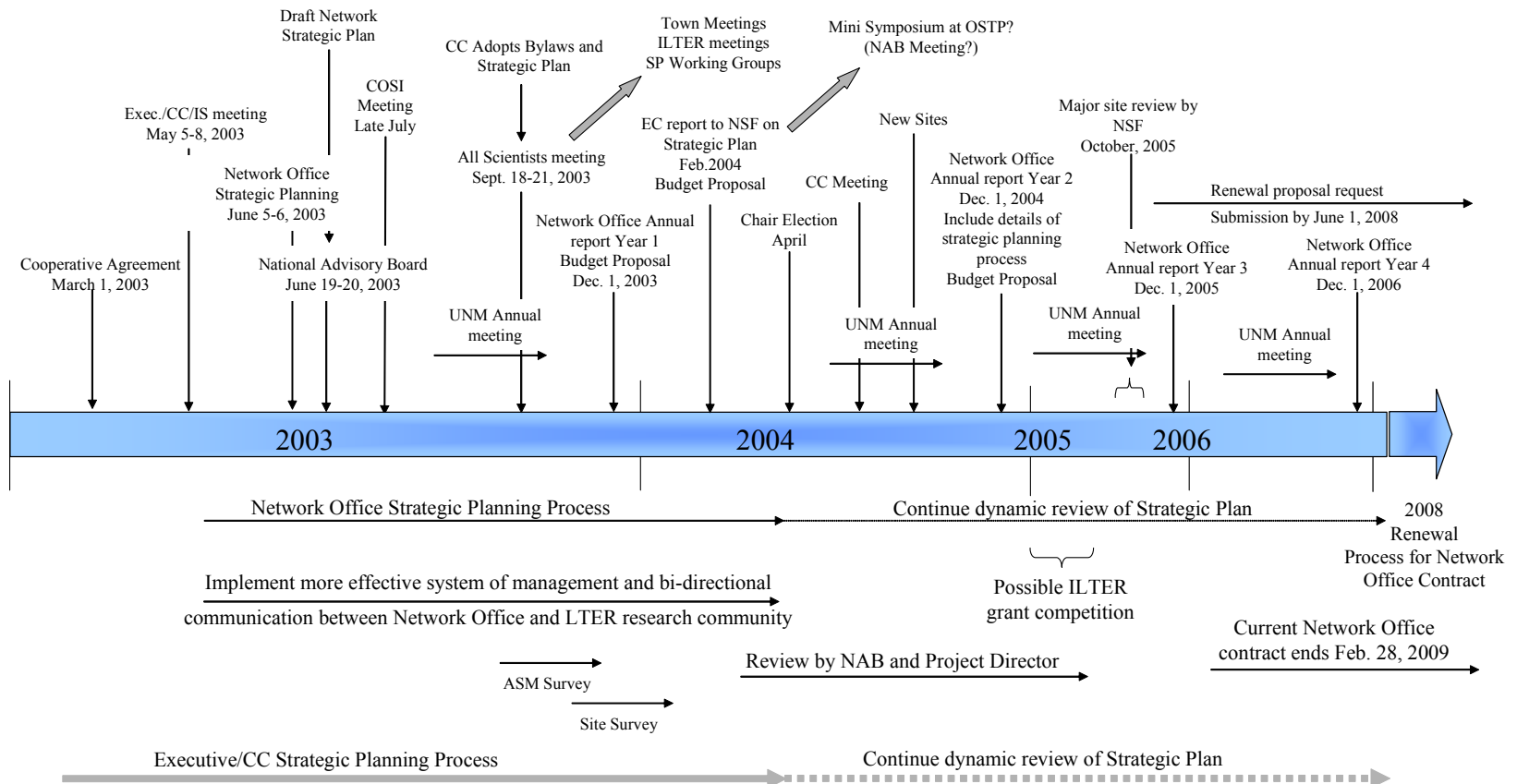
Coordination of Strategic Plans

The Network Office is participating in strategic planning discussions with the Executive and Coordinating Committees, and has invited members of those committees to its own meetings. We have performed a "cross-walk" of the LTER Network Goals to the Network Office strategies and actions to ensure that priorities are aligned, and any gaps are identified.

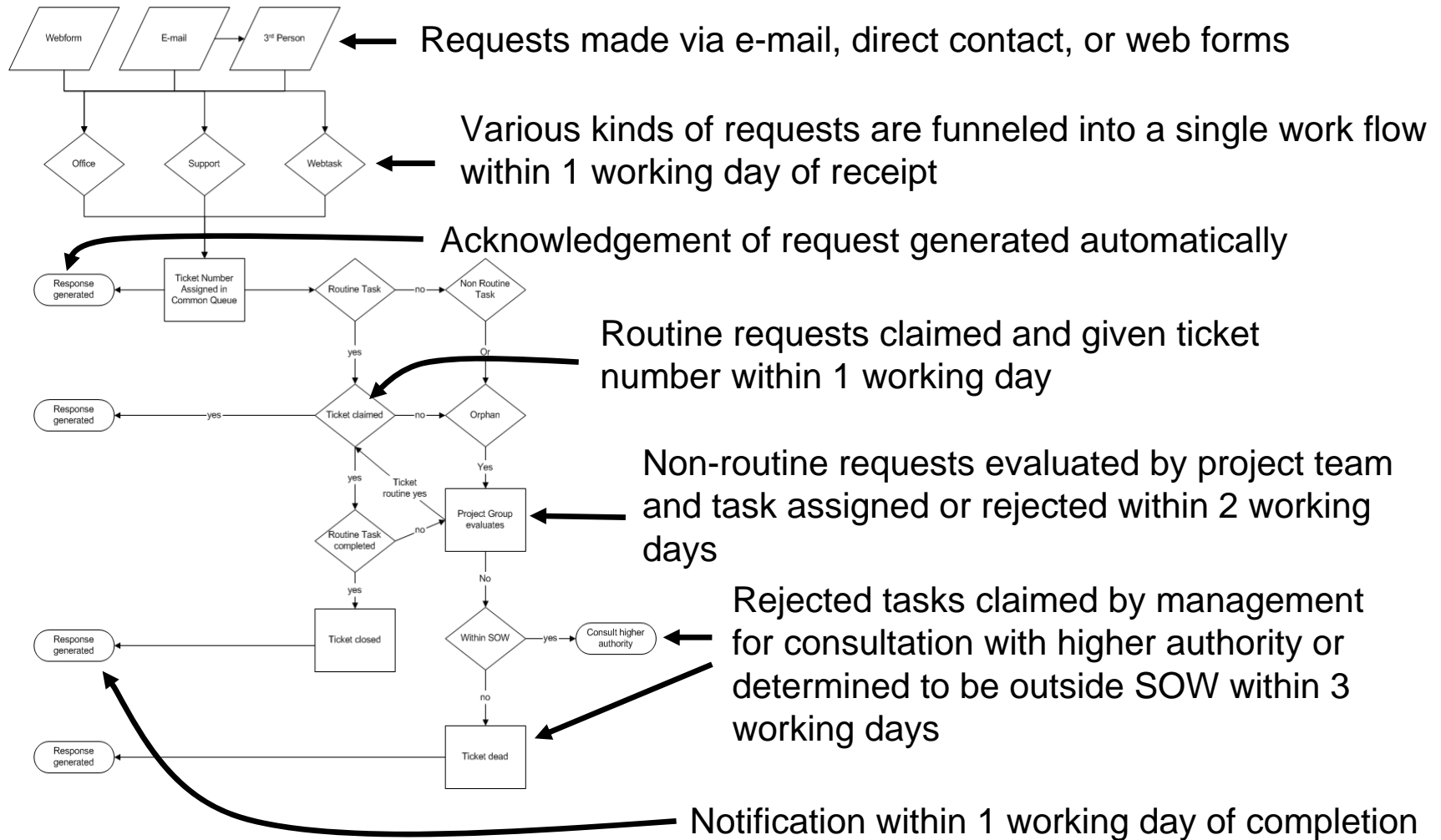| Network Office Strategies / LTER Network Goals	*Strategy #1* *Prioritizing Work* — Develop methods and processes to prioritize work, submit proposals for new concepts, and communicate changes	*Strategy #2* *Long Term Growth* — Develop long-term growth strategies with the Network and submit proposals to accomplish them	*Strategy #3* *Defining Relationships* — Identify organizational relationships that will leverage the expertise of the Network Office and the science of the Network	*Strategy #4* *Increasing Influence* — Help increase the influence of the LTER Network on policy, legislation and public opinion
Understanding: To understand a diverse array of ecosystems at multiple spatial and temporal scales.	Establish process for prioritization of LNO activities in support of LTER sites, the LTER Network, NSF, and other clients. Work with the LTER Executive and Coordinating Committees to finalize an approved list of priorities for LNO activities that are not automatic	Work with Executive and Coordinating Committees to develop strategies for network growth, initially through the development of a planning grant		
Synthesis: To create general knowledge through long-term, interdisciplinary research, synthesis of information, and development of theory.	Develop process for providing Network Office cost estimates for new initiatives	Directly facilitate and engage in synthesis discussions and other Network-wide initiatives. Work with the Technology Committee to identify infrastructure needs and develop long range plans for maintenance and replacement	Work with the LTER Planning Team to identify particular strengths among LTER scientists within the network, and form "virtual coalitions" of these scientists, to call upon to accomplish strategies such as #4, Increasing Impact. Identify team building opportunities, including external consultant support	Track the development of new NSF initiatives that directly affect the Network
Information: To inform the LTER and broader scientific community by creating well-designed and well-documented databases.	Through surveys administered to individuals and sites, identify and document key existing and desired services and develop a priority list for these services	Work with the Network Information System Advisory Committee to develop IT plans that meet Network needs and address federal and international requirements	Develop process and procedure for assessing Network Office effectiveness. Identify partnership opportunities with other organizations and associations and develop plan for establishing those partnerships	
Legacies: To create a legacy of well-designed and documented long-term observations, experiments, and archives of samples and specimens for future generations.	Determine what critical procedures exist within the LNO, establish whether these procedures are clearly defined, and propose new procedures where necessary		Develop job task list for critical LNO personnel and succession plan/options	
Education: To promote training, teaching, and learning about long-term ecological research and the Earth's ecosystems, and to educate a new generation of scientists.		Identify diversity issues and develop short range and long range plans for achieving balance in Network Office staff	Clarify relationship of LNO senior staff to UNM by developing, testing, revising, and implementing an evaluation process for research faculty	Develop plans for Sabatarrians and links with the AAAS fellow program and the Aldo Leopold Leadership Program. Leverage education, outreach, and training resources at UNM under new Administration
Outreach: To reach out to the broader scientific community, natural resource managers, policymakers, and the general public by providing decision support, information, recommendations and the knowledge and capability to address complex environmental challenges.	Develop communication plan for Network Office and Network sites to disseminate new achievements and procedures	Leverage opportunities arising from the development of new national networks such as NEON	Review and implement a new organizational model within UNM (e.g. independent center) in light of objectives, including the need for a Program Manager position for day-to-day oversight of this new center. Document current organizational relationships and reporting structures	Work with the Coordinating Committee to develop of an "ecological message" and identify the Network as a national and international voice of ecological research

Appendix A – Required Plan Components

This Appendix addresses specific requirements set forth in the Cooperative Agreement and related documents: "*Within the first two years of the this Agreement, the LTER Network Office shall conduct a strategic planning process, which will be reported on in the Year 2 Annual Report to NSF and in writing to the LTER Executive Committee, and which will subsequently form the basis for any requests to NSF from the LTER Network Office for supplements to the Awardee or modifications to this Agreement. This process is to be initiated as soon as possible in Year 1 of this Agreement in full collaboration with the Awardee's home institution, college and department.*"

- The LTER Network Office Mission is:

> **Mission:** *To provide a central point of contact and collective expertise to support the objectives of the LTER Network by:*
>> - *Providing an efficient computational and communication infrastructure*
>> - *Developing and deploying state-of-the-art techniques in information management*
>> - *Maintaining a strong public outreach program*
>> - *Coordinating interactions with other scientific networks, agencies, and entities*
>> - *Providing administrative support*
>> - *Contributing to an efficient and effective environment in which site, cross-site, and synthetic research and education can be conducted*

- The LTER Network and Network Office Organization Charts (see pages 8 and 9):
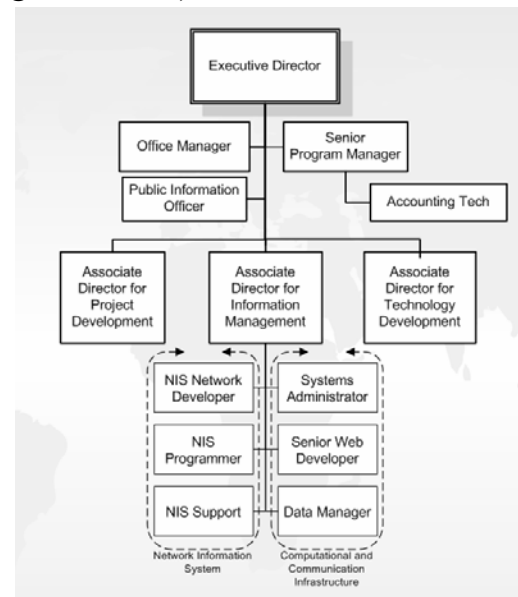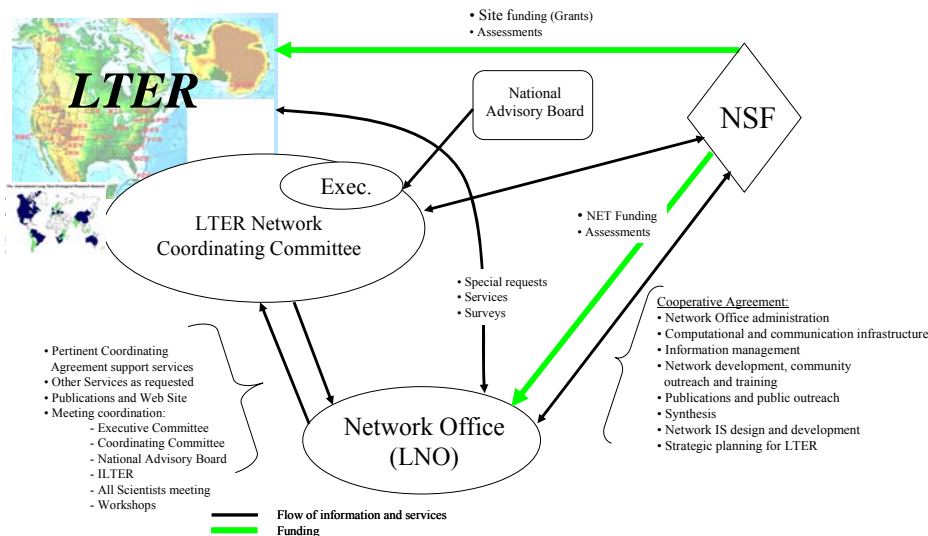
Scope of External Relations

Part of the mission of the LNO is *"coordinating interactions with other scientific networks, agencies, and entities, contributing to an efficient and effective environment in which site, cross-site, and synthetic research can be conducted."* Specific objectives of our external relationships include:

- facilitating communication within and external to LTER Network
- facilitating site science
- facilitating cross-site and network level synthesis
- promoting and disseminating new technologies for science and synthesis
- promoting and providing educational opportunities
- informing the public
- contributing to development of public policy
- contributing to LTER leadership in information management

LNO employs several mechanisms in achieving the objectives of our external relationships. In particular, LNO participates directly in:

- information dissemination and exchange
- meeting coordination (travel and related support)
- outreach
- science partnering (advisory activities, proposal preparation, research partnering activities)
- informatics partnering (advisory activities, proposal preparation, informatics partnering activities)
- technology partnering (advisory activities, proposal preparation, technology partnering activities)
- educational partnering (e.g., training, student support)
- meeting promotion and participation
- technical assistance and advice
- web site support
- publications

The frequency of interaction with external entities varies. Some interactions require very <u>frequent</u> engagement (i.e., daily to weekly); others require <u>regular</u> involvement (i.e., monthly to annually); whereas other interactions are pursued <u>opportunistically</u> as conditions warrant and opportunities arise.

Table 1 summarizes the current scope of our external relationships, emphasizing those that involve frequent or regular interactions. (see attachment)

Table 2 summarizes the current scope of our opportunistic external relationships. Opportunistic relationships may be short-term having a specific product or outcome as the principal objective and they most often involve limited amounts of engagement. All relationships are re-evaluated annually by the LNO Executive Director and Associate Directors on the basis of level of effort involved and the benefits or potential benefits to be gained by LTER and the broader community of scientists, engineers and educators. (see attachment)

Table 1.

LTER Affiliations	CO	SC	SY	ST	ED	PR	PL	IM	ID	MC	OT	SP	IP	TP	EA	MP	TA	WS	PB	(D-W)	(M-A)
	Goals								**Mechanisms of Interaction**											**Regularity of Interaction**	
LTER Sites	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
LTER Committees																					
Climate	X	X		X				X	X			X				X		X	X		X
Coordinating	X		X				X	X	X	X			X	X		X	X	X		X	
Education	X			X				X	X	X	X		X		X	X	X	X	X	X	
Executive	X		X				X	X	X	X				X		X	X	X	X	X	
Graduate Student	X	X			X			X	X	X					X	X	X	X			X
Information Management	X	X	X	X	X			X	X	X		X	X	X		X	X	X	X	X	
Publications	X	X	X			X	X	X	X	X					X	X	X	X	X		X
Scientific Initiatives	X		X					X	X	X		X				X		X			X
Social Science	X	X	X						X	X						X		X			X
Technology	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X		X
LTER Network	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
International LTER																					
I-LTER Countries	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X		X		X
I-LTER Regions	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X				X
I-LTER Network	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X		X
University of New Mexico																					
New Mexico EPSCOR Program	X						X	X	X			X				X	X				X
University of New Mexico Department of Biology	X	X		X			X	X	X			X	X	X		X	X			X	
University of New Mexico's Museum of Southwestern Biology	X								X			X	X			X	X				X
College of Arts & Sciences	X	X		X			X	X	X			X				X					X
Vice President for Research	X	X		X			X	X	X			X	X			X					X
Federal Government																					
National Science Foundation	X	X	X	X	X	X	X	X	X	X	X			X	X	X				X	
National Aeronautics and Space Administration	X	X	X	X	X	X		X	X	X		X	X	X		X					X
Sandia National Laboratory (Center for Cooperative Monitoring)	X		X	X				X	X	X	X	X	X	X	X		X				X
USDA Forest Service	X	X	X	X	X	X	X	X	X			X	X			X	X		X		X
USGS National Biological Information Infrastructure	X			X	X			X	X	X	X		X		X	X	X				X
USGS	X			X					X			X									X
USDA ARS	X								X												X
US EPA	X	X	X						X			X					X				X
NOAA (NERR)	X			X			X		X				X				X				X
Scientific Societies																					
American Association for the Advancement of Science	X		X		X	X			X							X					X
Ecological Society of America	X		X	X	X	X	X	X	X				X		X	X	X		X		X
Organization of Biological Field Stations	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	
Society for the Advancement of Chicanos and Native Americans in Science	X				X	X		X	X		X				X	X					X

National Organizations (U.S.)																					
National Center for Ecological Analysis and Synthesis	X	X	X	X					X	X		X	X	X	X	X	X	X		X		X
NSF Center for Microbial Ecology	X	X								X												X
Partnership for Biodiversity Informatics	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X
NEON	X	X	X	X	X	X	X	X	X								X	X				X
San Diego Supercomputer Center	X	X	X	X					X	X		X	X	X	X	X	X	X		X	X	
Scripps Institution of Oceanography	X								X	X												X
International Organizations & Other Entities																						
Ecological Monitoring and Assessment Network Canada	X		X						X	X		X	X				X					X
Environmental Long Term Observatories of Southern Africa	X		X						X	X		X	X	X		X	X	X				X
Global Biodiversity Information Facility	X	X	X						X	X				X								X
Global Fiducial Program	X	X	X	X						X		X		X		X	X					X
Global Terrestrial Observing System (FAO)	X	X	X	X					X	X		X	X	X		X	X	X				X

Coding Scheme

Goals

CO	facilitate communication within and external to LTER Network
SC	facilitate site science
SY	facilate cross-site and network level synthesis
ST	promote and disseiminate new technologies for science and synthesis
ED	promote and provide educational opportunities
PR	inform the public
PL	contribute to development of public policy
IM	contribute to LTER leadership in information management

Mechanisms of Interaction

ID	information dissemination and exchange
MC	meeting coordination (travel and related support)
OT	outreach
SP	science partnering (advisory activities, proposal preparation, research partnering activities)
IP	informatics partnering (advisory activities, proposal preparation, informatics partnering activities)
TP	technology partnering (advisory activities, proposal preparation, technology partnering activities)
EA	education partnering (e.g., training, student support)
MP	meeting promotion and participation
TA	technical assistance and advice
WS	web site support
PB	publications

Regularity of interaction

D-W	daily to weekly (frequent)
M	monthly to annually (regular)

Opportunistic External Relationships

Table 2.

LTER Affiliations	Goals								Mechanisms of Interaction										
	CO	SC	SY	ST	ED	PR	PL	IM	ID	MC	OT	SP	IP	TP	EA	MP	TA	WS	PB
Federal Government																			
DARPA	X			X				X	X			X	X	X		X			
NASA AERONET	X			X					X										
JPL Sensor Webs Project	X	X		X					X					X					
Oak Ridge National Laboratory	X			X				X	X		X		X			X			
Smithsonian Natural History Museum	X								X						X	X			
USDA UV-B Monitoring and Research Program	X			X					X										
US State Dept.	X								X	X						X			
US Dept. of Interior	X								X										
US Fish & Wildlife Serv.	X			X					X										
Scientific Societies																			
American Institute of Biological Sciences	X			X		X	X		X			X	X	X		X	X		X
American Geophysical Union	X								X							X			
American Society for Limnology and Oceanography	X								X							X			
Association for Tropical Biology and Conservation	X								X							X			
Estuarine Research Federation	X								X							X			
Organization for Tropical Studies	X			X	X		X	X	X				X	X	X	X	X		
National Organizations (U.S.)																			
FLUXNET	X			X					X										
Global Change Research Program	X					X			X								X		
North American Regional Action Plan	X			X					X								X		
National Center for Atmospheric Research	X								X										
National Council for Science and the Environment	X				X	X	X		X										
National Academy of Sciences/National Research Council	X					X	X		X										
The Santa Fe Institute	X				X				X						X				
University Consortium for Atmospheric Research	X								X										
The Nature Conservancy	X			X					X				X	X					
International Organizations & Other Entities																			
DIVERSITAS International Program of Biodiversity Science	X		X						X										
European Environmental Agency	X		X					X	X		X					X			

	CO	SC	SY	ST	ED	PR	PL	IM	ID	MC	OT	SP	IP	TP	EA	MP	TA	WS	PB
GLIDE	X		X						X			X				X			
Global Ocean Observing System	X								X										
GLOBE	X				X			X	X						X				
International Canopy Network (ICAN)	X		X	X				X	X			X	X				X		
Man and Biosphere Program / BRIM	X		X						X								X		
Mellon Foundation	X			X	X			X	X										
Observatory Earth Canada	X								X										
PRAGMA	X		X	X				X	X					X	X				
Scientific Committee on Antarctic Research	X								X							X			
US AID	X								X										
World Bank	X								X								X		

Coding Scheme

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MP	meeting promotion and participation
TA	technical assistance and advice
WS	web site support
PB	publications

Mechanisms for Faculty Evaluation

No University- or college-wide process exists for annual evaluation of research faculty at UNM, therefore, the LNO has had to establish its own. This process, which was implemented in 2004, consists of the following steps:

- Strengths interview with Executive Director in January
- Performance planning meeting with Executive Director to set goals for upcoming fiscal year in February
- Quarterly performance planning meetings in February, May, August, and November
- Annual review of performance by Executive Director in November tied to quarterly planning meeting and preparation of annual report

The annual performance review will employ the same form used to review non-academic staff with appropriate modifications reflecting specific goals for each individual. Additional questions will address progress, planning, and priorities.

The Biology Department of UNM established a process for promotion of research faculty in November, 2003. This process mirrors the process for academic faculty with modifications reflecting the duties of research faculty. Promotions for LNO research faculty will be accomplished using the process established by the Biology Department.

The LTER Network Office employs a standard UNM process and forms for performance review of staff. Evaluation processes for both faculty and staff will be reviewed periodically as a component of Strategy #3, *Defining Relationships*

PROJECTS ARRANGED BY TASK AREA

Administration and Service	Computational and Communications Infrastructure	Information Management and Methods Development	Network Development, Community Outreach, and Training	Publications and Public Outreach	Synthesis	Network Information System Design and Development	Strategic Planning
External Coordination	Maintenance	Promotion of Metadata Standards	OBFS Infrastructure	Newsletter, LTER Brochures, Directory	Science Theme Meetings	Distributed Data Network	Continuous Planning
Grant Administration	Backup and Restoration	Curation, Maintenance, and Expansion of Databases	Wireless and Sensor Technologies	Site Brochures	Value Added Databases	Community Collaboration and Standards	Network Planning and Coordination
Proposal Preparation	Network Security	Data Standards	Technology Clearing House	Technical Editing	ASM and Joint Symposia	Promoting and Supporting Research Collaborations	New Initiatives
Meeting Coordination	User Support	Web Applications	NBII	Web Site Content	Research Working Groups		
ASM Coordination	Acquisition		Training	Traveling Exhibit			
Reports and Reviews	Remote Sensing Archive			Historical Archives			
Planning	Collaboration Portal Planning			Public Relations			

This map of LNO projects complements the traditional top-level organizational reporting chart shown on page 9. Projects correspond to the goals established for each employee and reviewed annually. Annual reviews of project progress will be addressed as part of Strategy #3, ***Defining Relationships***.

• An "as-is" schematic of the top level interrelationships among these organizations is provided below:
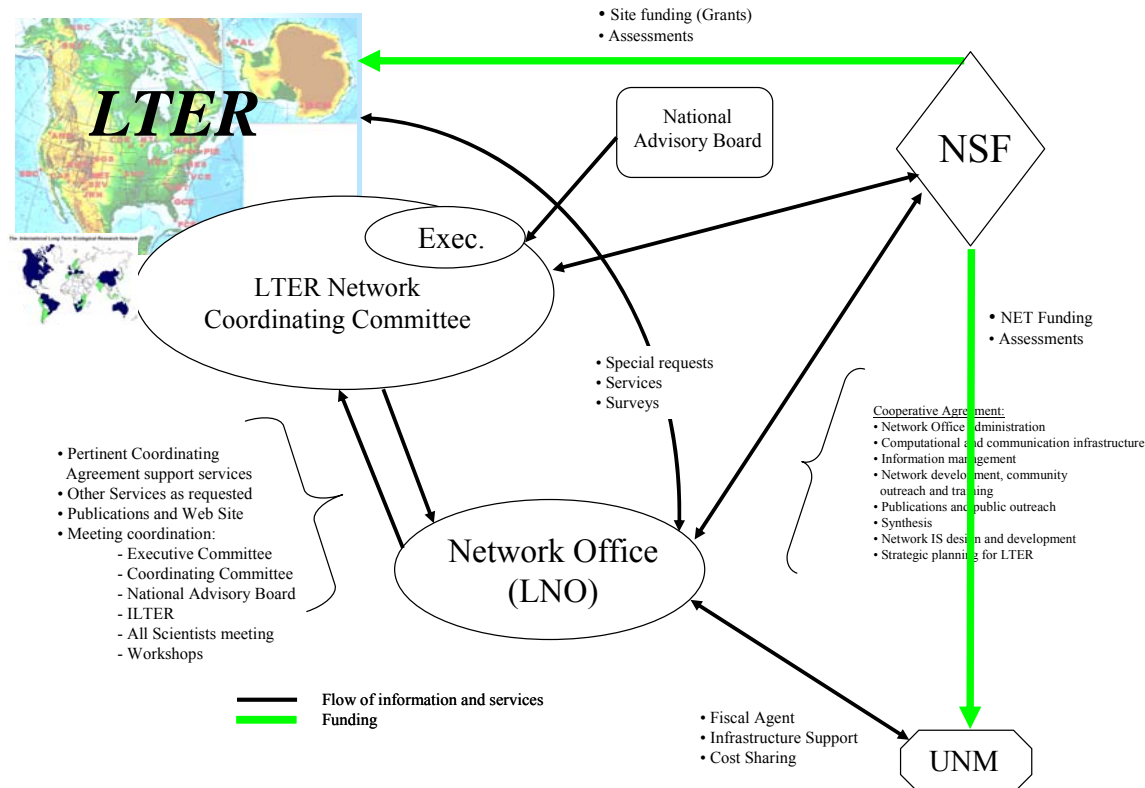
• As Strategy #3, *Defining Relationships*, is implemented, and as the Network Strategic Planning process unfolds, these relationships will be further detailed, examined for improvement opportunities, and changed as appropriate.

UNM/Network Office Relationship

New facilities for the LNO located on UNM's main campus were occupied on July 12, 2004. In response to recommendations from NSF, a proposal was approved to establish the LNO as a university center (Center for Research in Ecological Science and Technology, CREST) reporting to the Dean of Arts and Sciences of UNM. The level, structure, and funding of this center were defined in discussions with the Chair of the Department of Biology, the Dean of Arts and Sciences and the Vice-President for Research. Other structures within the University and in other academic/research environments were examined in the context of the long-range vision of the Network prior to the development of this proposal. These include the Corporation of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI), the Pacific Rim Application and Grid Middleware Assembly (PRAGMA), and the Ecological Society of America (ESA). Further definition of the relationship between UNM and the LNO will be an integral component of Strategy #3, *Defining Relationships*.

Article VII
Network Office

Section 1. Tasks and Duties: The Office exists as the result of a Cooperative Agreement between the National Science Foundation and a contracting institution that hosts the Office. Tasks that the Office performs in support of the LTER Network are defined in the Cooperative Agreement, in the LTER Strategic Plan for the Network and the Office, and by the Coordinating Committee.

Section 3. Renewal Proposals: Proposals to renew the Cooperative Agreement for the Office will be developed by the Executive Director of the Office (as Principal Investigator) working with the Executive Committee.

Section 4. Executive Director: The Executive Director is the Principal Investigator and scientific leader of the Cooperative Agreement. The Executive Director of the Office is an employee of the contracting institution, and operational supervision of the Executive Director resides with the contracting institution. The Executive Director is responsible for the day-to-day operation of the Office. The Executive Director will implement programmatic recommendations of the Coordinating Committee, consistent with the Cooperative Agreement with the NSF. Should the position of Executive Director become vacant, or the Cooperative Agreement be awarded to a different institution, the Coordinating Committee will provide information, or direct the Executive Committee to provide information, on the desired qualifications of a new director to the contracting institution. The Executive Committee will review applications for the position and recommend one or more candidates to the contracting institution or recommend a continuation of the search.

Processes for Program Evaluation, Priority Setting and Implementation

• <u>Program Evaluation</u> – The LTER bylaws include a process for evaluating the LNO:
Article VII, Section 2. Review of Network Office Performance: An annual review of Office performance shall be conducted by the Executive Committee at its annual February meeting. The review will be based on 1) the annual report of the Office, which will be circulated to LTER Sites on January 1 of each year, 2) a survey of Sites administered by the Office in October of each year, and 3) goals set in the LTER Strategic Plan. The Executive Committee will recommend modifications to Office tasks for consideration by the Coordinating Committee at least annually at the spring meeting. Those recommendations approved by the Coordinating Committee will be submitted by the Office to the NSF for possible incorporation into the Cooperative Agreement.

• <u>Priority Setting and Implementation</u> - The results of the preceding process will be used to assist with the setting of LNO priorities. This is a component of Strategy #1, ***Prioritizing Work***. An initial effort toward prioritization has already been incorporated in the documentation associated with the Cooperative Agreement. Each staff function is detailed and priorities are identified in the LNO Scope of Work submitted to NSF on December 20, 2002. This document will be re-examined annually in the context of this strategic plan, input from the Executive and Coordinating Committees and National Advisory Board, results from site and individual surveys, and other feedback. Following review, revisions to the Network Office priorities will be identified and submitted to NSF for approval.

LTER-Wide Initiatives

• LTER-wide initiatives are being defined in the strategic planning process being conducted by the LTER Coordinating Committee and the Planning Grant Science Task Force. As the Network Strategic Plan is developed, the role of the Network Office will continue to be defined, and the LNO Strategic Plan will be modified to reflect changes in that role. Until that process is complete, the LNO will continue to contribute to appropriate initiatives. For example, ongoing initiatives in which the LNO is engaged include: 1) development of the LTER Network Information System, 2) development of a global Information Technology initiative, which the Network Office is coordinating across networks, 3) participation in the development and implementation of the planning grant to lay out strategies for cross-site and network-wide research, and 4) leadership and facilitation of cross-site synthesis working groups. Strategy #2, ***Long-Term Growth***, contains components of this requirement, and will contribute to future changes in the LNO Strategic Plan.

• As the Network Strategic Plan is developed, the Network Office will respond to requests from the Coordinating Committee to facilitate or participate in LTER-related research. Strategy #2, ***Long-Term Growth***, addresses this requirement, and results from the development of this strategy will be reported on in future annual reports.

Independent Advisory Groups

• The Network Office has taken the initiative to more actively engage the National Advisory Board, and through Strategy #2, ***Long-Term Growth***, will actively engage other organizations and associations. Input from the LTER National Advisory Board (NAB) has been incorporated in this plan. The charge of the NAB is to "provide independent review and advice to the LTER Network, the Office, and appropriate funding agencies" (LTER Bylaws, Article VI, Section 3). The role of the NAB will be further refined in the development of the Network Strategic Plan. The members of the National Advisory Board are:

Dr. Paul Risser	Oklahoma State Regents for Higher Education
Dr. Peter Arzberger	University of California, San Diego
Dr. Roger Bales	University of Arizona
Dr. Barbara Bedford	Cornell University
Dr. Robert Dickinson	Georgia Institute of Technology
Dr. Jim N. Levitt	Harvard University
Dr. John Magnuson	University of Wisconsin-Madison
Dr. Elinor Ostrum	Indiana University
Dr. Jack A. Stanford	The University of Montana
Dr. Michael Goodchild	University of California, Santa Barbara

Four Year Plans and Budgets

• The NSF requested that the LNO develop four year plans and budgets for two areas requiring additional effort:

➤ Further development of the information infrastructure and informatics capabilities of the LTER Network

The LTER Network has formed a Network Information System Advisory Committee comprised of equal numbers of site scientists, site information managers, and LNO staff. This committee is charged with defining objectives and strategies for information infrastructure and informatics capabilities. A Network Information System Strategic Plan has been developed, and a budget supporting this plan has been created.

➤ Creation of high-level leadership and facilitation of future Network synthesis activities

This is a key element to Strategy #2, ***Long-Term Growth***, and will be coordinated with the Executive and Coordinating Committees as their strategic plan is developed

Appendix B – Strategic Planning Process

This Appendix describes steps in the process used to develop the LNO Strategic Plan.

Strategic Planning Process

With the assistance of an external consultant, Innovative Technology Partnerships, LLC, the Network Office undertook a quality process for creating this strategic plan. As indicated below, the process is never complete, with new information coming from metrics and surveys along with external drivers contributing to a constant refinement of strategies and goals:

Contextual Scan
- Review past assessments
- Collect and review data from Network sites, NSF and others
- Develop stakeholder set and organizational flow schematics
- Examine external drivers

Planning Meetings
- Review contextual scan
- Identify driving forces
- Identify strengths, weaknesses, opportunities and threats
- Identify issues

Issues Development
- Issues analyses
- Strategic discussions
- Collaboration with Network and National Advisory Board

Strategic discussions occur in every step

Monitor and Feedback
- Gather performance data
- Report status in public meetings
- Monitor external events
- Improve process

Strategy Deployment
- Publish Draft Strategic Plan
- Revise and publish
- Publish summary pamphlet
- Brief and involve all stakeholders

Strategy Development
- Identify strategies, tactics, actions and teams
- Prioritize
- Develop time lines, metrics and milestones
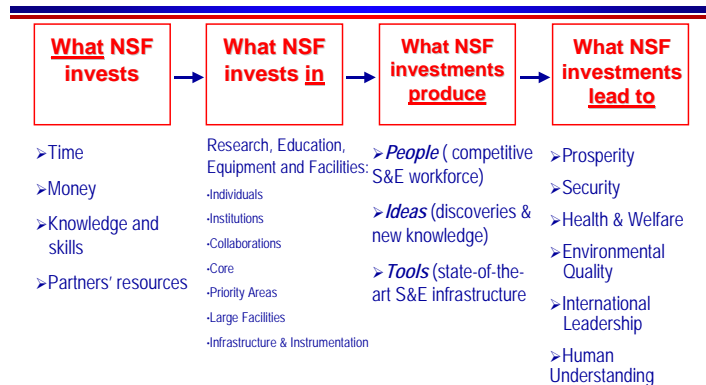- Assign responsibilities

Contextual Scan

It is critical for the Network Office to understand the context in which it operates. During the course of the development of this plan, many external documents were reviewed and discussed in the context of the strategic environment. Some of these are depicted below:
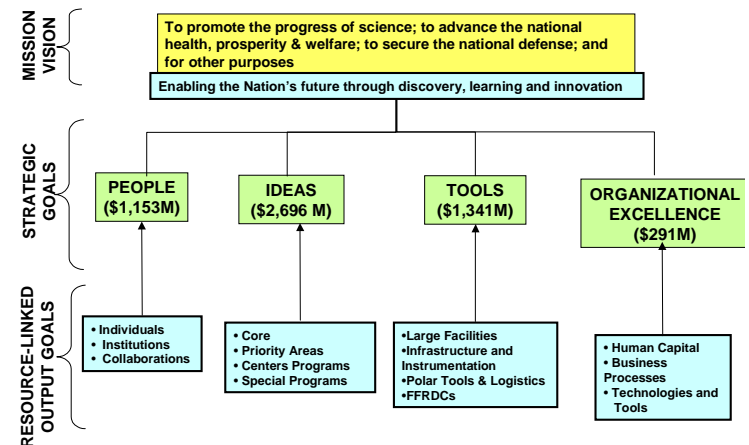
NSF's Investment Model and GPRA Goals

Within the Federal Government, strategic planning has a legal context, defined by the Government Performance and Results Act (GPRA) of 1993. The guidance developed by the Office of Management and Budget (OMB) includes a framework for the preparation of annual agency performance plans and reports. In addition OMB has stated: "the strategic plan is a tool to be used in setting the priorities and allocating resources consistent with those priorities." In responding to this mandate, NSF has created an investment model and Goal Structure for meeting the Government Performance and Reporting Act requirements. Although the LTER Network and the Network Office are driven by the scientific research that is fundamental to the concept of long-term ecological research, the Network Office did examine the broader context of NSF's GPRA plan within the context of its own deliberations. The fundamental concepts of the NSF overarching goals are achieved by the LTER Network, namely, the development of **People** through its collaborations with educational institutions and outreach; the implementation of **Ideas** through the collaborative development of new Synthesis research; and the creation of new **Tools** and infrastructure, tied to the buildup of Information Technology infrastructure within the Network and research infrastructure at each site. These areas are all identified in the Network Office's primary areas of support.

NSF Investment Model

What NSF invests	What NSF invests in	What NSF investments produce	What NSF investments lead to
➢Time ➢Money ➢Knowledge and skills ➢Partners' resources	Research, Education, Equipment and Facilities: ·Individuals ·Institutions ·Collaborations ·Core ·Priority Areas ·Large Facilities ·Infrastructure & Instrumentation	➢*People* (competitive S&E workforce) ➢*Ideas* (discoveries & new knowledge) ➢*Tools* (state-of-the-art S&E infrastructure	➢Prosperity ➢Security ➢Health & Welfare ➢Environmental Quality ➢International Leadership ➢Human Understanding

GPRA GOAL STRUCTURE

MISSION / VISION

To promote the progress of science; to advance the national health, prosperity & welfare; to secure the national defense; and for other purposes

Enabling the Nation's future through discovery, learning and innovation

STRATEGIC GOALS

PEOPLE ($1,153M)	IDEAS ($2,696 M)	TOOLS ($1,341M)	ORGANIZATIONAL EXCELLENCE ($291M)

RESOURCE-LINKED OUTPUT GOALS

• Individuals • Institutions • Collaborations	• Core • Priority Areas • Centers Programs • Special Programs	•Large Facilities •Infrastructure and Instrumentation •Polar Tools & Logistics •FFRDCs	• Human Capital • Business Processes • Technologies and Tools

Note: see http://www.nsf.gov/od/gpra for more information on the NSF planning activities

Our Customer and Stakeholders

The primary office of support for the LTER Network is the Directorate for Biological Sciences. LTER also receives funding and resources from other organizations within NSF as highlighted below:

National Science Foundation Organization Chart

Office of the Director and Staff Offices	Director ------------------------ Deputy Director	National Science Board
		Office of Inspector General

Directorate for Biological Sciences	Directorate for Mathematical and Physical Sciences
Directorate for Computer & Information Science & Engineering	Directorate for Social, Behavioral and Economic Sciences
Directorate for Education and Human Resources	Office of Polar Programs
Directorate for Engineering	Office of Budget, Finance and Award Management
Directorate for Geosciences	Office of Information and Resource Management

• The design of an Evaluation Process was assisted by our contractor, Innovative Technology Partnerships, LLC. We gathered baseline data via surveys to individuals and sites during the first year of the contract, and subsequently refined and implemented feedback from the Sites and others. Development of the initial survey included discussions concerning purpose of surveys, target audience, frequency, deployment technologies, analysis requirements, pilot testing, confidentiality, ease of access and use, follow-up strategies, and integration into strategic planning cycle. Subsequent surveys will be refined and updated by the Executive/Coordinating Committees and administered by the LNO.

An All Scientists Meeting survey was conducted September 18-20, 2003 at the Seattle ASM Conference and preliminary analysis conducted for input to this plan

A Site Survey was distributed in November, 2003 and data will be analyzed for impact to the Network Office Strategic Plan during December, 2003 and January, 2004

LTER Evaluation Process – ASM Survey Data

- A preliminary analysis of the survey data from the All Scientists Meeting (September 18-20, 2003) held in Seattle, Washington has been performed. This preliminary analysis has revealed some interesting insight into the needs and priorities of the LTER scientific community.   This survey data will be studied further and incorporated into future versions of the strategic plan. Some preliminary observations include:
  - *Recognition by the community of the importance of the facilitation role of the Network office with scientific and educational societies, government agencies, research centers and other entities*
  - *Recognition of the role of the Network Office to develop tools and facilitate activities associated with synthesis across sites*
  - *Recognition of the importance of a centralized coordinating entity for the development of web-based entry points and data access*
  - *The need for network-wide informatics standards*
  - *The need for a clearinghouse for international collaborative opportunities*
  - *The need for increased network-wide educational initiatives, particularly in undergraduate areas*

Issues Development

Following strategic discussions of the contextual scan data, development of the SWOT (strengths, weaknesses, opportunities, threats) analysis and driving forces, and discussions of the issues facing the Network Office in the next six years (see appendix), consensus was reached on the current situation, and the following synopsis was developed:

KEY ISSUE: How can the LTER Network Office meet the growing and competing demands of the NSF and the Network while enhancing its role to help guide the development of the Network in its third decade?

RECOMMENDATION: Through a robust and dynamic strategic planning process, evaluative feedback, and monitoring of external events and drivers, the Network Office can assist the LTER Network in developing and implementing long-range strategies for success.

Questions relative to key issues

- How can the LTER Network Office meet the growing demands of NSF and the user community?

- Can the LTER Network Office play a role in the long-term growth strategies of the Network?

- What long term organizational relationships are necessary to assist growth and success?

- How can the LTER Network Office influence policy, legislation and public opinion?

Key factors

- The LTER Network Office has developed a detailed Scope of Work for staff, that is linked to the new six-year Cooperative Agreement with NSF

- The LTER Network is recognized internationally and Network Office has assisted in the development of the ILTER concept

- Network Office staff have begun to coordinate Network-wide IT infrastructure requirements and processes

- Network Office staff are committed to helping the LTER Network develop strategies for growth and great science

- The Network Office enjoys strong support at NSF and within the University of New Mexico leadership.

- Leadership at UNM is open to organizational realignment

- The Network Office has outreach resources who understand the need to influence public opinion and policy makers
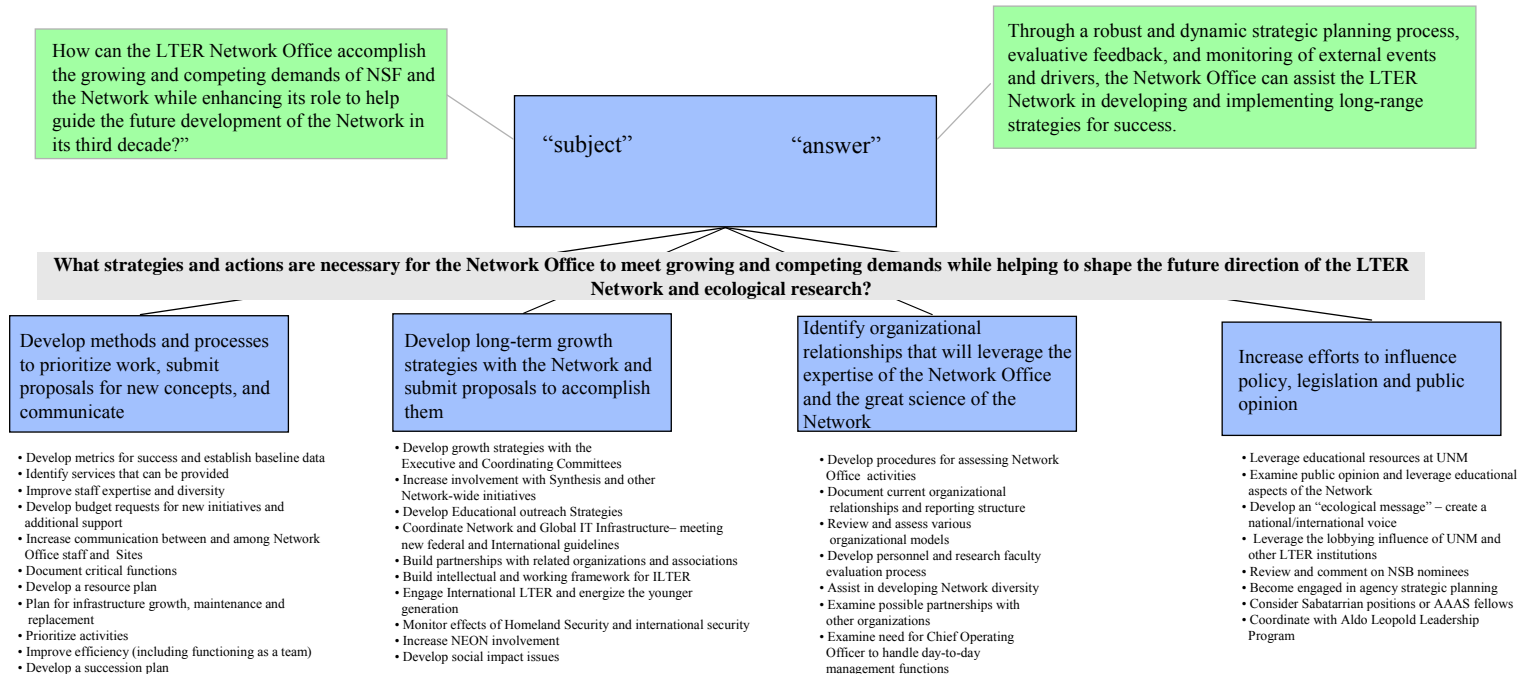
Issues Development

Input from the National Advisory Board review was incorporated into the issues development process, and prioritized with the NSF Coordinating Agreement requirements and input from the Executive and Coordinating Committees:

Situation: The LTER Network has entered its third decade. It is now recognized nationally and internationally for the quality of research and as a national and international asset providing a long-term perspective on ecosystems. It has recently been moved to line-item funding within the NSF, and enjoys strong support from NSF senior leadership. For the past six years the Network Office at UNM has provided the overall coordination of the Network, and recently had its contract renewed for six additional years. The Network Office enjoys strong NSF and UNM senior management support.

Complication: A recent Twenty-Year Review commissioned by NSF, and a 'Panel Site Review' conducted by NSF of the Network Office identified some significant issues that need to be addressed by the Network and the Network Office to ensure success in its third decade. This feedback comes at a critical time in the overall ecological research system, as the National Ecological Observatory Network (NEON) is coming closer to realization, and as a growing national effort is underway to respond to the threat of terrorism through monitoring networks.

Question: What strategies and actions are necessary for the Network Office to meet growing and competing demands while helping to shape the future direction of the LTER Network and ecological research?

How can the LTER Network Office accomplish the growing and competing demands of NSF and the Network while enhancing its role to help guide the future development of the Network in its third decade?"

"subject"   "answer"

Through a robust and dynamic strategic planning process, evaluative feedback, and monitoring of external events and drivers, the Network Office can assist the LTER Network in developing and implementing long-range strategies for success.

What strategies and actions are necessary for the Network Office to meet growing and competing demands while helping to shape the future direction of the LTER Network and ecological research?

Develop methods and processes to prioritize work, submit proposals for new concepts, and communicate

- Develop metrics for success and establish baseline data
- Identify services that can be provided
- Improve staff expertise and diversity
- Develop budget requests for new initiatives and additional support
- Increase communication between and among Network Office staff and Sites
- Document critical functions
- Develop a resource plan
- Plan for infrastructure growth, maintenance and replacement
- Prioritize activities
- Improve efficiency (including functioning as a team)
- Develop a succession plan

Develop long-term growth strategies with the Network and submit proposals to accomplish them

- Develop growth strategies with the Executive and Coordinating Committees
- Increase involvement with Synthesis and other Network-wide initiatives
- Develop Educational outreach Strategies
- Coordinate Network and Global IT Infrastructure– meeting new federal and International guidelines
- Build partnerships with related organizations and associations
- Build intellectual and working framework for ILTER
- Engage International LTER and energize the younger generation
- Monitor effects of Homeland Security and international security
- Increase NEON involvement
- Develop social impact issues

Identify organizational relationships that will leverage the expertise of the Network Office and the great science of the Network

- Develop procedures for assessing Network Office activities
- Document current organizational relationships and reporting structure
- Review and assess various organizational models
- Develop personnel and research faculty evaluation process
- Assist in developing Network diversity
- Examine possible partnerships with other organizations
- Examine need for Chief Operating Officer to handle day-to-day management functions

Increase efforts to influence policy, legislation and public opinion

- Leverage educational resources at UNM
- Examine public opinion and leverage educational aspects of the Network
- Develop an "ecological message" – create a national/international voice
- Leverage the lobbying influence of UNM and other LTER institutions
- Review and comment on NSB nominees
- Become engaged in agency strategic planning
- Consider Sabatarrian positions or AAAS fellows
- Coordinate with Aldo Leopold Leadership Program

Independent Consulting Firm

• The Network Office engaged the services of Innovative Technology Partnerships, LLC (ITP), a technology consulting, veteran-owned small business in Albuquerque, to assist with this strategic planning effort. ITP assisted other educational institutions and federal agencies in the development of strategic and scenario planning processes, including high level security work at the national laboratories and the Department of Energy. The contact for this work is:

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