Office of Strategic Initiatives

Overview of mission and status

Formalizing Ongoing Activities

- Strategic Scanning
- Team Formation
- Internal Investment

Strategic Scanning

- 6-24 month horizon
- Historical focus on federal agencies
  - » Expanding to include corporate and philanthropic sectors
- Advance notice of shifts in resources
  - » New programs
  - » Changes in priority
- Landscape for Congress and Agency interactions

Team Formation

- What are the questions we *could* be addressing?
- What are our disciplinary strengths and weakness?
- Who should be working with whom?
- How can we leverage our available strengths?
  - » Through new scholarship domains
  - » Through new and innovative partnerships

Internal Investment

- Linking internal potential with external opportunity
  - » New funding
  - » Societal challenges

- In aggregate, realize return on internal discretionary resources
  - » Incremental increases in external funding
  - » High risk / high return
    - – Balance conservative tendencies

- Portfolio approach to research guidance

Strategic Initiative Program (SIP)

- Strategic Investment Fund
- University Development Fund
- Equipment Matching Fund
- Provost Investment Fund
    - » Selected projects are included in portfolio

SIP Portfolio: Rationale

- Portfolio is a systems approach to strategic investing
- Portfolio approach provides framework for investment
  - » Analyze distribution of existing activities
    - Competitive positioning (flexibility)
    - Robust to shocks (resilience)
  - » Implementation of institutional goals
    - Relate individual investments to institutional goals
    - Reconfigure as goals evolve
- New approach, still evolving

SIP Portfolio: Overview

- Area
  - » Cross-cutting priorities
    - – Earth Systems
    - – Digital Media / Information Technology
    - – Urban
  - » Foundational strengths
    - – Social Science & Humanities
    - – Science & Engineering
- Type
  - » Program
  - » Curriculum
  - » Equipment & Infrastructure
  - » Seminars & Conferences
  - » People

Earth Systems

- Objective:
  - » Develop new knowledge and knowledge production capacity to address the challenges related to the relationship between Humans and our planet.
  - » Build our understanding of the relationship between scientific advance and the use of that knowledge in decision making.

Earth Systems

Topic Area	Programattic	Curriculum	Equipment & Infrastructure	Seminars & Conferences	People
Earth Systems					
Solid Earth	LDEO Strategic Initiatives	Environmental Science Curriculum	LDEO Equipment Match		
	Earth Complexity Initiative	Universe Semester	Mass Storage System		
	Environmental Research		Mass Spectrometer		
	Global Systems Post-Doc		Mass Spectrometer - match		
	Univ. Consortium for Ocean Systems		Organic Env. Chem Lab startup		
	Integ. Predict & Assesment		Biosphere 2 Observatory		
	Effects of Sea Level Rise				
	Arsenic Project (van Geen)				
	Applied Physics				
Lamont Investment Fund					
Hudson River Efforts	Response to Past Changes	Education	Baseline for Instrumentation		
	Tracing Regional Water Sources		Vessel upgrades		
	Model Development				
	Jamaica Bay pilot				
	Jamaica Bay match				
Carbon Cycle Studies	CO2 Sequestraion in Basalt				
	Elevate CO2 and water use in trees				
	Cloning of Calcium Channels				
	CO2 Cycle and Chemical Weathering				
	Closing the Carbon Loop				
Basic Earth Science	Mono Lake Studies		Arsenometer		
Wired Earth Science			Technical Innovation Center		
			Data Management for the New Millennium		
			Remote Observation Earth's Resources		
			Deep Sea Moored Water Sampler		
			Profiling Float for Marginal Ice Zone		
			Real Time Monitoring Research		
Earth Systems Science	CEI Integrated Earth Modeling System		Environmental Genetics Lab		
	Center for Natural Hazards				
Ear *Ecosystems*	LDEO Packard Match	DEEEB	Biosphere 2 Capital Projects		CERC/UDAR salary for DeMicco
	Biosphere 2 various		Biosphere 2 Acquisition & Startup		
	CERC		CERC ABI Sequencer		
	Medical Ecology		CERC Black Rock Forest		
			CERC - 7th & 8th floor Mudd		
			CERC capital project		
Human Systems	PIR		Earth Policy Center (UDF)	Decision Science Colloquium	
	Laboratory of Populations		Earth Insitute (PIF)	Democracy & Environment Conf.	
	Earth Policy Center (SIF)			NYC Workshop	
	Environmental Effects on Children				
	Ctr for Env, Business & Renew Res.				
	NYC Grants				
Applications	IRI		IRI WWW		
	Earth Engineering Center		IRI Equipment		
Integration	Earth Insitute	Earthscape		Global Systems Initiative Seminars	Sobel Post-Doc support
	Earthscape	EarthView Explorer			

Earth Systems Exemplars

- CERC
  - » Strength through collaboration and institutional innovation
  - » Address biological segments of Earth systems

- Arsenic in Bangladesh
  - » Address tremendous social problem
  - » Connect soft-money powerhouses (LDEO & SPH)

- Earthscape
  - » Forge new and sustainable models of Earth systems publishing and content management

- Lamont Initiative Fund
  - » Open new frontiers in fundamental Earth Sciences
  - » Connect data-gathering history with web-based future
  - » Encourage interaction with other disciplines

Digital Media / Information Technology

- Objective:
  - » Position Columbia at the forefront of academic New Media development
  - » Contribute to Columbia's resilience through development of new revenue streams

Topic Area	Programattic	Curriculum	Equipment & Infrastructure	Seminars & Conferences	People
Digital Media / Information Technologies					
Digital Libraries & Digital Information	Earthscape Electronic Publishing Information Center Center for Research on Info Access Digital Library Center Digital Library Systems Res (SI) Digital Library Systems Res (PIF) Janus Digital Library Project		Digital Library (Match)		
Hardware / Software Technologies	Engineering Research (New Media) 4D Technologies (GBRN) Building Technologies Information Technology Center Augmented Reality	Mathematica Biomedical Engineering Distance Ed.	CISE Research Infrastructure Engineering Research Center Long-distance Online class w/ UC Multimedia Classroom Columbia Video Network		
Policy & Theory	Telecommuncations Institute NY-Warsaw Proj / Intnl Knowledge Center for Digital Ecology				
Content Development	Columbia Media Enterprises startup Earthscape Electronic Publishing Information Center Advanced Papyrological Info Sys Institute for Learning Technologies Center for New Media (SI) Center for New Media (UDF) CARDGIS	Mathematica Biomedical Engineering Distance Ed. Archeology Laboratory EarthView Explorer	ILT - NTIA match Center for New Media - capital (UDF) Center for New Media - Digital Video Archeology Laboratory CARDGIS		
Arts	New Media Story Lab School of the Arts Digital Media (SI) Art History Lab / Amiens Cathedral Media Center for Art History (SI)		New Media Story Lab School of the Arts Digital Media (UDF) Art History Infrastructure Investments Media Center for Art History (UDF) Media Center for Art History (EMF)		
Music	Digital Music Delivery Electronic Music Center	Electronic Music Curriculum	Digital Music Delivery Music Department Investments		
Chemistry		Edison Project VizChem	Chemistry - Gateway Lab Construct Faculty IT Cluster / Gateway PC's Gateway Project Software Net in Chemistry Multimedia Chem & Chem fellowship VizChem 80Mhz VizChem software licenses		

Digital Media / Info. Technology Exemplars

- **Electronic Publishing Information Center**
  - » Gain economy of scale through centralization of specialized expertise

- **Electronic Music Center**
  - » Strengthen historically important department
  - » Connect resources to broader constituency

- **Advanced Papryological Information System**
  - » Facilitate scholarship around rare and fragile documents
  - » Build new research communities using web technologies

- **Columbia Media Enterprise startup**
  - » Augment traditional knowledge transfer activities
  - » Explore institutional and cultural elements of New Media knowledge management

Urban

- Objective:
  - » Live up to our name, Columbia University in the City of New York.
  - » Establish intellectual leadership in issues, which will be of growing importance, of growing urban centers.
  - » Establish a Columbia style of research characterized by it's integration.

Topic Area	Programattic	Curriculum	Equipment & Infrastructure	Seminars & Conferences	People
Urban					
Environment	NYC Grants			NYC Workshop	
Policy	Center for Urban Policy				
	Inst. For Child and Family Policy				
	NYC Social Indicators Survey				
	UN Habitat Project				
	AFDC Migration Model				
	Refugee Studies Program				
	Congestion Pricing in Transportation				
Extension	Natl Center Infrastructure Studies		UTAP GIS labortory		
	Urban Technical Assistance Program				
	Empowerment Zone Monitoring				
	EZMAP Relocation				
Education	Provost - Sr Advisor (Lab School)				

Urban Exemplars

- **Urban Technical Assistance Project**
  - » Explore the analogy of agricultural extension in urban setting
  - » Establish dialog between academic resources and local challenges

- **NYC Social Indicators Survey**
  - » Establish mechanisms for monitoring the well-being of our City
  - » Strengthen empirical social sciences at Columbia

- **New York City Grants**
  - » Build new communities of scholars that span LDEO and SIPA
  - » Establish foundation of urban environmental research

Social Science & Humanities

- Objective:
  - » Renew and enhance Columbia's standings in the Social Sciences and Humanities.
  - » Leverage our strengths through exploration of new interconnections and new applications.

Topic Area	Programattic	Curriculum	Equipment & Infrastructure	Seminars & Conferences	People
Social Sciences & Humanities					
Policy	SIPA Research Insitute		SIPA Communications Technology	NYC Workshop	
	Institute for War & Peace Studies			Democracy & Environment Conf.	
Public Policy Consortium	Public Policy Consortium	Public Policy Consortium			
Social Welfare	Inst. For Child and Family Policy		Social Work Resource Develment Ctr		
	NYC Social Indicators Survey		NYC Social Indicators Survey		
Outcomes	Center for Science, Policy & Outcomes		CARDGIS		
	Intellectual Property Assessment				
	Cultural Policy Initiative				
	CARDGIS				
	Conflict Resolution Network				
Theory	AFDC Migration Model		Sociology Network		
	Center for Digital Ecology		High speed server		
	Conflict Resolution Network		Social Science Computing...		
Inst. For Social & Econ. Res. And Policy	Does Decentralization Make a Difference		ISERP (UDF)		
	Seneca Village Archeology / History				
	Staffing the State				
	Model Selection Problems				
	Reproductive Rights / Indiv. Well-Being				
	Social Networks & Informl Job Training				
	Familial Influence on Adolescent...				
	American Institutions Project				
	Elections and Government Composition				
	Political Institutions and Trade Policy				
	Internet Voting Project				
	Campaign Dynamics				
	Campaign Finance, Elections, Local Econ.				
	New Media Firms in Silicon Alley				
Economics	Foreign Economics Research		Computer Equipment (O'Flaherty)		
	Center for Transitional Economies				
	Russia's Market Transition				
	OECD Countries Fiscal Policy				
	Congestion Pricing in Transporation				
Law	Center for Law and Philosophy				
Integration	Center Study of Science & Religion	Archeology Laboratory	Archeology Laboratory	Chernobyl 10th Aniversary	
	Technology & Society Initiative			Gender Studies Seminar	
	Human Capital			Decision Science Colloquium	
				Diplomatic History & Intl Politics	

Social Science & Humanities Exemplars

- Institute for Social and Economic Research and Policy (ISERP)
  - » Link theoretical social sciences and policy scholarship
  - » Establish Columbia brand of social science research

- Institute for Child and Family Policy
  - » Gain non-linear advantage through combination of 3 high quality centers

- Cultural Policy Initiative
  - » Establish new field of policy scholarship
  - » Leverage our academic strength and geographic position

Science & Engineering

- Objective:
  - » Ensure continued growth of Columbia's research enterprise.
  - » Enhance the flexibility and robustness of Columbia's research enterprise.
  - » Improve the standing of Columbia's research and education programs.
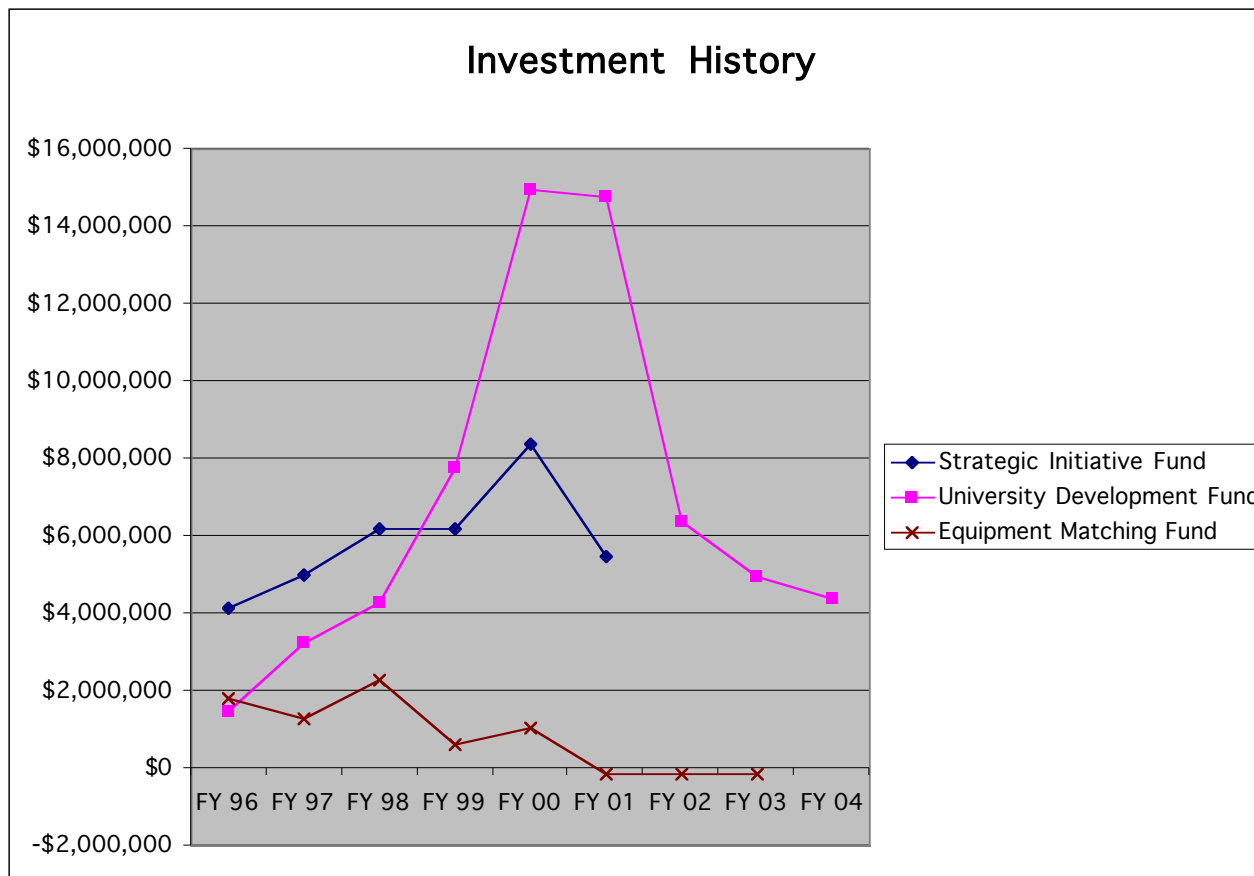- (Portfolio on next slide)

Science & Engineering

Topic Area	Programattic	Curriculum	Equipment & Infrastructure	Seminars & Conferences	People
Science & Engineering					
Integration	Engineering Investment Fund Industrial Eng & Operations Res. Center for Applied Probability	Solar Transportation Columbia Video Network	Lab Startup (Shapiro Clean Room) Applied Probability	Media & Medicine Conference	Laboratory Startup (Stormer) Career Grant - NSF Match (Thomas) Post-Doc (Tomo)
Biology	Biophysics - Structural bio Biology Investment Fund Virtual Biology Department	SURF Program (SIF) SURF Program (PIF)	Lucifern Biological Marker Microscope Biology Projection System Immobilized Nucleic Acid Neurology Equipment CartosII Analytical Software Single Cell Eloectroporator NMR & X-ray Instrument	Biomedical Sciences Conference Chemistry / Biochemistry Grad Seminar	
Chemical Engineering	Materials Research Center Defense Univ RIP Award Chem E and CGC init Free Radical Polymerization Polymer Adsorption - NSF match Polymer Research Center		IR Oscillator Equipment Match NSF Match - MRI	Chem/Eng Seminar	Chemistry / Chem E Admin
Biomedical Eng.	Biomedical Engineering (SI)		MRI Research Biomedical Engineering (EMF) Biomedical Engineering (UDF) Biomedical Engineering - capital		
Design	Augmented Reality	Gateway Lab	ACQ Rapid Prototype Gateway - NSF Match Architecture CAD system debt		
Genomics	Genome Center Chem E and CGC Init		Genomics in Computer Science		
Materials	Materials Research Barrier Material Engineering Laser Materials Processing NSF Match - MRSEC Engineering Lab Startup		Carleton Lab Renovation NYSERDA Match Surface Tension Equipment Equipment Match (Yao)	Materials & Molecular Chemistry	
Radiation Laboratory	Radiation Lab (Yardley)		NSF Match - Instr for Mat. Res. Radiation Lab Match Optical Flow Device - NSF match		
Nanotechnology	Nanotechnology Development of Nano...				Career Grant - NSF Match (Levicky)
Environmental Molecular Science	Environmental Molecular Sci. Inst.		NMR NSF Match		
Astronomy / Cosmology	Arcsecond Figure Measurement	MDM Observatory Universe Semester	MDM Observatory MDM Observatory CCD array Probing Far Infrared Fileserver Biosphere 2 Observatory CIRCA rennovation		
Chemistry			Academic Research Infr program 500 Mhz NMR MS & NMR Structural Center NMR Instrument Maintenance IBM SP2 Computer IR Oscillator Equipment Match NSF Match - MRI DOE Equip Match - Laser	Materials & Molecular Chemistry Chemistry / Biochemistry Grad Seminar	Jr. Chemistry Faculty Admin. Chemistry / Chem E. Admin.
Digital Chemistry		Chemistry (Turro) Chem Lab Edus - NSF support Edison Project VizChem University Wide Reform	Chemistry - Gateway Lab Construct Faculty IT Cluster / Gateway PC's Gateway Project Software Net in Chemistry VizChem 80 MHz VizChem software licenses Multimedia Chem & Chem fellowship 412 Havemeyer		Salary Support - Noam Chonacy
Turro Track Record	Transition Grant		EPR Spectrometer loan		
Mathematics	NSF Match - SCREMS award	Mathematica			
Health Sciences	Nursing Health Sciences Projects		Comparative Medicine		

Science & Engineering Exemplars

- **Environmental Molecular Science Institute**
  - » Ensure Columbia leadership in fundamental shift in chemical research focus
  - » Enhance connections between Columbia chemists and other Columbia physical scientists
- **MDM Observatory**
  - » Gain expanded access to astronomy facilities
  - » Expand student experience in both NYC and B2C
- **Radiation Lab**
  - » Prepare for significant new Federal funding opportunity (nanotechnology)
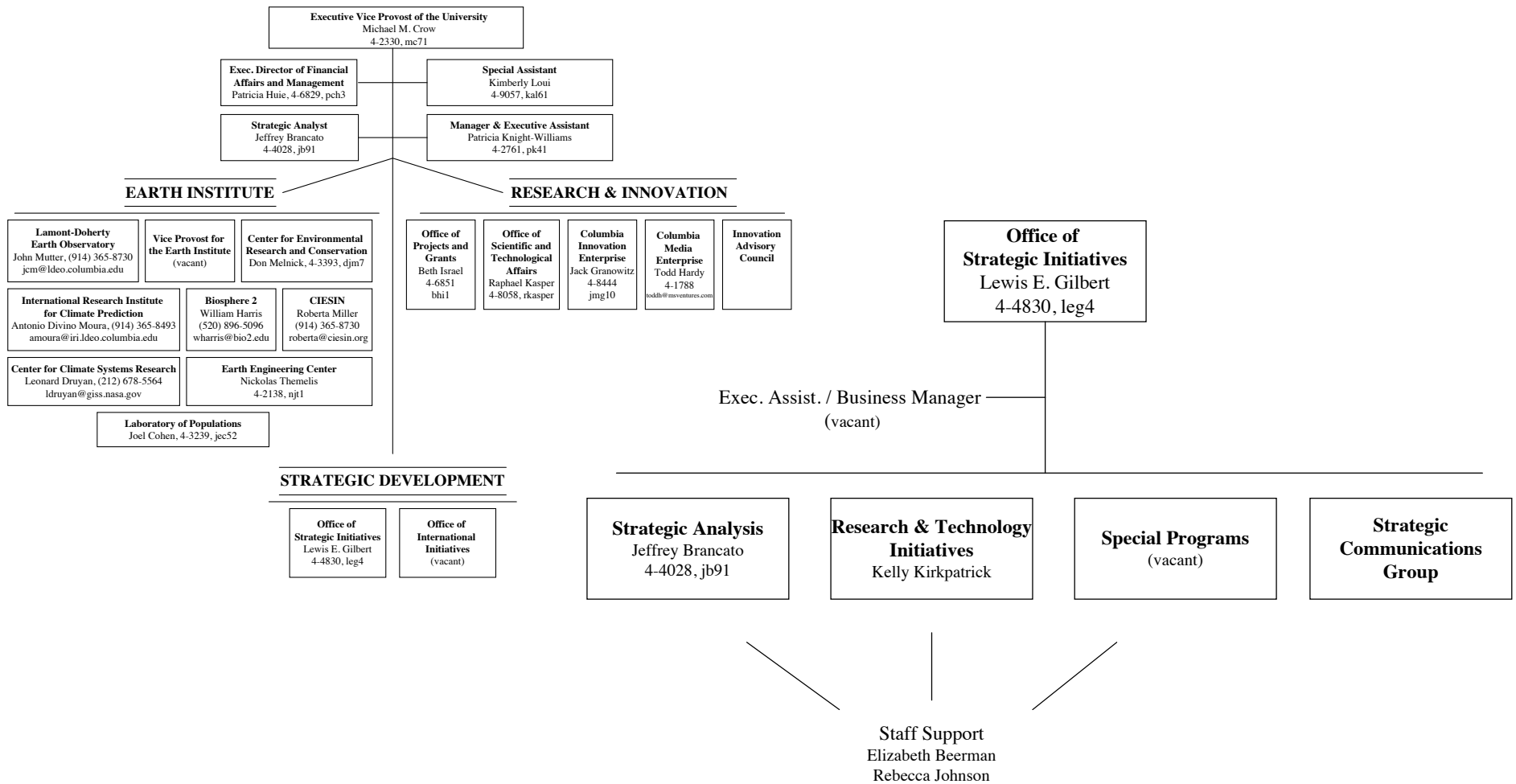 - » Evolve historical university strength

Investment History

Investment History

Existing Centers and Institutes

- ## Ongoing Study
  - » Over 400 Centers and Institutes
  - » Developing basic taxonomy
  - » Reviewing university guidelines
- ## Preliminary Report ready in October 2000

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Staff Support
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Earth Systems Outcomes

- Arsenic Project

- Hudson River Projects

- Visualization Lab

- CIESIN

- CERC / DE3B

- Biocomplexity Proposals

Digital Media / Info Technologies Outcomes

- Digital Libraries
- Media Center for Art History
- Advanced Papyrological Information Systems

Urban Outcomes

- Urban Technical Assistance Project
- New York Social Indicators Survey
- Center for Urban Policy

Social Sciences / Humanities Outcomes

- Public Policy Consortium
- Institute for Child & Family Policy
- Social Science Computational Infrastructure
- Center for Organizations and Digital Ecology

Science & Engineering Outcomes

- Columbia Genome Center
- Biomedical Engineering Department
- Gateway Lab
- Undergraduate Astronomical Observing
- Shapiro Clean Room

SIP Facilitated A&S Appointments

- David Stark
- Horst Stormer
- Aron Pinczuk
- Jeremy Waldron
- Peter Bearman
- Duncan Watts
- Stuart Pimm
- Elke Weber
- Joel Cohen
- Lorenzo Polvani