NISS at 30
From Past to Future

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JSM

NISS

From Past to Future

- Starting Point

- NISS – Continual Renewal and Evolution

- Paths for Each Decade

- NISS - Poised for Future

Starting Point: Original Mission

An institute focused on cross-disciplinary research between statistics and other fields that also fosters related activities, workshops and training to promote fruitful collaboration among statistical researchers and other scientists.

The institute should identify important societal problems, form research teams to attack these problems, establish postdoctoral fellowships, organize workshops for scientists and for statisticians and stimulate curricular improvement.
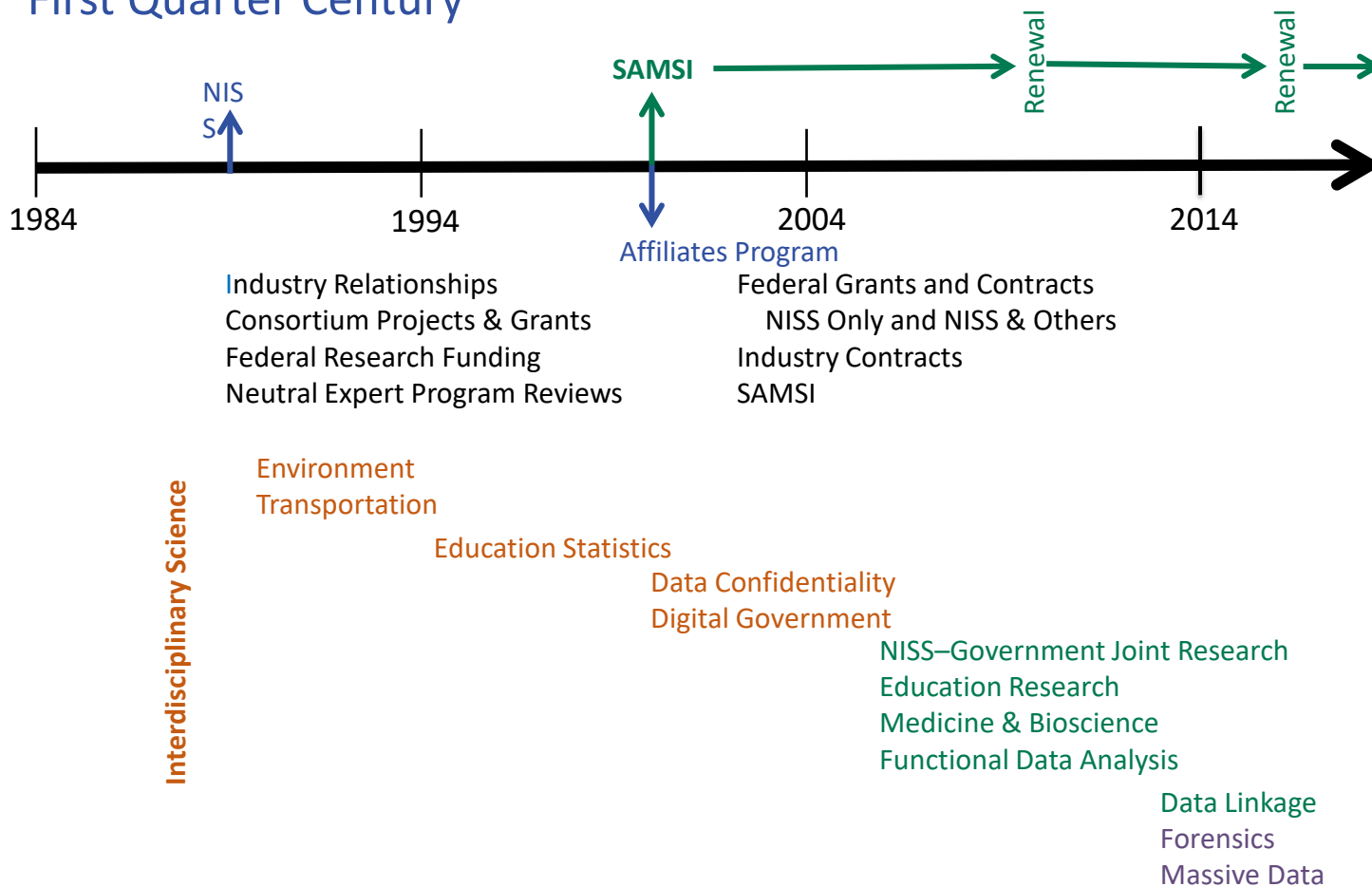
Starting Point: Principal Roles

- **Resource** for high-impact research at critical interfaces between statistics and disciplinary science, as well as between industry/government and academia.

- **Sentinal** for emerging issues where statistics can make key contributions

- **Catalyst** for combining requisite research expertise to solve data-driven problems of national importance, as foundation for evidence based decisions by policymakers, and/or for advances in science

- **Support** for career development at all levels with special emphasis on early career statisticians and data scientists

- **Nexus** for engagement of the national community

Continual Renewal and Evolution

- Changing Challenges for Statistics

- Structural Change

- Agility

- Expansion

First Quarter Century

Paths – First Decade

- Multi-disciplinary

- Multi-institutional

- New roles for statistics

- NISS Building

Paths – Second Decade

- Affiliates

- SAMSI

- Research Programs

- Inter-sector Projects

- High-impact Research

Paths – Third Decade

- Post-Doc Program – Active Mentoring

- Collaborations – Long-term Partnerships

- Resource for Expertise

- High-impact Projects

Paths – Third Decade

- Move to DC – Multiple Hubs

- New Emphasis on Statistics Community

- New Engagement of Junior Colleagues and Early Career Statisticians

- NISS-Online

Poised for Future: Capabilities

- Assembling Expertise
  - Small Scale – Panels, Working Groups
  - Large Scale – Problem Owners, Statistics Community

- Early Career Support
  - Writing Workshops
  - Career Fairs, Graduate Student Network
  - Postdoctoral/Predoctoral Research Experiences

- Expansion and Outreach
  - Affiliates Program – Webinars, conferences
  - Ingram Olkin Fund

Poised for Future: Accomplishments

- Projects with Impact
  - Model-based Inference: NAEP Scores, Crop County Estimates
  - Statistics-based Privacy Protection: NCES Plausible Values, Data-base publication
  - Redefining Demographics: US Census of Agriculture, GIS-based SES Index
- Breadth
  - Health Sciences: Cardiac Function, Syndrome Surveillance, Proteomics
  - Survey Sampling: Census Research Network, NCES, USDA, Census, BLS
  - Education: Online Reading/Research – Process v Task Assessment
  - Data Security / Data Privacy Methodology
  - Environment
  - Transportation

Poised for Future:
Challenges for Statistics

- **Changing Data Science**
  - Integrating AI into Simulation & Modeling

- **Changing Data Demands**
  - Finding Metrics for Evaluation: Research Portfolios
  - Framing a Process for Infrastructure Evaluation

- **Changing Objectives**
  - Providing Specific High-resolution Solutions
  - Beyond the Generic: Taking Theory & Methodology into Practice

Into the Future

- Institute: Bricks & Mortar to Distributed to Virtual
- Presence & Virtual Institutes Combined – National & International
- NISS as Sentinal
- Research: Multi-disciplinary/multi-institution Collaboration to Combination Research Portfolio to Distributed Cross-sector
- Model-based, AI-integrated, Heterogeneous Multi-source Data
- High-impact for Science, Social Science, Policy
- Strengths
  - Postdoctoral Fellows, Senior Research Fellows
  - Trusted, Neutral Experts
  - Statistics & Modeling for High-impact Problems
  - Affiliates Network