

Rebuilding the Mosaic

21st Century SBE Science

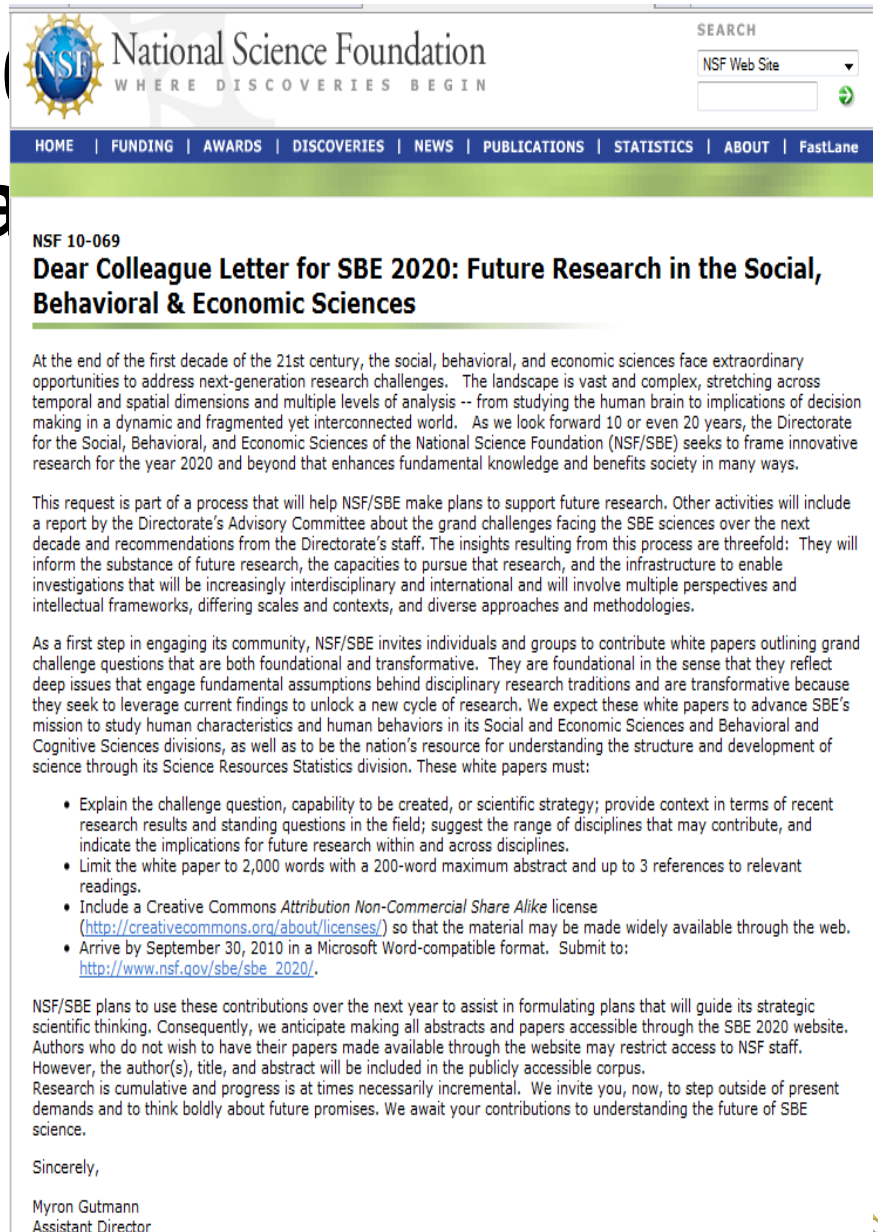
Myron Gutmann

November 2, 2011



SBE 2020 One year

- Recap: 252 white papers from diverse group of authors on a broad range of topics
- What came next?
 - Coding and analysis
 - Consultation
- And now: a report



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NSF 10-069
Dear Colleague Letter for SBE 2020: Future Research in the Social, Behavioral & Economic Sciences

At the end of the first decade of the 21st century, the social, behavioral, and economic sciences face extraordinary opportunities to address next-generation research challenges. The landscape is vast and complex, stretching across temporal and spatial dimensions and multiple levels of analysis -- from studying the human brain to implications of decision making in a dynamic and fragmented yet interconnected world. As we look forward 10 or even 20 years, the Directorate for the Social, Behavioral, and Economic Sciences of the National Science Foundation (NSF/SBE) seeks to frame innovative research for the year 2020 and beyond that enhances fundamental knowledge and benefits society in many ways.

This request is part of a process that will help NSF/SBE make plans to support future research. Other activities will include a report by the Directorate's Advisory Committee about the grand challenges facing the SBE sciences over the next decade and recommendations from the Directorate's staff. The insights resulting from this process are threefold: They will inform the substance of future research, the capacities to pursue that research, and the infrastructure to enable investigations that will be increasingly interdisciplinary and international and will involve multiple perspectives and intellectual frameworks, differing scales and contexts, and diverse approaches and methodologies.

As a first step in engaging its community, NSF/SBE invites individuals and groups to contribute white papers outlining grand challenge questions that are both foundational and transformative. They are foundational in the sense that they reflect deep issues that engage fundamental assumptions behind disciplinary research traditions and are transformative because they seek to leverage current findings to unlock a new cycle of research. We expect these white papers to advance SBE's mission to study human characteristics and human behaviors in its Social and Economic Sciences and Behavioral and Cognitive Sciences divisions, as well as to be the nation's resource for understanding the structure and development of science through its Science Resources Statistics division. These white papers must:

- Explain the challenge question, capability to be created, or scientific strategy; provide context in terms of recent research results and standing questions in the field; suggest the range of disciplines that may contribute, and indicate the implications for future research within and across disciplines.
- Limit the white paper to 2,000 words with a 200-word maximum abstract and up to 3 references to relevant readings.
- Include a Creative Commons Attribution Non-Commercial Share Alike license (<http://creativecommons.org/about/licenses/>) so that the material may be made widely available through the web.
- Arrive by September 30, 2010 in a Microsoft Word-compatible format. Submit to: http://www.nsf.gov/sbe/sbe_2020/.

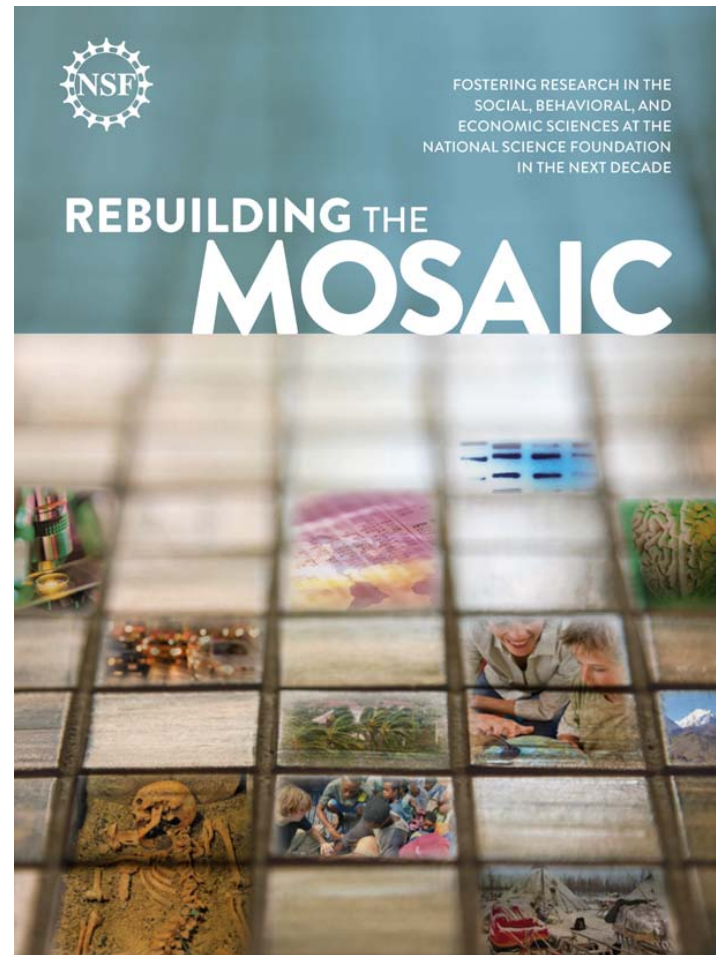
NSF/SBE plans to use these contributions over the next year to assist in formulating plans that will guide its strategic scientific thinking. Consequently, we anticipate making all abstracts and papers accessible through the SBE 2020 website. Authors who do not wish to have their papers made available through the website may restrict access to NSF staff. However, the author(s), title, and abstract will be included in the publicly accessible corpus. Research is cumulative and progress is at times necessarily incremental. We invite you, now, to step outside of present demands and to think boldly about future promises. We await your contributions to understanding the future of SBE science.

Sincerely,
Myron Gutmann
Assistant Director



The central finding

Research in the SBE sciences is increasingly collaborative, multi- or interdisciplinary, data intensive, and frequently problem-oriented.



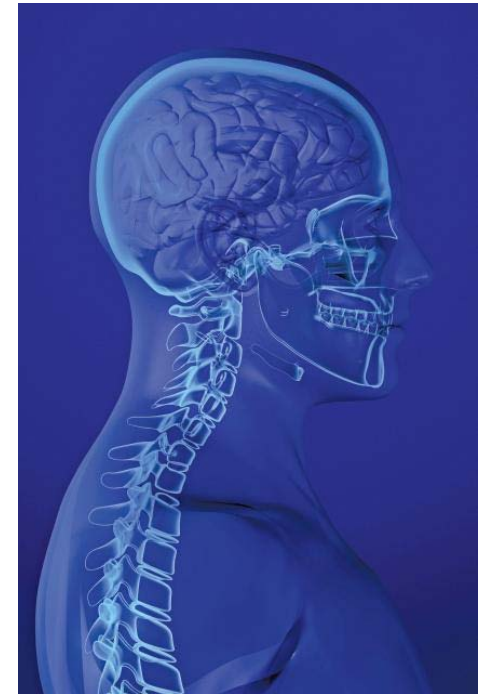
SBE scientists are:

- Highly engaged with fundamental problems,
- Fascinated by big and deceptively simple questions
- Eager to undertake interdisciplinary research and training
- Less focused on disciplinary science for its own sake



Examining basic questions

- What is consciousness?
- Why can you understand me?
- How do we make choices?
- Why do we cooperate – and why does conflict arise?
- How do markets work?
- Why is there injustice and inequality in the world?



Helps address contemporary problems

- Giving Americans healthy lives
- Making the most of new technology
- Dealing with a changing climate
- Building responsive, adaptable governance structures
- Producing economic growth and jobs
- Providing opportunity and reducing inequality



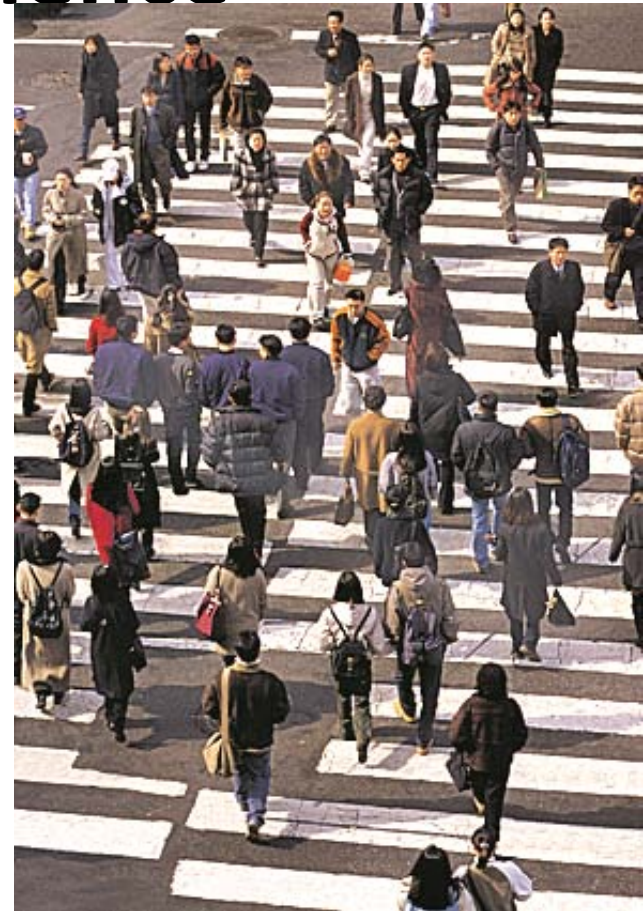
What we heard calls out for:

- Interdisciplinary research and training
- New and better data & related cyberinfrastructure
- Research infrastructure



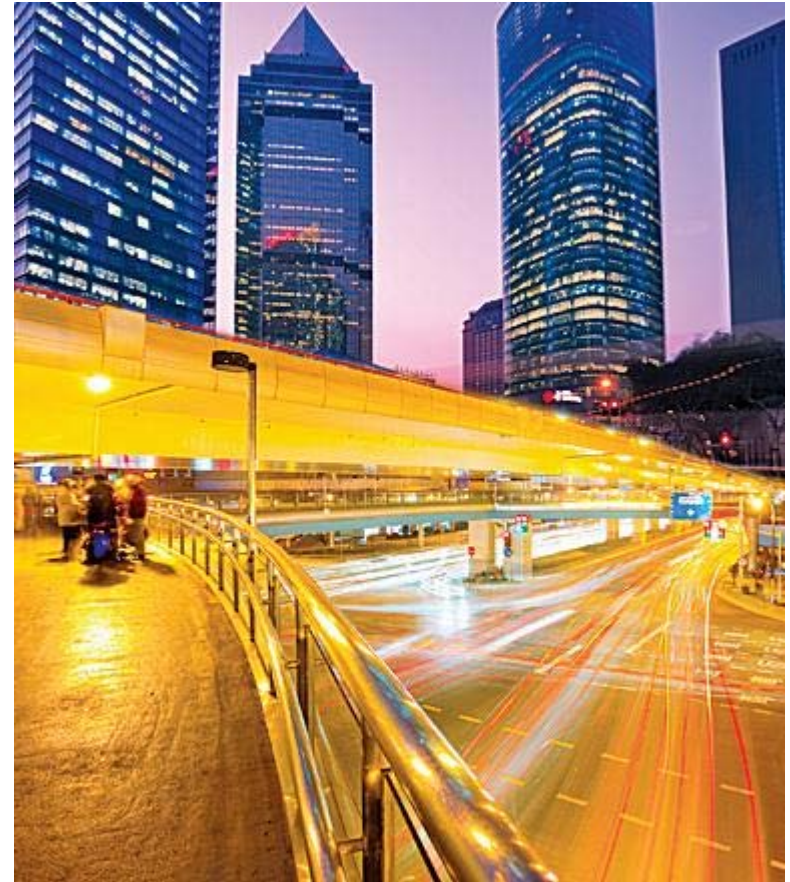
2012 & Beyond: Content of Science

- Expand interdisciplinary program
 - Reissue DCL
 - Stand up a new interdisciplinary panel
- Regular review of existing programs



New Cross-Cutting Research Areas: Four Candidate Topics

- Population change
- Disparities: health, civic engagement, income and wealth....
- Communication, language, brain, behavior
- New technology, social media, and social networks



Why we chose t

- Evidence of interest across multiple disciplines
- Not easily served in the directorate's existing programmatic structure
- Potential for cross-fertilization of ideas with implications across multiple disciplines

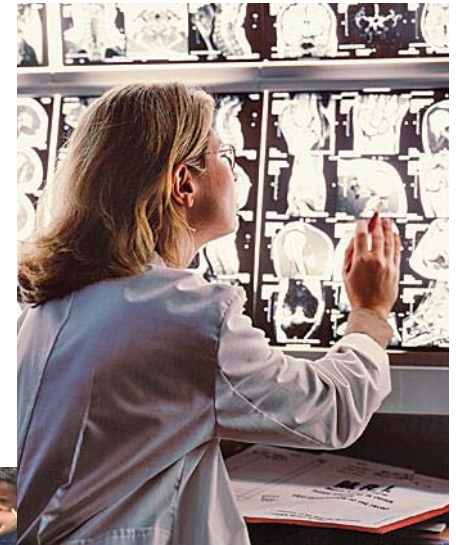


...But the list is a beginning, not an end!

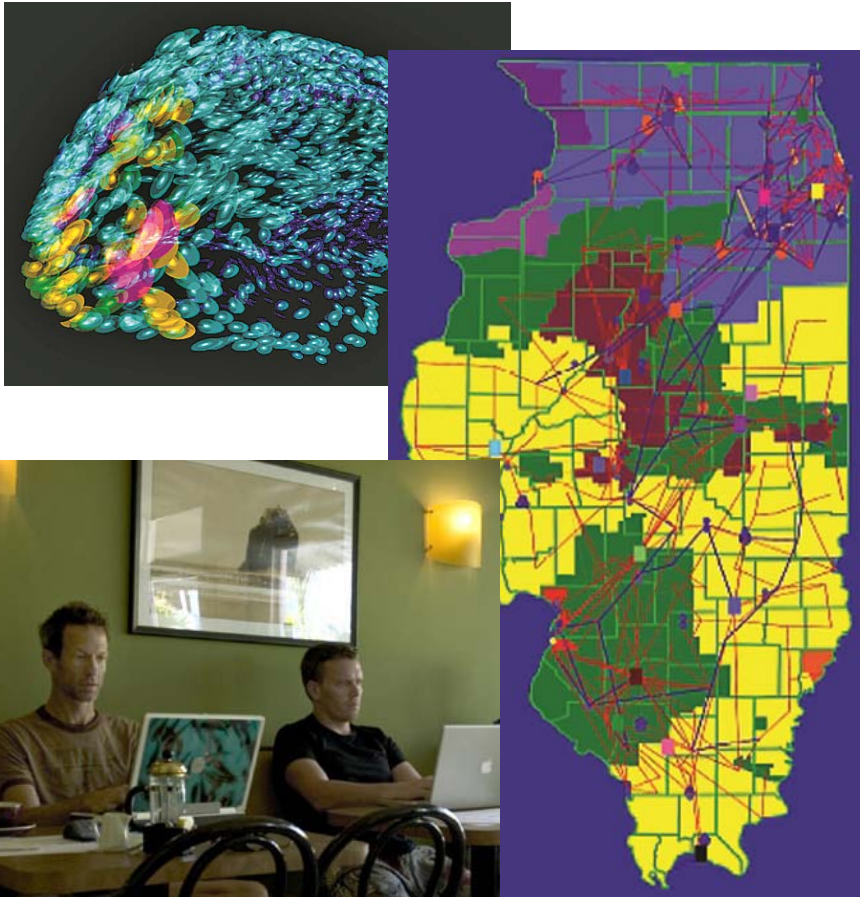


2012 & Beyond: More training support

- Improve and expand interdisciplinary training – at all career stages
- Create a more diverse SBE science workforce
- Make data training a priority



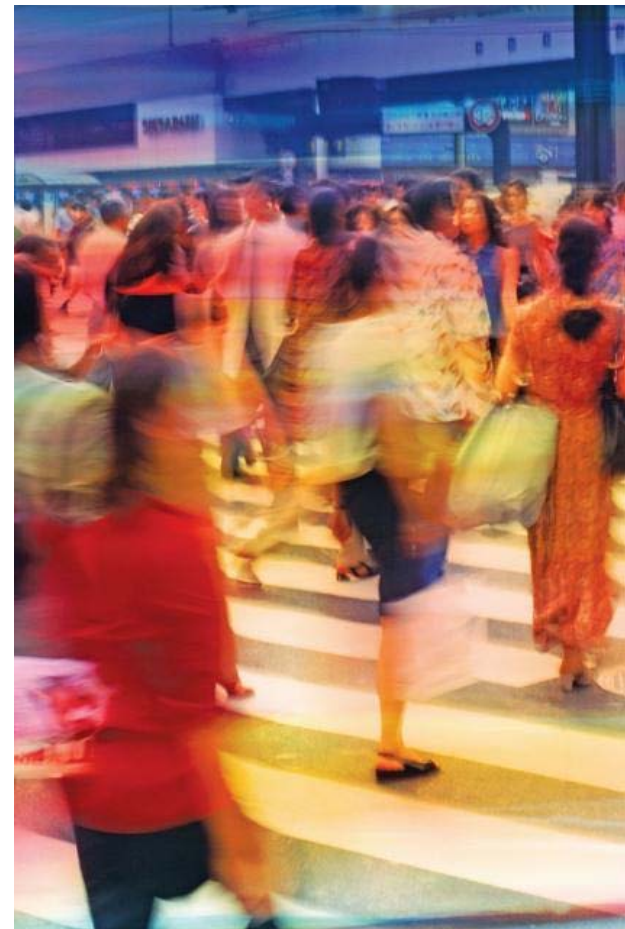
2012 & Beyond: Data Communities



- What are questions that demand data and infrastructure?
- How do we make the case for a new generation of Infrastructure for the SBE Sciences?
- What scientific priorities are Highest?

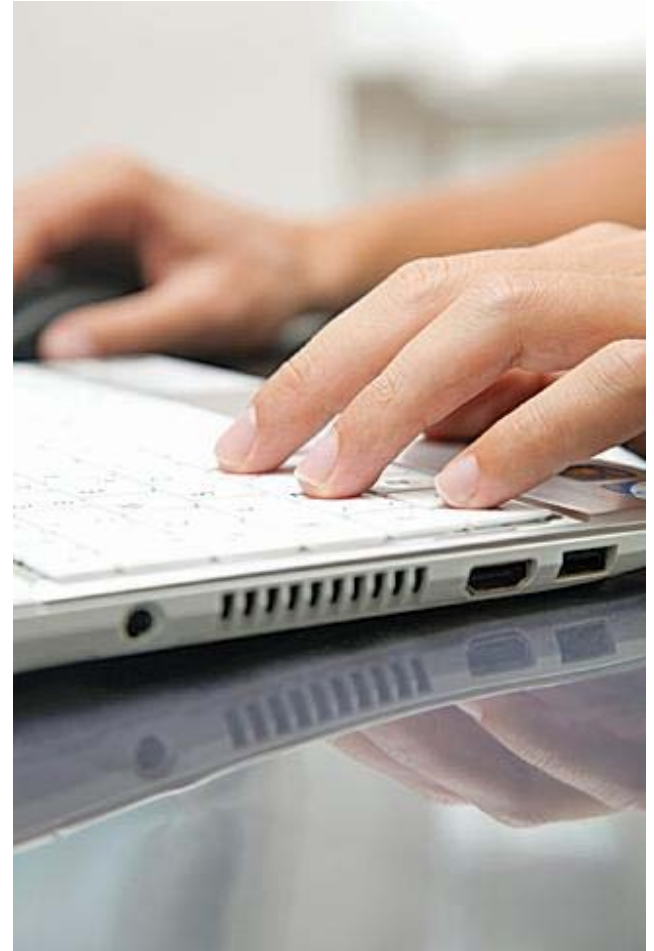
Community Building: Strategy & Tactics

- Challenge existing communities
- Promote opportunities for new communities
- Plan and prototype
- Explore multi-agency, multi-directorate, multi-country engagement



Data & Infrastructure: Some Ideas

- New household panel
- Coupled human-environmental data
- Administrative, commercial & social media data
- Embedded geospatial Information
- Linguistic data
- Digitized cultural heritage data & collections



Our Challenge to You

- Dream big about science
- Think ambitiously: new data and better access to existing data, plus ways to combine data
- Build community support around new data and research infrastructure
- Help us see and execute on opportunities across directorates, agencies, national boundaries



Thank You!

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