



From Investment to Uncertainty: The Changing Landscape of Bioethics Research

Examining NSF Award Terminations and Shifting Federal Funding Priorities

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Introduction and Research Question

Scientific innovation is advancing rapidly, but who supports the research that asks whether those advances are ethical, equitable, and responsible? The National Science Foundation (NSF) has historically funded researchers who investigate the ethical, legal, and social implications (ELSI) of science and technology. Following federal funding changes beginning in 2025 (“Restoring Gold Standard Science” Executive Order), this research examines not only which projects were disrupted, but also what their loss could mean for the future of bioethics.

How have NSF award terminations and changing federal funding priorities since January 2025 affected research in bioethics, ELSI, and Science and Technology Studies (STS)? Which research areas have experienced the greatest disruption, how have universities and researchers responded, and what does the contrast between disrupted ethics-oriented programs and continued investment in technology-focused initiatives reveal about the future of independent ethical inquiry?

Methodology

1. NSF Program Selection and Data Collection

A longitudinal analysis was conducted across four NSF programs: Ethical and Responsible Research (ER2), Science and Technology Studies (STS), Law and Science, and the National Artificial Intelligence Research Institutes. Using NSF Award Search, a dataset of **418 awards (165 expired and 253 active)** was compiled.

2. Award Classification and Bioethical Relevance

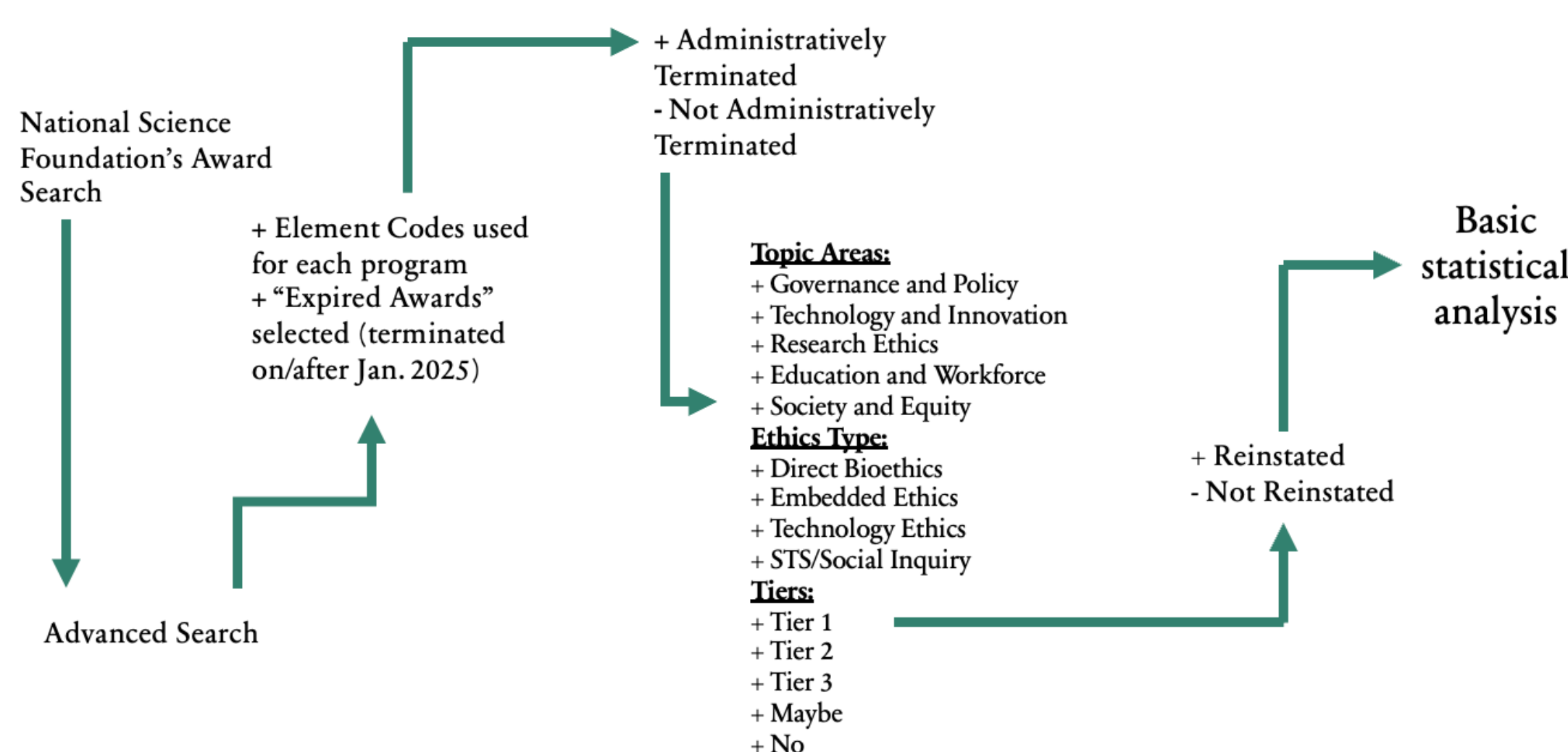
A standardized classification framework was developed to evaluate each award.

3. Administrative Terminations and Institutional Responses

Expired awards were individually reviewed to distinguish natural expiration from administrative termination using NSF award records. Grant Witness was used to investigate reported reinstatements, while university announcements, PI statements, and other public records were examined to document institutional responses and changes in award status.

4. Longitudinal and Policy Analysis

Expired and active awards were compared to identify patterns in administrative terminations, funding distribution, research priorities, and bioethical relevance. Additionally, 49 NSF news reports were reviewed to examine agency-level priorities and contextualize the findings within broader changes in federal research funding.



Key Findings

1. Administrative terminations were concentrated in ethics and social inquiry programs. Of 165 expired awards examined, 40 were administratively terminated: 16 in STS, 12 in ER2, and 12 in Law and Science. No AI Institutes awards in the expired-awards dataset were marked as administratively terminated.

2. Funding disruptions extended beyond explicitly bioethical research.

Among the 40 terminated awards, 24 were classified as STS/Social Inquiry, 12 as Embedded Ethics, and four as Direct Bioethics. Society and Equity was the most frequently affected research topic, accounting for 18 terminations. These findings demonstrate that disruptions to interdisciplinary research may affect bioethics even when ethical inquiry is not a project's primary objective.

3. Active funding was concentrated in technology-focused initiatives.

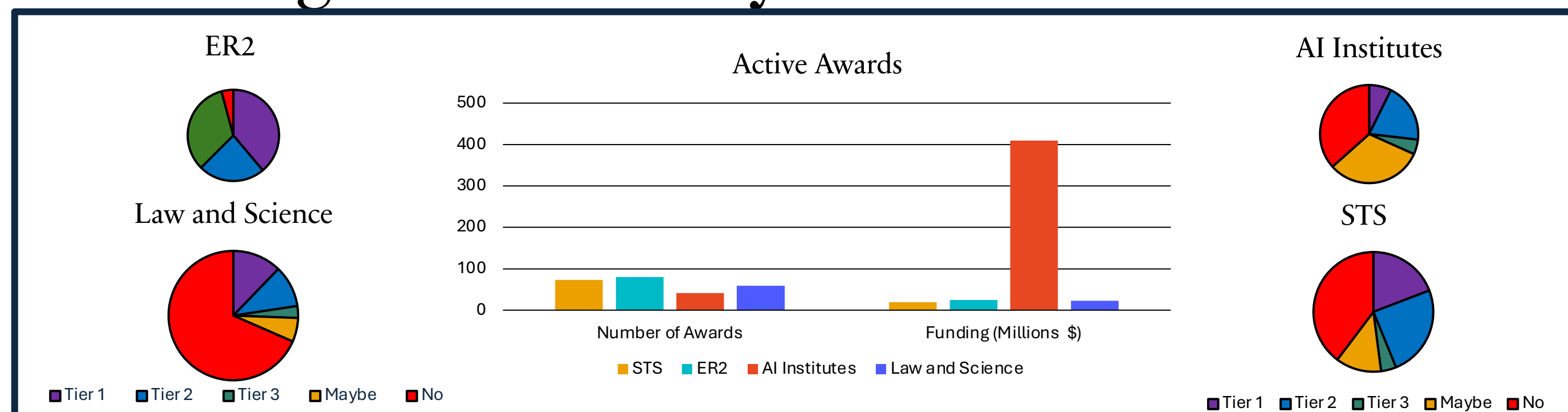
The 253 active awards examined represented approximately \$476.2 million in NSF funding. AI Institutes accounted for approximately \$409.9 million across 41 awards, compared with \$24.9 million for ER2, \$18.8 million for STS, and \$22.5 million for Law and Science.

4. The position of ethics within federally funded research is changing.

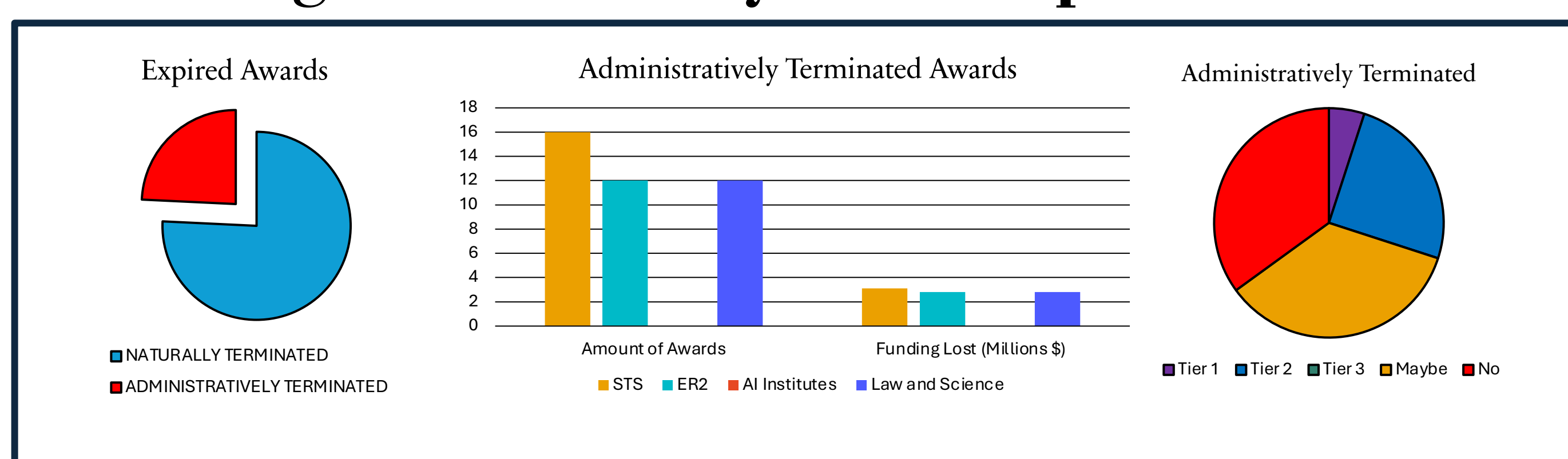
Active ER2 awards retained a substantial concentration of directly bioethical research, while ethical considerations within AI Institutes were more frequently incorporated into broader technology-focused projects.

A review of 49 NSF news reports also identified technology development, artificial intelligence, and infrastructure as prominent themes in the agency's public communications.

Longitudinal Analysis of Active Awards



Longitudinal Analysis of Expired Awards



Institutional/Media Response

NSF News Press	University Announcements
49 news reports reviewed - Technology development (most recurring) - Artificial intelligence - Infrastructure - Commercialization - Workforce preparation - Bioethics not frequently mentioned	42 university-responses reviewed based on grant terminations - Small number provided grant-specific notices - Most institutions issued general announcements about federal policy changes - Some universities chose not to publicly announce anything

Research Challenges & Limitations

- ☆ Incomplete documentation of terminated awards
- ☆ Classification of interdisciplinary research
- ☆ Limits of causal inference

Conclusions & Significance

The findings suggest that recent NSF funding changes a changing balance within the federal research portfolio, in which programs historically supporting ethics, governance, and social inquiry have experienced substantial disruption while major investments in artificial intelligence and technological innovation remain strong. This distinction has important implications for the future of bioethics. Although embedding ethical inquiry within scientific and technological projects can encourage interdisciplinary collaboration, it does not necessarily replace independent research capable of examining the objectives and societal consequences of science. **Central implication:** The future of responsible scientific innovation depends not only on the development of new technologies, but also on the continued capacity to examine their ethical, legal, and social consequences.

Future Directions

☆ Continuation of Longitudinal Analysis as last ER2 Awards Expire

☆ Comparative Analysis of NIH vs NSF Disruptions

☆ Examination of Embedded Ethics within Tech-focused Initiatives

☆ Researcher and institutional experiences: Conduct interviews and surveys with affected investigators, students, and institutions to document consequences not captured in public award records (The Future of Bioethics continued research)

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