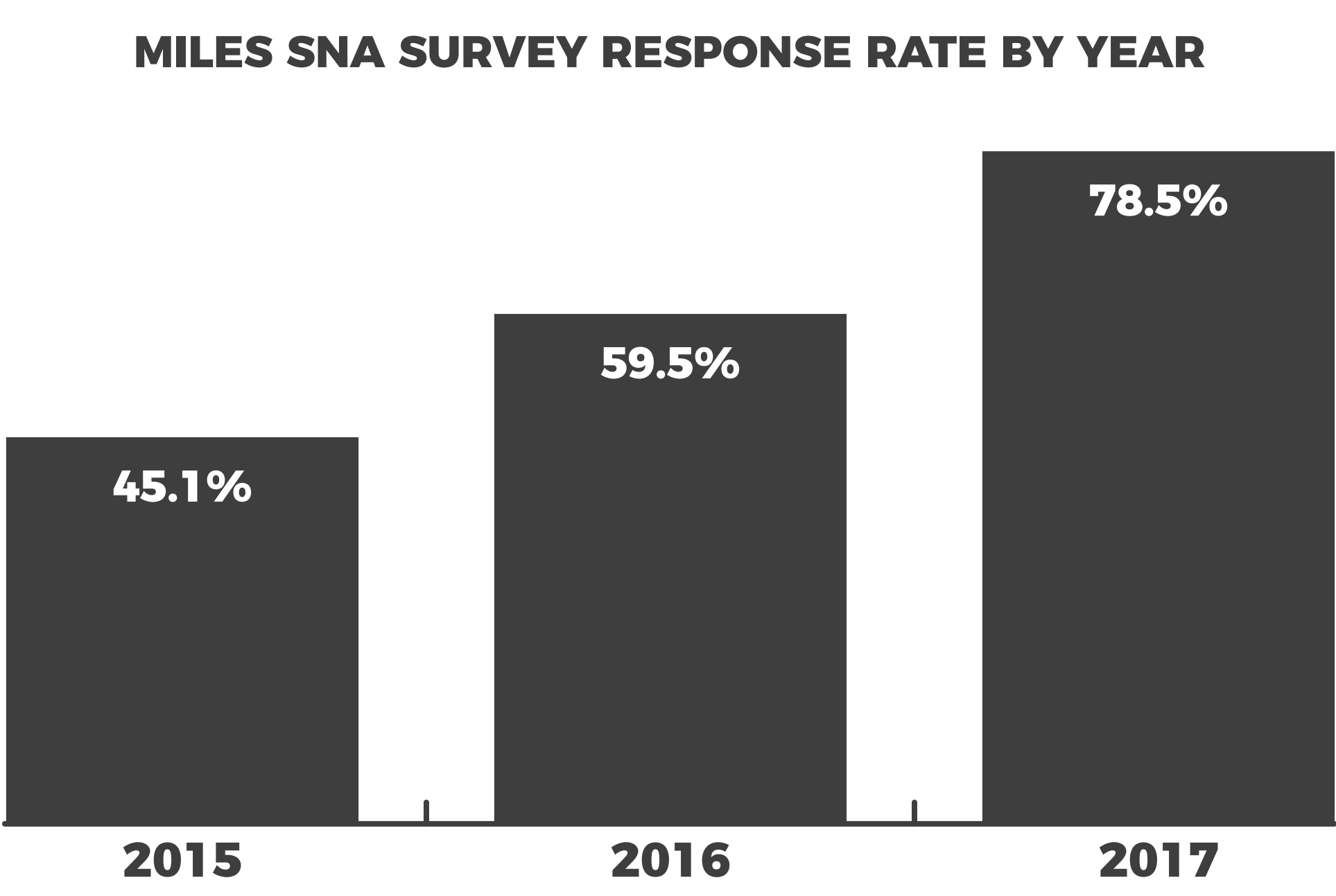# SOCIAL NETWORK ANALYSIS OF MILES

BY: JOCELYNE HELBLING; WITH COLLABORATION FROM: JOHN ANDERSON; KAREN STEPHENSON

MILES SNA SURVEY RESPONSE RATE BY YEAR
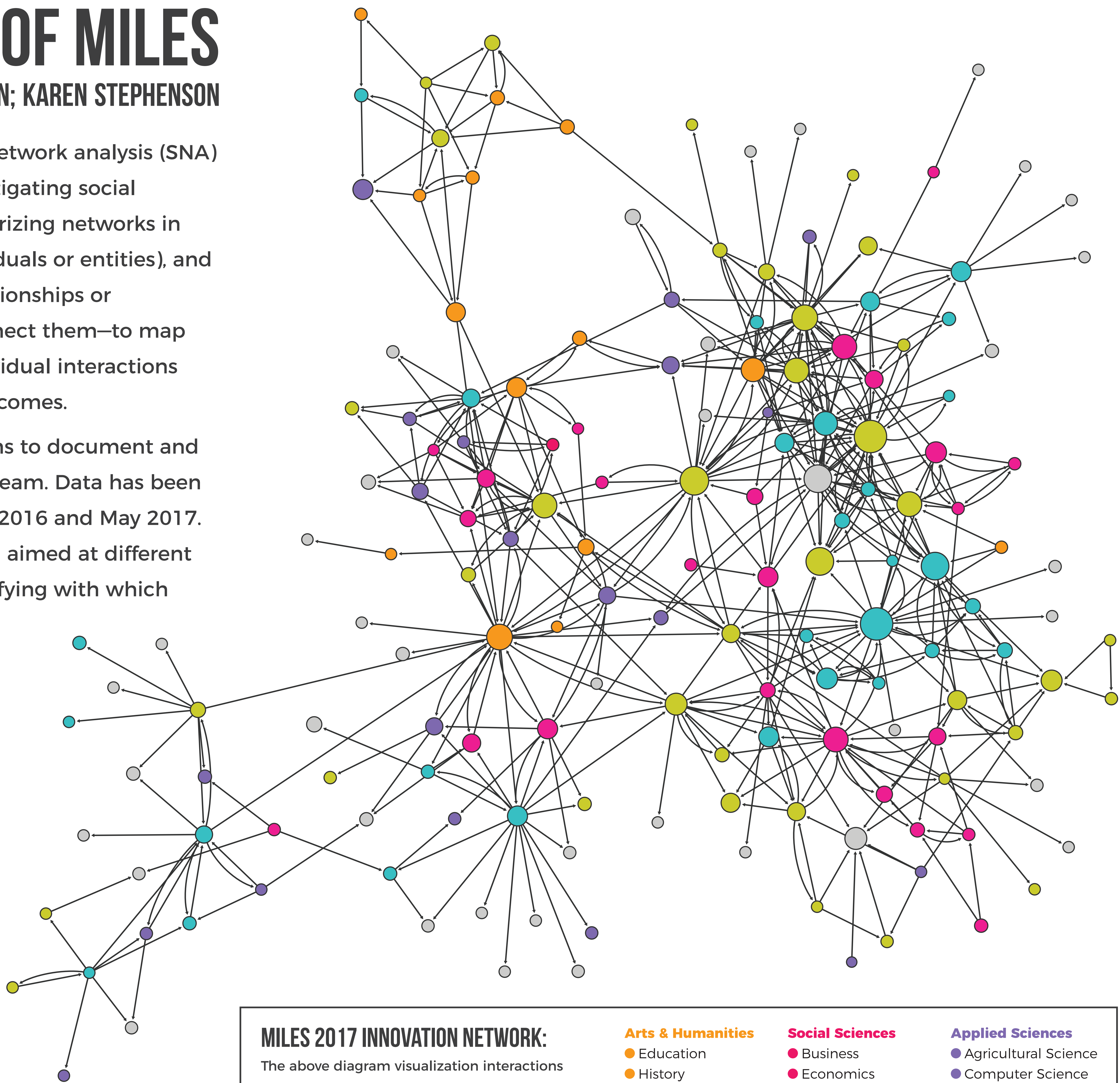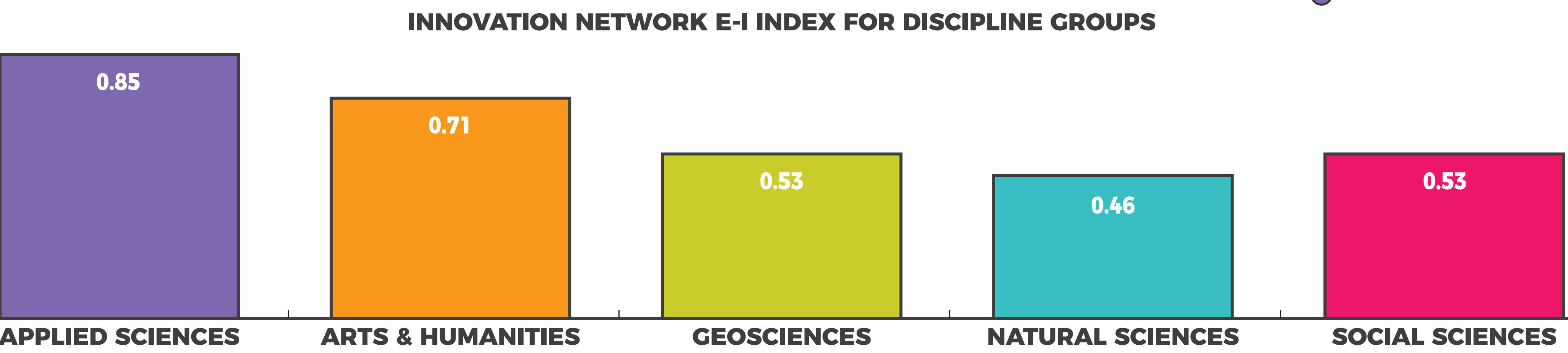

- 2015: 45.1%
- 2016: 59.5%
- 2017: 78.5%

Introduction: Social network analysis (SNA) is the process of investigating social structures by characterizing networks in terms of nodes (individuals or entities), and the ties or edges (relationships or interactions) that connect them—to map and analyze how individual interactions result in collective outcomes.

Methodology: The MILES SNA project is an ongoing study that aims to document and map the network evolution of a large multi-institutional research team. Data has been gathered through online surveys conducted in October 2015, May 2016 and May 2017. Respondents were asked to answer social network questions, each aimed at different types of interactions pertinent to organizational function by identifying with which participants, and how often they interacted. Due to the low response rate in 2015, only the 2016 and 2017 datasets are used for comparative analysis .

Network Stability: 52.5% of 2016 Participants maintained a presence in the MILES network; accounting for 56.5% of identified nodes in the 2017 network. Over 80% of interactions identified in the 2017 survey were also reported in the 2016 survey.

Cross-disciplinary: External-Internal Index is a ratio of links occurring internally, within a group, (I) to the number of links occurring externally, with other groups, (E), and is calculates as (E - I)/(E +I). Values range from -1.0 to 1.0, with negative values indicating a more internal interaction, and positive values indicating more external links.

INNOVATION NETWORK E-I INDEX FOR DISCIPLINE GROUPS

- APPLIED SCIENCES: 0.85
- ARTS & HUMANITIES: 0.71
- GEOSCIENCES: 0.53
- NATURAL SCIENCES: 0.46
- SOCIAL SCIENCES: 0.53

MILES 2017 INNOVATION NETWORK:

The above diagram visualization interactions reported to occur at least 2 to 3 times a month, by 2017 survey respondents asked: "With whom do you brainstorm, share or explore new ideas?"

SURVEY RESPONDENT — INTERACTS WITH → MILES PARTICIPANT
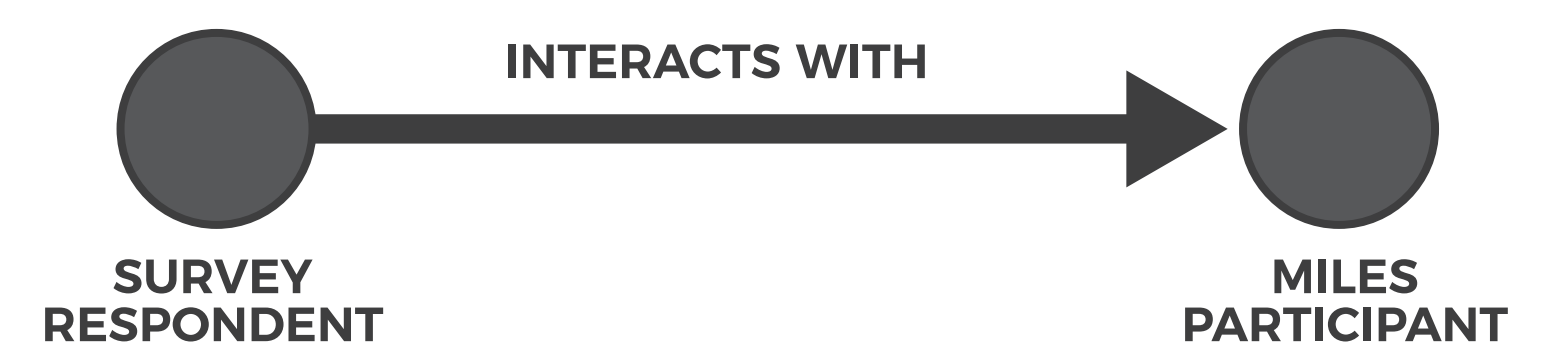
Arts & Humanities
- Education
- History
- Languages
- Philosophy
- Visual Design

Natural Sciences
- Biology
- Chemistry
- Mathematics
- Physics

Social Sciences
- Business
- Economics
- Political Science
- Psychology
- Sociology

Geosciences
- Earth Sciences
- Geography
- Geology

Applied Sciences
- Agricultural Science
- Computer Science
- Engineering
- Technology