**APPENDIX TABLE 5A-2.** Quantitative data used in the pilot year demonstrations. The various quantitative data used by NNCTA projects are organized by type and critical technology. Arrow direction corresponds to data used for strategic planning (right facing) vs. impact assessment (left facing). Numbers in the arrows correspond to the notes below, detailing the data source and, when relevant, collection process.

<table>
<thead>
<tr>
<th></th>
<th>Semiconductors</th>
<th>Artificial intelligence</th>
<th>Energy storage and critical materials</th>
<th>Biopharmaceuticals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patents (e.g., USPTO)</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Publications (e.g., Dimensions/ Open Alex, Web of Science, SCOPUS, Dimensions)</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology roadmaps (e.g., IRDD)</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government census data (e.g., ABS, ACS, APS)</td>
<td>6</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government labor data (e.g., BLS, state-level labor and education data)</td>
<td>8</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online job and skill data (e.g., O*NET)</td>
<td></td>
<td>10</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Job postings (e.g., Burning Glass)</td>
<td></td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private firm data</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
</tr>
</tbody>
</table>
1. US patent specifications from Harvard
USPTO Patent Dataset (HUPD)

2. 7.6 million patents granted by the US
and Open Syllabus dataset

3. All titles and abstracts of articles published
in the IEEE Journal of Solid State Circuits
since 2012

4. 87.6 million publications from the Micro-
soft Academic Graph (1960–2019), span-
ing 19 disciplines and 292 fields

5. IRDS 2022 CMOS technology maps

6. Nationally representative survey, the 2018
Annual Business Survey (ABS), which
since 2017 has data on firm-level adop-
tion of advanced technologies, including
AI, for more than 850,000 private sector
firms matched to the US Census Bureau's
Longitudinal Business Database (LBD) to
obtain data on firm employment, revenue,
and founder characteristics

Community Survey, and Occupational Em-
ployment and Wage Survey data

8. Sector-level productivity data from US
Bureau of Labor Statistics

9. LBD data on firm employment and revenue

10. Labor and skill demand for battery-related
manufacturing characterized using the
O*NET survey instrument from BLS

11. Labor and skill demand for advanced
pharmaceuticals-related manufacturing
characterized using the O*NET survey
instrument from BLS

12. Detailed job posting data from Lightcast
(formerly known as EMSI Burning Glass),
a high-quality data source with compre-
hensive coverage of over 40,000 online job
portals since 2010

13. Firm and organizational data on CPU and
GPU characteristics (desktop, mobile, and
server and high-performance computing)

14. Firm-level size, geographic data, job post-
ings, and production statistics

15. Firm-level historical data on critical ma-
terial demand, prices, mining production,
and mining costs

16. Private firm data relating to advanced
pharmaceutical techniques, supply chains,
and investment activities