

“Political views of tech people”

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Methodology

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1. Sample selection

1.1. Selection of firms

The population consists of the 842 American corporations that appeared at least once between 2007 and 2014 on the *Forbes Global 2000* list, an annual ranking of the 2000 largest public enterprises in the world.

2. Data & Operationalization

2.1. Corporations

An “AI firm” is defined as a company that primarily operates in the technology sector and, at the same time, is a big player in AI research and development. The stipulation of these two criteria is consistent with the aim of the analysis, which is to study corporations whose AI development is a core activity. For this reason, the definition excludes non-tech corporations that invest heavily in AI R&D, such as General Motors, and tech-firms that are relatively minor players in the AI domain.

First, the NAICS classification system was used to determine whether a corporation is a tech firm or not. NAICS codes are constructed to denote varying levels of specificity. The two first digits designate the broadest business sector, the first three the subsector, the first four the industry group, the first five the industry. The full six-digit sequence is the national industry. Table 1 contains a list of the tech relevant NAICS codes. The NAICS codes of firms were collected from Compustat. A company whose primary NAICS code corresponds to any of those listed in Table 1 was classified as a “tech firm.”

Table 1: NAICS codes associated with tech firms.

NAICS code	Description
517	Telecommunications
51913	Internet Publishing and Broadcasting and Web Search Portals
518	Data Processing, Hosting, and Related Services
5112	Software Publishers
334	Computer and Electronic Product Manufacturing
4541	Electronic Shopping and Mail-Order Houses
5415	Computer Systems Design and Related Services

Second, big players in AI research and development were identified with the help of the underlying dataset of the report “WIPO Technology Trends 2019 – Artificial Intelligence” (WIPO, 2019). WIPO (World Intellectual Property Organization) is a UN agency with the mission to promote the protection of intellectual property throughout the world. In 2019, it compiled a list of the organizations with the largest portfolios of AI patent applications. The dataset contains the top 500 patent applicants by the number of patent families. 333 of the 500 organizations are companies, 123 of which are headquartered in the United States.

An American corporation on the *Forbes Global 2000* ranking also included in the list of top 500 patent applicants and with a technology industry NAICS code was classified as an “AI firm.” An American corporation on the *Forbes Global 2000* ranking that failed to meet both criteria was classified as a “non-AI firm.”

2.2. Campaign finance data

The Federal Election Commission requires that a contribution is made public “when it exceeds \$200 or aggregate over \$200 when added to other contributions received from the same source during the election cycle.”¹ Every disclosure should contain the name of the donor, the name of the organization he/she works for, and job title. The data on campaign contributions to candidates running for federal office are provided in bulk by the Center for Responsive Politics (CPR).² CPR also assigns a unique ID to every donor,³ which allows aggregation over individuals. Alternative ID assignment methods were tested but they did not produce notably different results. Therefore, the decision was to stick with the IDs developed by CPR.

A donor can give money to a candidate, a party or a political action committee (PAC). The data contain information about the recipient of the contribution, most importantly the party and the name of the candidate.⁴

2.3. Top managers

People with power over strategic decisions are part of the top management team (Carpenter, Geletkanycz, & Sanders, 2004), often defined as the C-suite. C-suites are the top senior executives whose titles start with the letter C, for "chief." Examples include chief executive officer (CEO), chief financial officer (CFO), chief operating officer (COO), and chief information officer (CIO). Table A.1 in the Appendix catalogs all C-suite members plus “president,” “senior vice president,” and “vice president,” also considered as top managers.

¹ <https://www.fec.gov/help-candidates-and-committees/filing-reports/individual-contributions/>

² <https://www.opensecrets.org/bulk-data>

³ The field “ContribID”

⁴ <https://www.opensecrets.org/resources/datadictionary/UserGuide.pdf>

To identify top managers, the field “occupation” (principle job title) on the campaign disclosure form was evaluated. If the disclosed occupation corresponded to any of the titles in Table A.1, the donor was classified as a “top manager.”

2.4. Ratings

Every year, a large number of interest groups rate members of the House and Senate on how consistent each member’s voting record is with the principles or legislative aims of the interest groups. Many of these ratings are available on the website <https://votesmart.org>. A total of ten ratings were included to cover a broad swath of AI relevant issues. A rating was selected if it met three criteria: (1) the interest group behind a rating should have a clear mission and enjoy a certain prominence, (2) the rating is issued regularly and covers a period of several years, and (3) the rating distributes grades to all members of the House and Senate.

For each issue, one rating was selected. The exception concerns “economic interventionism.” Naturally, economic freedom – the size of the government, taxes, regulations – is an area of significant importance and it naturally attracts many well-funded interest groups. At the same time, it is a very broad issue domain where the interest groups have slightly different focuses. The inclusion of four different ratings on economic interventionism was done for the purpose of producing a composite score⁵ that is not biased toward a specific aspect of economic interventionism.

The grades were converted from a percentage scale to a decimal scale so that the grades vary from 0 to 1. Six ratings⁶ were also reversed so that a higher grade consistently signifies a more liberal stance. A liberal member of Congress is pro-choice, favors environmental protection, supports the LGBTQ and nuclear non-proliferation movements, wants stricter gun laws and measures to curb greenhouse gases,

⁵ Calculated by computing the average score across the four rankings.

⁶ NRA, EnerVest, FreedomWorks, U.S. Chamber of Commerce, Americans for Prosperity, Club for Growth

and wants the government to regulate the economy and redistribute economic resources. During the last step of the operationalization, each member of Congress was given an average score for each rating (lifetime score).

References

- Carpenter, M. A., Geletkanycz, M. A., & Sanders, W. G. (2004). Upper echelons research revisited: Antecedents, elements, and consequences of top management team composition. *Journal of Management*, 30(6), 749-778.
- Porter, M. E. (2008). The five competitive forces that shape strategy. *Harvard Business Review*, 86(1), 25-40.
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Appendix

Table A.1: Titles of the top management team.

Titles	
chief executive officer	chief compliance officer
president	chief content officer
chief financial officer	chief corporate social responsibility officer
chief information officer	chief creative officer
chief marketing officer	chief customer officer
chief operating officer	chief design officer
chief technology officer	chief development officer
deputy president	chief diversity officer
executive vice president	chief experience officer
senior vice president	chief green officer
chief artificial intelligence officer	chief human resources officer
chief data officer	chief information security officer
chief digital officer	chief investment officer
chief engineering officer	chief knowledge officer
chief gaming officer	chief learning officer
chief information technology officer	chief legal officer
chief innovation officer	chief medical officer
chief networking officer	chief nursing officer
chief research and development officer	chief privacy officer
chief research officer	chief process officer
chief science officer	chief procurement officer
chief web officer	chief product officer
chief visionary officer	chief quality officer
chief academic officer	chief revenue officer
chief accessibility officer	chief risk officer
chief accounting officer	chief sales officer
chief administrative officer	chief security officer
chief analytics officer	chief solutions officer
chief brand officer	chief strategy officer
chief business development officer	chief supply chain officer
chief business officer	chief sustainability officer
chief commercial officer	chief value officer
chief communications officer	vice president

Table A.2: List of included ratings.

Rating	Issue	Source	Years covered
NARAL Pro-Choice America	Pro-choice	https://votesmart.org/interest-group/1016/naral-pro-choice-america#.XQOT3Yj7RaQ	1989-2017
NRA	Gun control	https://votesmart.org/interest-group/1034/national-rifle-association#.XQOsz4j7RaQ	1998-2019
Human Rights Campaign	Pro-LGBTQ	https://votesmart.org/interest-group/1256/human-rights-campaign#.XQOW3Yj7RaQ	1989-2018
EnerVest	Climate change	https://votesmart.org/interest-group/2639/enervest#.XQOzulj7RaR	2007-2018
Environment America	Environment	https://votesmart.org/interest-group/1826/environment-america#.XQOj2Ij7RaQ	2008-2017
FreedomWorks	Economic interventionism	https://votesmart.org/interest-group/1658/freedomworks#.XQOsRYj7RaQ	2001-2018
U.S. Chamber of Commerce	Economic interventionism	https://votesmart.org/interest-group/755/united-states-chamber-of-commerce#.XQOWXYj7RaQ	1990-2017
Americans for Prosperity	Economic interventionism	https://votesmart.org/interest-group/310/americans-for-prosperity#.XQOfLoj7RaR	2006-2018
Club for Growth	Economic interventionism	https://votesmart.org/interest-group/1734/the-club-for-growth#.XQOm4Ij7RaQ	2006-2018
Council for a Livable World	Nuclear non-proliferation	https://votesmart.org/interest-group/101/council-for-a-livable-world#.XQOhmIj7RaQ	1989-2015