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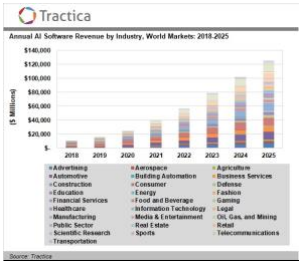
THE IMPACT OF ARTIFICIAL INTELLIGENCE ON SMALL BUSINESSES

By Atticus Lee



Revenue for AI software market over time, broken down by industry. It is projected to reach $126 billion in 2025, a 12.5-fold increase from $10.1 billion in 2018.

Source: Tractica

***Artificial Intelligence** – the capability of a machine to imitate intelligent human behavior.*

INTRODUCTION

When you wake up, you grab your phone and stare at the screen to unlock it using facial recognition. Before getting out of bed, you scroll through Instagram and see an advertisement for trendy running shoes that you can't help but purchase. By now, you will be late for school, so you open Google Maps to find the fastest route. In the car, you ask Siri to call a classmate to save you a seat.

Whether you realize it or not, your entire morning has been shaped by **artificial intelligence**, or "the capability of a machine to imitate intelligent human behavior", according to the Merriam-Webster dictionary. Modern phones have the capability to detect and recognize a specific human face. Social media software uses personal account data to display targeted advertisements. Navigation applications identify changes in traffic flows and can suggest an optimal route. Artificial intelligence (AI) is becoming more prevalent in everyday life, impacting individuals and businesses alike.

Many believe AI will create unprecedented luxury and convenience for consumers while maximizing profitability and efficiency for all businesses. Others fear mass job displacement as AI takes over more tasks previously done by human workers. They also worry that larger businesses may benefit more from such frontier technologies, leading to reduced competition.

Congress must weigh these optimistic and pessimistic views as the AI market continues to grow. Specifically, lawmakers must focus on small businesses when creating a policy framework for AI. Small businesses drive the U.S. economy, creating two out of every three

new jobs and accounting for 44% of national economic activity (Rowinski, 2022). Additionally, many see owning a small business as the hallmark of the American Dream. Thus, it is paramount to protect small businesses while considering AI's impact on the labor market, competition, and production efficiency.

EXPLANATION OF THE ISSUE

Historical Development

***Turing Test**– a test to determine whether a machine can demonstrate intelligent behavior indistinguishable from that of a human.*

While artificial intelligence seems relatively new, its origins trace back to the mid-20th century. In 1950, mathematician Alan Turing published a paper titled "Computing Machinery and Intelligence," in which he asked, "can machines think?" He argued that if humans can use information and reason to solve problems, machines should be able to do so too. The paper proposed the **Turing Test** (or the Imitation Game) to define machine intelligence, creating the framework for AI discussions to come (Turing, 1950).

The term "artificial intelligence" was coined six years later by computer scientist John McCarthy at the Dartmouth Summer Research Project on Artificial Intelligence workshop, the first AI centered event in history. Following the conference, computers and machine learning algorithms advanced at exponential rates, with leading computer scientist Marvin Minsky claiming in 1970 that "from three to eight years we will have a machine with the general intelligence of an average human being" (Anyoha, 2017).

Chess Grandmaster Garry Kasparov defeated by AI program Deep Blue in 1997
Source: The World

Since 1970, AI's capabilities have expanded far beyond what was once considered possible. AI has surpassed human intelligence in many fields. IBM's Deep Blue triumphed over the chess world champion Garry Kasparov in 1997, and Google's AlphaGo defeated the world's best player in the game of go, Lee Sedol, in 2016 (Anyoha, 2017). These victories for AI in such traditional strategy games were symbolic of the rapid improvement of the technology. Today, AI is replacing physical and mental tasks at a growing scale, with many businesses seeking to capitalize on this new technology to increase their productivity.

Since 1970, AI's capabilities have expanded far beyond what was once considered possible.

Big Tech and Large Language Models

In April 2023, Amazon CEO Andy Jassy sent a letter to shareholders stating that the company is "investing heavily" in artificial intelligence technologies (Sundar, 2023). In the same month, Meta CFO Susan Li announced that the company plans on spending $33 billion in 2023 on "ongoing build-out of AI capacity" (Targett, 2023). Other **Big Tech** companies like Microsoft and Alphabet have also invested significant funds into AI (Leswing, 2023).

Big Tech *– an informal term used to describe the largest information technology companies.*

These large corporations focus on many facets of AI with the most prominent being **large language models** (LLM). An LLM is "a deep learning algorithm that can recognize, summarize, translate, predict, and generate text and other content based on knowledge gained from massive datasets" (Lee, 2023). The most well-known application of an LLM today is OpenAI's Chat-GPT, which is used for a myriad of language processing tasks. Tech giants are spending so much on LLMs because they can be used and sold in countless ways. For example, retailers have already begun using **chatbots** and AI assistants to streamline customer service without having to hire a team of professionals. Law firms have also started implementing LLMs to help with legal paraphrasing and scribing that a paralegal would otherwise take care of (Lee, 2023).

Large Language Model *– a deep learning algorithm that can recognize, summarize, translate, predict and generate text and other content based on knowledge gained from massive datasets means.*

The countless uses of LLMs cannot be understated. Leading AI company Nvidia predicts that LLMs are "expected to enable a new wave of research, creativity, and productivity, as they can help to generate complex solutions for the world's toughest problems" (Lee, 2023). The more extensive and comprehensive the dataset is for an LLM, the smarter it becomes. This opens the door for LLMs to perform increasingly difficult tasks, such as developing chemical compounds to create vaccines and treatments (Lee, 2023).

AI Applications for Small Business

Chatbot *– software that mimics human conversation and interacts with users through text or voice messagin*

Big Tech is not the only group that stands to gain from the AI technological revolution. A **small business** is defined by the Small Business Administration as "an independent business having fewer than 500 employees," typically characterized by smaller profit, revenue, and market area ("Frequently Asked Questions" 2016). AI has already allowed many small businesses to overcome resource and operational constraints and seize new opportunities for growth.

Small business *– an independent business having fewer than 500 employees*

Predictive analytics and machine learning algorithms can enhance small businesses' decision-making, aiding demand forecasting, inventory management, and pricing optimization ("How AI Helps Small Businesses"). Since machine learning is powered by data, its utility increases the longer it is implemented in a business. Because small businesses typically have limited time and resources, many have already begun implementing AI to cut costs and increase revenue. The predictive analytics market is expected to grow from $13.5 billion in 2022 to $44.3 billion in 2030, mostly thanks to the rise of AI (GlobeNewswire, 2023).

Given budget and personnel constraints, marketing is often a major challenge for small businesses ("8 Marketing Challenges"). AI offers a relatively affordable solution to this problem by analyzing consumer data to create targeted advertisements. Social media platforms have AI tools that help small businesses analyze audience segments, generate ad content, conduct ad testing, and make improvements in real-time. Over two-thirds of small businesses

reported using social media for marketing ("Small Businesses" 2022).

Small businesses can also take advantage of LLMs owned by larger companies to enhance the consumer experience and increase efficiency. As mentioned earlier, chatbots are helpful for streamlining customer service and are now widely accepted by consumers. 69% of consumers prefer chatbots over human representatives because of their instant responses and 24/7 availability (Zabój, 2022). LLMs can also generate product descriptions, email newsletters, social media captions, and more to reduce staff workload. 97% of business owners surveyed by Forbes anticipated that popular LLM Chat-GPT would help their business (Haan, 2023).

29% of small businesses have already adopted AI to some extent, and 33% plan to implement it in 12-18 months.

AI provides an opportunity to automate menial, repetitive tasks that are unavoidable for most businesses' day-to-day operations. Software can perform tasks like those of a personal assistant, such as scheduling appointments or sending emails. AI hardware automates physical tasks that would otherwise require manual labor through innovations such as self-driving cars and delivery drones. Less industry-specific AI robots include autonomous inventory scanning machines and vacuums (such as the popular "Roomba" cleaner).

Clearpath Robotics' AI-powered autonomous inventory scanning robot. It identifies stored product information such as expiration date and maintenance requirement.
Source: Clearpath Robotics

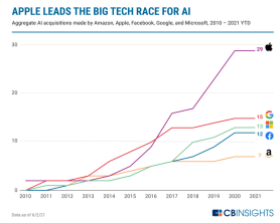
Small businesses are using AI in countless ways, and it would be impossible to list all such technologies here. What is most important, however, is that AI advances at an exponential rate, and its application to businesses will change over time. Still, it is becoming more apparent that AI, in some form, will be a central factor in business going forward. 29% of small businesses have already adopted AI to some extent, and 33% plan to implement it in 12-18 months. Only 12% of small businesses do not anticipate utilizing AI (Samuel, 2023).

Scope of the Problem

Labor productivity *– the measure of economic output per worker or hour. It is the most commonly used measurement of economic productivity.*

Artificial intelligence policy issues are uniquely challenging to tackle because of the complexity of the technology, the scope of its impact, and the speed at which AI is advancing. The modern AI debate is quite abstract and broad, which popular discourse often smoothing over important details. Policymakers must be specific about which AI advancements help versus hurt society instead of talking about AI as a uniform, single technology.

Although the debate is centered around small businesses, the welfare of other affected parties must be taken into consideration. The topic itself is quite extensive, so it is helpful to break down the impacts of AI into a few main categories: productivity growth, market dominance, labor implications, and international competitiveness.



A graph depicting cumulative acquisitions of AI companies by Big Tech companies from 2010-2021.
Source: CB Insights

***Real wages** – wages adjusted for inflation.*

***GDP (Gross Domestic Product)** – the measure of all final goods and services produced in a country within a specified amount of time. It is the leading indicator for economic activity*

***Cognitively intense jobs** – jobs that require high cognitive abilities and are not at risk of being fully displaced by AI or automation*

Productivity

The United States has been experiencing a slowdown in **labor productivity**, which grew 3% annually from 1995-2005 and only 1.4% annually from 2005-2019 (Atkins et al. 2023). Labor productivity is strongly correlated with **real wages** and **GDP** growth and is essential for increasing standards of living. Emerging AI technologies may be a solution to this slowdown, as technological advances have historically contributed to higher productivity growth.

AI can boost productivity in a number of ways. AI can perform mundane tasks more efficiently and accurately, allowing knowledge workers to focus on more complex and higher-value activities. For example, current AI solutions have the potential to automate approximately 40% of the tasks performed by salespeople during the sales process (Ricard 2020). As mentioned earlier, LLMs can be incredibly useful for businesses, increasing productivity in many cases. For instance LLMs are estimated to increase economists' output by 10-20% and call-center operators by 14% (Baily et al. 2023).

AI may also indirectly affect long-term productivity by increasing the efficiency of workers with **cognitively intensive jobs**. These workers, whose jobs require high cognitive abilities and are less easy to automate, also help drive innovation and discovery. AI may be able to amplify the productivity of their work, which could raise future productivity for the larger economy (Baily et al. 2023).

Productivity growth powered by AI will likely not be immediate. Throughout history, revolutionary technologies such as electricity took multiple decades to produce notable productivity growth (Baily et al. 2023). Adopting new technologies requires a significant learning curve for individuals and organizations, and existing infrastructure and systems may not be capable of initially supporting them. Many believe AI falls victim to the same phenomenon, evidenced by the fact that productivity is still low amidst a wave of new AI technologies. Still, many highlight the fact that software can be rolled out uniquely quickly as evidence for a shorter lag in productivity growth. They point out that ChatGPT was able to gain 100 million users in just 2 months – the fastest product launch in history (Baily et al. 2023).

Big Tech Market Dominance

Though AI will likely raise productivity to some degree, it may substantially harm economic competition. The unique capabilities of AI provide a substantial competitive advantage to companies that have access to vast amounts of data and resources. Information is essentially the fuel for AI, which becomes more efficient from more data. Large tech corporations already own most of the fuel in the AI market with their extensive user bases and massive datasets. These companies can continuously improve their AI algorithms by training

them on their data, leading to superior performance and better user experiences (West 2023). It is no surprise then that Big Tech is the driving force for most AI advancements and profits.

Barriers to entry *– factors that can prevent or restrict from entering into a specific market or industry*

Another advantage Big Tech companies have is their monetary resources, which they have used to dominate the AI startup world. Microsoft made headlines in January 2023 by investing $10 billion in OpenAI, but this is hardly the first investment Big Tech has made in AI companies (Bass 2023). Apple, Google, Facebook, and Amazon have been racing with Microsoft to buy equity in or fully acquire promising AI companies. This trend means Big Tech companies will have even more control over the AI market and more data from which to grow their own technological capabilities.

Oligopoly *– a market dominated by a small number of suppliers*

As these corporations gain further market dominance, it will become increasingly difficult for smaller competitors to develop AI capabilities of comparable scale and sophistication. There are many **barriers to entry** for small AI companies, such as data access and computational resources. This is a sign that the AI market may become an **oligopoly**, a market dominated by a small number of suppliers. Oligopolies have little to no competition, oftentimes leading to slowed innovation and increased prices. Lawmakers must decide how to encourage competition and allow small businesses to thrive in the AI market.

Technology will always replace human tasks, but the key question is whether the resulting productivity gains will translate into job creation in other sectors of the economy.

Labor Implications

Andrew Yang ran for president in 2020 claiming that the rise of AI and automation posed a dire threat to the American workforce. His campaign website read: “Technology is quickly displacing a large number of workers, and the pace will only increase as automation and other forms of artificial intelligence become more advanced. ⅓ of American workers will lose their jobs to automation by 2030” (Yang 2020). Yang's introduction of AI labor displacement into mainstream political discourse has shed light on the issue. However, reaching a consensus on the impact of AI on net job numbers remains a challenge. Policymakers must look back to historical technological advancements as well as the current landscape to determine how much of a threat AI poses to the labor market.

Luddites *– textile workers who, often violently, opposed the mechanization of jobs during the Industrial Revolution*

The Industrial Revolution started in 18th-century Great Britain and was characterized by rapid technological advances that significantly increased manufacturing potential. The new machine-heavy factories in urban areas easily outcompeted artisans, whose job was made largely obsolete by a machine. Many artisans lost their jobs, yet net job creation rose dramatically (“Workers in the Industrial Age”). Simply put, this is because the technological and productivity advances expanded business and their demand for labor. The nature of work changed for most people, but no large-scale job loss was experienced. That being said, worker rights were weak following the Industrial Revolution and low factory wages forced

many into poverty ("Workers in the Industrial Age"). Additionally, many artisans refused to transition to dangerous, unfulfilling industrial work, rioting and causing massive social unrest instead. These textile workers, called **Luddites**, became a symbol for labor resistance to disruptive technological change (Andrews 2019). The example of the Industrial Revolution should warn policymakers of the downsides to mechanization of jobs and alleviate fears of widespread job destruction.

Throughout history, revolutionary new technologies have continued to cause net job creation as well as social unrest and unfavorable working conditions. AI, however, may be the exception. Machine learning separates the technological and labor changes of the 21st century from those of the 18th century because of the speed at which it advances. Information grows far faster than the physical infrastructure advancements that were the hallmark of the Industrial Revolution. Thanks to the rapid information growth of the past few decades, modern robotics have capabilities far exceeding what anyone thought possible of machines in the 18th century. Whereas automation once displaced manual, unskilled labor, it now displaces both cognitive and manual labor, with capabilities increasing at a staggering rate. Still, not all jobs will be affected equally, and the specific application of AI could have implications for existing class and racial disparities in the workforce. Today, more jobs are at risk of displacement, and the speed of displacement is higher compared to past technological labor changes (Manyika et al. 2017).

The evidence seems to point in both directions for AI's effect on net job numbers. In considering this issue, it is important to note that job displacement is guaranteed through automation of jobs but job creation is not. Technology will always replace human tasks, but the key question is whether the resulting productivity gains will translate into job creation in other sectors of the economy. Policymakers must grapple with this question and determine the extent to which new jobs will be created from AI productivity growth.

Public-private partnerships *– a long-term collaboration between a government and a private-sector party in which the private-sector party finances a government-endorsed project.*

International Competitiveness

AI policy must take into account international economic factors given that the United States' economic is heavily integrated with the rest of the world. Historically, a country's technological superiority has been a main factor in determining its global dominance. For instance, industrialization caused Britain to surpass Russia in economic and geopolitical strength in the 19th century (Scharre 2023). AI is the modern industrialization, and the countries that promote its development will likely have a stronger standing in the international community.

The United States has long been the global leader in AI technology, but other powerful countries are increasingly prioritizing AI investment. China, a current geopolitical adversary, is catching up

to the U.S. in the AI race, with its government spending billions on research and **public-private partnerships**. In 2017, the Chinese government released their **Next Generation Artificial Intelligence Development Plan**, which outlined how the country would invest in AI and gain global power in the industry (Webster et al. 2017). The United States has no national AI plan or policy framework. In the race for AI dominance, China is furhter advantaged because its authoritarian government is able to collect personal data at a national scale without concern for privacy (Berg 2023).

Although China is making technological and geopolitical progress, the United States is still the clear world superpower. America has incredible influence over the international community and has the ability to set the standard for responsible AI policy (Berg 2023). If Congress is not careful, however, China may surpass the U.S. technologically and dominate the international conversation and regulation of AI.

Congressional Action

Next Generation Artificial Intelligence Development Plan *– China's comprehensive plan to become the global leader in AI technologies.*

Congress has only recently begun taking legislative action on AI. Most major bills passed by Congress on the topic have been focused on national security and the government's own use of AI. For example, the National Artificial Intelligence Initiative Act of 2020 aimed to "ensure continued United States leadership in artificial intelligence research and development" and the AI in Government Act of 2020 sought to "facilitate the adoption of artificial intelligence technologies in the Federal Government" (Pouget and O'Shaughnessy 2023). Both bills were signed into law, as well as a slew of other smaller provisions that focused on AI in the military and government. However, little movement has been made in creating a national framework to deal with AI in the private sector.

H.R. 6580, The Algorithmic Accountability Act of 2022, was the first piece of significant legislation that aimed to regulate AI in the private sector. The bill mandates companies to assess the impacts of automating critical decision-making and requires the FTC to create regulations and guidelines for assessment and reporting, promoting accountability and transparency in automated processes. It has not yet passed in the House ("H.R. 6580" 2022).

The rise of Chat-GPT and other AI technologies in 2023 spurred Congress focus more on how the new technology would impact the non-government parties. Senate Majority Leader Chuck Schumer (D-NY) proposed a broad framework to regulate AI this past April that focuses on four guardrails: Who, Where, How, and Protect. The first three guardrails seek to "inform users, give the government the data needed to properly regulate AI technology, and reduce potential harm," while the Protect guardrail "will focus on aligning these systems with American values and ensuring that AI developers

deliver on their promise to create a better world" ("Schumer Launches Major Effort" 2023). Though the broad proposal does not specifically mention the private sector, it is a significant action that shows Congress' dedication to AI regulation.

In May 2023, OpenAI CEO Sam Altman testified before the Senate warning lawmakers of the dangers of unregulated AI (Kang 2023). Following the testimony, Senator Michael Bennet (D-CO) reintroduced S.4201, The Digital Platform Commission Act, which would create the Federal Digital Platform Commission with the "mandate, jurisdiction, and broad set of tools to develop and enforce thoughtful guardrails" for digital platforms. Bennet called these platforms "a sector that has been left for too long to write its own rules, with serious consequences for everything from teen mental health to disinformation to anticompetitive practices that have hurt small businesses" ("Bennet Introduces Landmark Legislation" 2022). The bill has not yet passed in the Senate.

OpenAI CEO Sam Altman testifying before Congress.
Source: Axios

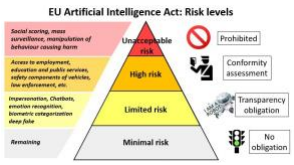
Blueprint for an AI Bill of Rights *– President Joe Biden's overview of his administration's approach to AI.*

Other Policy Action

Congress is not the only branch of government taking steps to address the rise of AI. President Donald Trump issued 2 executive orders (E.O. 13859 and E.O. 13960) focusing on maintaining American leadership in AI and promoting the use of trustworthy AI in the federal government, respectively (Pouget and O'Shaughnessy 2023). President Joe Biden released a **Blueprint for an AI Bill of Rights**, an overview of his administration's approach to AI. The blueprint, a strictly voluntary and non-binding document, details five principles: safe and effective systems, algorithmic discrimination protections, data privacy, notice and explanation, and alternative options. Some experts believe the blueprint needs stronger checks on AI, while others view it as a strong step in the right direction (Firth-Butterfield et al. 2022).

This past May, the National Science Foundation announced $140 million in funding for seven new National Artificial Intelligence Research Institutes. To put this number into perspective, all non-defense government agencies spent $1.7 billion on AI research and development in Fiscal Year 2022.

The European Union has moved faster than the United States in AI policy. EU lawmakers introduced the European AI Act in 2023, which categorizes applications of AI into four risk levels: unacceptable risk, high risk, limited risk and minimal or no risk. The proposed act bans unacceptable risk level AI and with the degree of regulation falling as risk level falls. Experts are split on the act, with some complaining that the regulation is too broad and others calling it a gold standard in regulation for the rest of the world (Browne 2023).



A visual representation of the different risk levels under the EU Artificial Intelligence Act
Source: Telefónica

IDEOLOGICAL VIEWPOINTS

Many social conservatives view AI as a threat to individualism, a core tenant of conservative ideology.

***Arms race** – a competition between nations to achieve dominance in the advancement and stockpiling of weaponry.*

In order for AI to effectively assist small businesses, it is crucial that employers possess the knowledge and skills required to implement AI technology and that employees are equipped with the necessary abilities to complement its use.

The debate on artificial intelligence is relatively nonpartisan, as the topic is new, and its implications are unclear. Liberals and conservatives agree that AI is an incredibly useful technology that must be regulated to some extent. Still, there are important differences between the two ideological viewpoints on the role of AI in society and how it ought to be regulated.

Conservative View

AI is an issue that splits conservatives along many ideological lines. Many social conservatives view AI as a threat to individualism, a core tenant of conservative ideology. They believe individual data and privacy are at risk and fear the power AI can have over people. Many conservatives are worried that AI systems like Chat-GPT are politically biased against them and would indoctrinate the people into liberal ideology. To them, AI appears to threaten free speech. These people who are less favorable toward AI adoption tend to prioritize the social aspects of conservatism.

Conservatives motivated by economic ideology generally support less intervention from the federal government and thus may oppose larger regulations on AI. Regulations, according to conservatives, are a burden on private companies and disincentivize innovation and growth. Economic conservatives thus favor a more market-based approach to AI, supporting measures that incentivize research and development and entrepreneurship. The best way to support competition and small businesses, as they see it, is minimal government intervention. Still, some believe AI will cause mass job displacement and are wary of the technology's implementation.

A large majority of conservatives see China as the number one threat to America (Younis 2023). They see the development of AI as an **arms race** of sorts where the country with the best technology wins economic and political domination over the other. Thus, they support government action that supports AI development and discourage regulation that decreases America's international competitiveness.

Liberal View

Liberals often advocate for strong regulation in the economy to protect consumers and competition. Thus, they are likely to support larger regulatory measures than most conservatives. As signaled by President Biden's Blueprint for an AI Bill of Rights, liberals are likely to support rules that prioritize civil rights and equity. Many fear that AI is biased and inaccurately identifies minorities, as evidenced by racial discrimination in facial recognition technologies (Najibi 2020). Additionally, liberals are concerned with individuals and

communities having equitable access to emerging technologies and are likely to support initiatives that address disparities in AI adoption and deployment. Liberals are also inclined to back regulations that limit misinformation disseminated by AI.

Antitrust laws *– regulations put in place by governments to promote fair competition. It is up to the courts to decide whether a company violated these laws.*

Liberals are very worried about the market for AI becoming an oligopoly. Generally, they oppose large companies gaining more market power and are in favor of **antitrust laws** that would break apart dominant companies. Although liberals support private enterprise, they believe AI oligopolization must be stopped via federal intervention because it poses too many risks for society. Specifically, they believe oligopolies will raise prices, lower wages, and hurt small businesses.

Liberals are very worried about the market for AI becoming an oligopoly.

Like many conservatives, liberals are also cautious about AI's effect on job displacement. Liberals, however, may support more federal education and vocational training initiatives that would help workers transition to an AI-centered economy.

AREAS OF DEBATE

Though most policy proposals about artificial intelligence focus on jobs or national security, many actively debated proposals center around small businesses and competition. The Senate Small Business and Entrepreneurship Committee must prioritize discussing AI's impact on small businesses while considering other economic, social, and political factors. It is imperative to view this issue holistically, as small businesses are just one of the many groups impacted by AI.

Financial Support for Artificial Intelligence Implementation

Subsidy *– funds given to a business or industry by a government to lower the cost of a good or service.*

Tax credit *– a reduction in a taxpayer's final tax bill as a reward for certain behavior or practices.*

Public grant *– public funds given to a single party for a specified purpose.*

Artificial intelligence has clear benefits for small businesses (see the "AI Applications for Small Businesses" section under Historical Development). One solution to maximize these benefits for as many small businesses as possible is through federal financial support for AI implementation. This could come in many forms, such as **subsidies**, **tax credits**, or **grants** for specific business-facing AI technologies. The key difference among these forms of incentivization is their level of targeting. Subsidies are funds given to companies and industries by the government to make their products cheaper. Subsidies may target specific businesses or could instead lower the price of AI systems for all. Tax credits decrease the total taxes paid to the government as a reward for certain actions, such as AI business implementation. They can be designed to incentivize specific behavior, such as chatbot implementation, for a specified group, such as businesses with under $10 million annual revenue. Government grants are funds given to individual businesses for a

specific purpose, typically after an application process. The **Small Business Administration** can target specific businesses that could benefit from AI the most and determine how the grant money is spent.

Proponents of financial incentives for AI implementation believe it could help level the playing field for small and large companies competing against each other as both have access to new groundbreaking technologies. Furthermore, increased AI implementation can have ripple effects for the rest of the economy. The rise of productivity may lead to higher economic output, wages, and standards of living. Starting a new business is an extremely difficult and complex process, but decreased costs for AI can make entrepreneurship easier and more accessible. Despite agreement on the need to make AI cheaper, proponents disagree on the best form of incentives. Those in favor of subsidies argue that AI should be cheaper for all companies to stimulate productivity growth, and those against claim this unfairly advantages larger corporations. Supporters of grants believe the government should only invest in companies that would benefit the most from AI, rather than dole out funds to help all businesses. Those against grants argue the application process is a slow, resource draining process for both business and government, limiting the positive impact of allocated funds. Proponents of tax credits argue that they can target specific positive actions while minimizing bureaucracy. On the other side, many believe tax credits neither stimulate enough economic activity nor assess the needs of individual companies.

Financial support for AI implementation can be opposed for several reasons. Firstly, subsidies, tax credits, and grants can create a dependency on government support, potentially discouraging companies from investing in AI without such incentives. Moreover, businesses may prioritize projects or technologies that are eligible for subsidies rather than those with the highest long-term value or potential. Secondly, these incentives can cause overinvestment and inefficiency as businesses adopt AI simply to access financial incentives. Finally, many do not see AI development as the best use of government spending but rather see money invested in the military, education, or healthcare. These opponents of this solution believe AI is not as beneficial to society as many think. A large amount of these people point to potential labor displacement as a reason not to incentivize further AI implementation.

Small Business Administration – *an independent federal agency in charge of supporting small businesses and entrepreneurs. The Senate Small Business and Entrepreneurship Committee has jurisdiction over the SBA.*

Political Perspectives on this Solution

Conservatives are usually opposed to market interventions, claiming they cause inefficiency and hurt competition. They are against creating dependency on government support and believe the private sector operates best with minimal government interference. Conservatives also believe in limited government spending and are

generally against most increases in non-military spending. On the other hand, some pro-business conservatives may support these initiatives as they encourage practices that help businesses grow and become more productive. Conservatives who prioritize national security would also favor this solution since more AI implementation could push the U.S. further ahead of China in the race for AI supremacy.

Liberals would likely support financial support for AI implementation targeted at small businesses only. They are normally against subsidies, tax credits, and grants for larger corporations as they fear companies gaining too much market power. Liberals are in favor of government intervention to preserve competition and are more comfortable than conservatives with increased government spending. They might favor financial support targeted toward businesses owned by marginalized groups, such as women or people of color, to promote equity goals. Some left-wing liberals oppose funding for business development in general, arguing that there are more important issues to spend money on, such as housing and poverty.

After all, if AI can perform all tasks better than a low-skilled worker, what employer wouldn't choose the technology over the human?

Education and Training Initiatives

For AI to effectively assist small businesses, it is crucial that employers possess the knowledge and skills required to implement AI technology and that employees are equipped with the necessary abilities to complement its use. A solution to prepare business owners and the workforce for the rise of AI is federal investment in education and training initiatives. Such initiatives can take many forms, such as a voluntary Small Business Administration program that helps businesses find ways to optimize using AI. The SBA can also pay for worker training to adjust to newly implemented AI systems. The government can also fund upskilling and retraining programs for workers whose jobs are replaced by AI to help soften the transition into a new age of work. Policymakers may also look into education reform for high school and college students to equip them with the skills necessary to work with AI. These ideas seek to help small businesses hire competent workers that can help the business grow alongside AI technologies.

Proponents of these initiatives believe the government must help businesses and workers adjust to this period of extraordinary technological change. If no action is taken, they believe small businesses and their employees will be left behind, unable to implement AI effectively. Although education and training programs would be costly, proponents believe the investment will pay off since small businesses will grow faster, creating more jobs and paying more taxes. Many suggest that these measures are essential to protecting workers, who they fear are at high risk of becoming obsolete in the economy. After all, if AI can perform all tasks better

than a low-skilled worker, what employer wouldn't choose the technology over the human? Thus, proponents argue that education and training initiatives are a win-win for small businesses and the workforce.

Opponents of education and training investment do not think the benefits of the programs outweigh the costs. They argue that retraining is expensive and ineffective, especially for older and low-skill workers. These people believe it is unrealistic for many workers to start a completely new occupation in a short period of time. They might argue that if the government spends taxpayer's dollars on a program, it must yield positive results, which are not guaranteed for many retraining programs. Furthermore, opponents argue that AI is advancing at such a rapid and unpredictable rate that education initiatives will never accurately predict the necessary labor skills of the future. If a worker is trained for a job that may be replaced by AI in 10 years, it is a failed investment. Thus, they believe the government should not bet on a certain future because AI makes the labor market highly unpredictable.

Negative externality *– a term in economics used to describe when the production or consumption of a good has a negative effect on a third party.*

Political Perspectives on this Solution

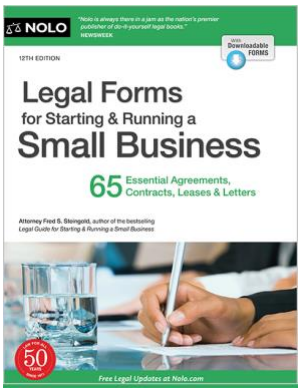
Many conservatives support individual level upskilling and self-directed educational acquisition that is privately attained. They however, may be opposed to large-scale public training programs, which they see as inefficient and sub-par compared to private education programs. Most conservatives who oppose such initiatives believe in lower government spending, pointing to the high price tag for many of these proposals. They argue that such spending will likely be financed by higher taxes, which stunt small business growth and slow the economy. Conservatives strongly support individual responsibility and believe individuals should seek out and pay for their own education. It is not the responsibility of the taxpayer to pay for other people's training, especially for those taxpayers who choose not to participate in such programs. Ultimately, conservatives see this solution as ineffective, expensive, and unfair.

Retraining programs are a popular solution for preparing the workforce for work in the age of AI.
Source: RAND

Liberals, on the other hand, see education and training spending as necessary to support workers during this time of change in the labor market. While they acknowledge the high cost and potential ineffectiveness for some workers, they stress that not educating the workforce has far greater consequences. Liberals would note that without proper training, many workers will be left unemployed while those with better education thrive. Besides causing higher unemployment, this would increase inequality or widen racial disparities, both major issues for liberals. That being said, some may oppose education programs that advise small business on AI adoption, arguing that it accelerates job displacement and unfairly prioritizes business owners over workers.

Regulation Reform

The federal government does not currently have a regulatory framework for AI in the private sector. With China and the EU already crafting plans to assess and control the impact of AI, the United States is falling behind. Regulation is important for sectors of the economy, as it establishes rules, standards, and guidelines to protect the public interest. AI must be regulated to some extent, given how important is becoming in the economy. There are several regulatory frameworks Congress could adopt: for example, regulations can require AI systems to disclose the data used and algorithms employed in their decision-making processes to highlight potential biases and flaws in the system. They can also require private human oversight over certain AI technologies to help guide ethical considerations. Regulations might also standardize the interfacing and implementation of AI systems to facilitate compatibility, allowing different AI systems to work together effectively and potentially promoting competition among providers. There are many purposes for regulating AI, such as minimizing **negative externalities**, preventing discrimination, protecting individual rights, and promoting competition. Congress can also delegate the role of crafting specific regulations to a federal agency so long as lawmakers provide the agency with a general framework of regulatory priorities.



A book meant to familiarize small businesses with regulations required to run a company.

Source: Nolo

People support strong AI regulation for several reasons. Firstly, they believe regulations can effectively identify technologies harmful to society and minimize their impact or ban them altogether. Secondly, federal oversight on emerging technologies may ensure they are developed and deployed safely and ethically, reducing the risk of dangerous or malicious AI use. Thirdly, many argue that strong regulation of large AI companies can prevent them from gaining too much market power and allow smaller companies to compete.

Those who oppose this solution believe in regulation, albeit smaller or delegated to AI companies themselves. Opponents of strong regulation claim it will slow AI innovation and implementation, which would decrease economic growth and international competitiveness. They argue that regulation should be kept to a minimum to encourage entrepreneurship and research and development in AI. Additionally, many fear that regulations cannot keep up with the rapidly evolving technology and thus will become outdated quickly. These people prefer AI companies to self-regulate because they understand the technology and its trajectory far better than the government.

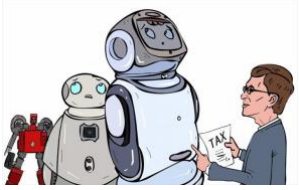
Political Perspectives on this Solution

As mentioned earlier, conservatives are split on the regulation of AI. Many favor lower regulations to facilitate faster implementation of AI and higher productivity growth. They argue that lower regulations would create jobs and grow all businesses, including small ones. These people are also more concerned about maintaining America's lead over China technologically and geopolitically. Other conservatives, however, have called for strong regulation in the name of individualism. They see uncontrolled AI as an existential threat to individual rights and free speech, which they prioritize over their free-market or anti-China views. These conservatives will likely advocate for regulations protecting privacy and preventing censorship.

Most liberals favor sweeping regulations on AI, and are more likely than conservatives to support regulations that protect equity and prevent misinformation.

Most liberals favor sweeping regulations on AI and are more likely than conservatives to support regulations that protect equity and prevent misinformation. They are also more in favor of reining in large AI corporations to preserve competition. Specifically, many liberals want to strengthen antitrust laws by evaluating data as a competitive advantage and being stricter on mergers and acquisitions. Liberals mostly deny that AI has an anti-conservative bias and are in favor of rules that many conservatives view as censorship, such as banning hate speech on LLMs.

Robot Tax



The question of how to define a robot is a significant obstacle to implementing a robot tax.
Source: Beijing Review

As the debate on AI job displacement has become more mainstream, some have argued that the pace of implementation must be slowed to protect American workers. Since the future capabilities of AI are unknown, it is difficult to guarantee that any one job is safe from being replaced by a robot. Many have backed the idea of a 'robot tax', which is a tax on AI implementation, or the business revenue generated by AI. The idea is to slow the transition into an AI-centered economy while generating revenue that can support displaced workers.

Those in favor of a robot tax believe the rise in AI should benefit everyone, even at the cost of slower innovation and implementation. Proponents of the tax argue that it would incentivize businesses to invest in human workers over robots. This may prevent widespread job losses that would devastate millions and lead to massive social unrest much larger than that of the Luddites. They believe the tax would also reduce wealth inequality because larger tech companies would pay the government a share of their profits to fund various progressive social programs.

Opponents of a robot tax argue along the same lines as those who oppose strong AI regulations. Namely, the tax could hurt economic growth, entrepreneurship, and international competitiveness. Additionally, those who oppose a robot tax raise concerns over how

a robot will be defined, fearing that robots that create jobs will be treated the same as those that replace them. The struggle to remove ambiguity in definitions and implementations may cause more inefficiency, result in fewer jobs, and increase administrative burdens for companies and the government.

Political Perspectives on this Solution

Conservatives are yet again split on this topic. Like the regulation debate, free-market and anti-China conservatives oppose the tax because it may decrease business growth and productivity while allowing China to catch up to the U.S. Conservatives who are worried about large-scale job loss tend to support the tax, mostly because of its effect on workers, not revenue. It is worth noting, however, that more conservatives oppose than support a robot tax.

Liberals generally support a robot tax as a measure to protect jobs and reduce inequality. They point out that wealthy tech companies will benefit the most from this emerging technology, and taxation is an effective way to share those benefits with the rest of society. Like some conservatives, many liberals support the tax out of fear of widespread job loss, but those who are not as concerned still back the proposal because of the revenue it would generate. These people would likely want the revenue to invest in programs that help the poor so that they, too, can feel the positive effects of AI-driven productivity growth.

BUDGETARY CONSIDERATIONS

Policymakers must consider the budgetary implications of any solutions they propose. For the topic of artificial intelligence, it is important to consider that short-term costs and revenue gains do not reflect the long-term. For example, if the government spends $100 on a program that raises productivity, thus increasing tax revenue by $100 down the road, the long-term budgetary cost is essentially zero. This is, of course, an oversimplification meant to demonstrate how current policies may affect growth and revenue in the future. This cost-benefit analysis framework is essential to debating a technology that profoundly affects the economy.

CONCLUSION

Artificial intelligence is already an important part of American life and is set to fundamentally change consumption, work, and business as we know it. But will the rise of AI lead to a period of prosperity for all? Or will large portions of the population lose their jobs while large corporations dominate their competition?

Technological change will always bring about societal change, and it is up to elected representatives to ensure the nation thrives throughout this process. This is no easy task. Congress must balance the tradeoffs between regulation and innovation, international competitiveness and job displacement, and federal control and individual autonomy. There is a silver lining, however. Since AI is a new topic, partisan lines have not yet been drawn, presenting a rare opportunity for Republicans and Democrats to find significant common ground. As lawmakers, you must seize on this opportunity, working across the aisle to craft legislation that will affect the lives of millions for decades to come.

It cannot be emphasized enough how important coming to a consensus on this topic is. AI may perhaps be the most important policy issue of lifetimes, yet our country has no plan. In committee, you must work together, compromise, and pass legislation that lays the groundwork for future US and international AI policy. In doing so, you will address a pressing issue and develop a deeper understanding of the technology that will shape the rest of our lives. Maybe then, unlocking your phone with face ID won't feel like such an insignificant action.

GUIDE TO FURTHER RESEARCH

Artificial intelligence is getting a lot of buzz in the news lately. This is good news for you as you continue to research this subject but remember to check your sources' credibility and potential bias. It is also important to check when your sources were written, given that older sources may be outdated in the rapidly evolving discussion on AI. This briefing contains information mostly from 2023, thought even some of that content may be less relevant by the time the conference rolls around. Thus, it is highly advisable to conduct your own research on the topic, as well as your Senator's public position.

This briefing is also limited in content. I recommend diving deeper into AI and machine learning mechanisms, which is not fully included in the briefing as that would occupy dozens of pages. Additionally, it would be helpful to research specific AI technologies that are relevant to small businesses and how they are being supported by the government now. Finally, I recommend looking into more AI legislation that was not mentioned in this briefing. That may inspire policy proposals that you can introduce in committee. Good luck with research! I know this is a complex topic, but the debate will be incredibly exciting. I look forward to seeing you all in committee!

GLOSSARY

Artificial Intelligence – the capability of a machine to imitate intelligent human behavior.

Turing Test – a test to determine whether a machine can demonstrate intelligent behavior indistinguishable from that of a human.

information technology companies.

Large Language Model – a deep learning algorithm that can recognize, summarize, translate, predict and generate text and other content based on knowledge gained from massive datasets means.

Chatbot – software that mimics human conversation and interacts with users through text or voice messaging.

Small business – an independent business having fewer than 500 employees.

Labor productivity – the measure of economic output per worker or hour. It is the most commonly used measurement of economic productivity.

Real wages – wages adjusted for inflation.

GDP (Gross Domestic Product) – the measure of all final goods and services produced in a country within a specified amount of time. It is the leading indicator for economic activity.

Cognitively intense jobs – jobs that require high cognitive abilities and are not at risk of being fully displaced by AI or automation.

Barriers to entry – factors that can prevent or restrict from entering into a specific market or industry.

Oligopoly – a market dominated by a small number of suppliers.

Luddites – textile workers who, often violently, opposed the mechanization of jobs during the Industrial Revolution.

Public-private partnerships – a long-term collaboration between a government and a private-sector party in which the private-sector party finances a government-endorsed project.

Next Generation Artificial Intelligence Development Plan – China's comprehensive plan to become the global leader in AI technologies.

Blueprint for an AI Bill of Rights – President Joe Biden's overview of his administration's approach to AI.

Arms race – a competition between nations to achieve dominance in the advancement and stockpiling of weaponry.

Antitrust laws – regulations put in place by governments to promote fair competition. It is up to the courts to decide whether a company violated these laws.

Subsidy – funds given to a business or industry by a government to lower the cost of a good or service.

Tax credit – a reduction in a taxpayer's final tax bill as a reward for certain behavior or practices.

Public grant – public funds given to a single party for a specified purpose.

Small Business Administration – an independent federal agency in charge of supporting small businesses and entrepreneurs. The Senate Small Business and Entrepreneurship Committee has jurisdiction over the SBA.

Negative externality – a term in economics used to describe when the production or consumption of a good has a negative effect on a third party.

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