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An Initial Overview of Artificial Intelligence as Perceived by Small Businesses in Connecticut

BRIEFING

From the Connecticut Academy of Science and Engineering

This briefing was initiated by the Connecticut Academy of Science and Engineering, Inc. (CASE), at the request of the Joint General Law Committee of the Connecticut General Assembly. The purpose of the briefing is to provide an initial overview of artificial intelligence (AI) as perceived by small businesses in Connecticut.

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CASE interviewed fifteen small businesses across a variety of sectors to understand their use and interest in AI. The interviews explored the participants' definition of AI, the companies' use of AI, the benefits and challenges associated with AI, their company's governance of AI, and any insight into State policies and regulations.

The interviewees had a shared understanding that AI is a tool for processing information, generating content, automating tasks, and improving efficiency. All the companies interviewed recognize AI's potential, but their approach to using it varies based on the company's needs, security concerns, and organizational readiness. The primary use includes drafting documents, performing research, improving business automation, and reducing manual labor. Some companies were more interested in customer-facing AI applications while other companies were focused on internal process optimization.

Many of the companies stated that the benefits of AI include improved efficiency, reduced time spent on repetitive tasks, and potential cost savings. One common theme in the interviews was that AI tools do not eliminate the need for human oversight and critical thinking. Companies consistently shared that AI challenges included ensuring accuracy and reliability, protecting data security and privacy, the need for human oversight, and the keeping pace of the rapid rate of AI innovation. Most companies currently lack formal policies governing AI use and adoption; the companies recognize that written policies will be important.

Companies agree on the need for AI education and funding support from the State. They differ on how much regulation is necessary. Some advocate for clear AI policies while others prefer a hands-off approach. The overriding concern of companies were AI risks and data security. Companies suggested a range of education programs to support adoption. The concern about AI risks and security was prevalent. Many companies advocated for financial assistance to help small businesses adopt AI tools.

An Initial Overview of Artificial Intelligence as Perceived by Small Businesses in Connecticut

CASE's research focused on the use and interest in AI by Connecticut small businesses. The research included interviews with fifteen small businesses across a variety of sectors. The businesses all had less than 100 employees, except for one firm in a field in which it was important to get more comprehensive insight. The representative(s) of each business was interviewed in a virtual meeting. Meeting participants were advised that responses would be aggregated and not reported individually. See Appendix A for the final core questions that guided the interviews.

CASE appreciates the opportunity provided by the Joint General Law Committee to submit this CASE Briefing and the time of all those that met with CASE and participated in the interviews. Many of the interviewees confirmed their willingness to be acknowledged, but due to the small numbers and for those requesting confidentiality, CASE opted not to name any business, industry, or nonprofit in this briefing. While all comments were considered, CASE's Governing Council is responsible for the content of this briefing document. Special thanks to David Pines, Professor, College of Engineering, Technology, and Architecture at the University of Hartford, for his involvement throughout the research process and to INQ Creative for preparing this document for publication.

As access and use of AI tools become more pervasive, additional research will be needed to inform public policies. **The Committee should be cautious as it considers the information contained in this briefing, as the sample size was small.**

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DEFINITION OF ARTIFICIAL INTELLIGENCE

Given the broad range of perceptions of “Artificial Intelligence,” company representatives were asked to provide their definition at the beginning of the interview. This provided the research team with a better understanding of how each company viewed their internal AI governance, use and potential use of AI, the benefits and challenges, AI training required, and need for State policies and regulations. In general, there is a shared understanding that AI is a tool for processing information, generating content, automating tasks, and improving efficiency. Differences centered around their industry focus with some taking a more technical approach where they highlighted machine learning and predictive capabilities, while others focused on AI’s practical applications in everyday work, especially due to recent generative AI tools.

The AI definitions provided fell into one or more of the following categories:

- **Data Processing and Analysis:** AI is a tool for handling large data sets, extracting insights, making sense of complex information, and is recognized for its ability to automate data-heavy tasks such as content aggregation, business processes, or technical analysis.
- **Generative Capabilities:** AI can create new content, whether it be text, designs, or other outputs based on given input, generate predictions, and simulate human reasoning.
- **Automation and Productivity:** AI was identified for its role in automating repetitive or manual tasks to increase efficiency, expedite work, and streamline processes in business and everyday life.
- **Language and Conversational Models:** AI was defined in the context of language models, conversational tools, chat-based interfaces, and is seen as a system that interacts naturally with users.

USE OF AI

All companies interviewed recognize AI’s potential, but their approach varies based on the company’s needs, security concerns, and organizational readiness. Most companies are in the early adoption stage and are cautiously using AI and awaiting further development before considering full integration. However, one company stated that they have been using AI for years in the development of advanced testing tools for cybersecurity protection.

In general, the primary uses of AI include drafting documents, summarizing recorded meetings, performing literature searches, improving business automation, and reducing manual labor. One difference noted is that some companies were primarily interested in customer-facing AI applications such as marketing, advertising, and customer service while other companies were focused on internal process optimization such as human resources, enterprise resource planning (ERP) systems, and document management. Consistently companies commented that human intervention is still needed for

refining content and that there is a need to balance AI efficiency with human judgement.

There were examples of more innovative or cutting-edge AI applications. These include:

- A nonprofit collaborating with design and production studios to develop immersive experiences for visitors. The plan is for on-site or remote access to the virtual experience which allows users to build their own experiences within the context of the organization's storytelling. It is expected that the project will be completed in about 2 years.
- A service company will utilize an AI-enhanced training platform that provides technicians with individualized training.

Companies are also exploring a wider range of AI applications. These include:

- Creating social media posts and personalized communication for clients and members
- Using AI for tracking product aging and reordering needs across retail locations to help to manage inventory and reduce waste
- Analyzing market trends, mining data to inform decision-making insights, and customer profiling
- Updating employee handbooks and training manuals
- Creating code for programming applications
- Optimizing manufacturing processes and analyzing large data sets for technical information
- Identifying profitable customers and industries

Companies also expressed that there were mixed experiences in using AI. For example, a research company found that AI can be helpful in reviewing large solicitation documents so that they can better understand what is needed in the proposal, but AI is not helpful on the technical side as their staff are experts in their niche research area.

The primary concern on adopting AI productivity tools are credibility and security. This is especially a concern for highly regulated industries such as aerospace and defense.

AI BENEFITS

Many of the companies stated that the benefits of AI include improved efficiency, reduced time spent on repetitive tasks, and cost savings. The extent and scope of these benefits vary widely amongst the companies with some having implemented AI tools that have resulted in improvements in efficiency while others viewing it as “AI’s potential.” There was also another group of companies that have a more cautious view where more measurement is needed to evaluate how increases in efficiency in one area may be offset by additional resources needed in the review or validation process. Throughout all the interviews, one common theme was that AI tools do not eliminate the need for human oversight and critical thinking.

The benefits of AI were consistent with the most widely used AI applications. These include reviewing and summarizing large documents, managing workload such as email communications, assisting with writing tasks, and writing computer code. Potential AI applications included a broader range of opportunities such as efficiency improvements, streamlining processes, enhanced data management / analysis, improved decision making/resource allocation. Specific examples included:

- Increased productivity in the areas of sales, finance, and data entry
- Pharmaceutical research lab automation
- Analysis of large data sets (across multiple industries)
- Optimizing manufacturing processes and automating tasks that increase productivity and quality
- Improve sales insight and analyze competitive information more efficiently with fewer resources

Several companies were in the process of weighing the potential benefits of AI with their shortcomings. For example, a research company was uncertain about the use of AI for support in proposal writing versus starting with an existing proposal given that AI-generated results can be unpredictable. The company was also exploring the use of AI to evaluate their proposals but were hesitant due to the evolving nature of the technology and potential risks.

AI CHALLENGES

Companies consistently shared that AI challenges included ensuring accuracy and reliability, protecting data security and privacy, need for human oversight, and the rapid rate of AI innovation. Some companies are uncertain if the return on AI investment will offset the cost of addressing these issues. Below are examples of the companies’ concerns in each of these areas.

Accuracy and Reliability

Over half of the companies identified concerns such as:

- AI creating content based on information that is not factual and without referencing where the information is taken from

- AI content needs to be verified
- AI-generated results can be unpredictable or wrong
- Understanding what tools to trust for reliable output
- Ensuring AI creates reliable responses (that is, no hallucinations)
- Lack of trust in AI results

Security and Privacy

Sixty percent of the companies identified the following security and privacy concerns:

- Potential loss of control over company's proprietary data
- Security concerns and the need for regulation
- AI could exacerbate scams and phishing attempts
- Need for clear policies and standards to ensure compliance and protect sensitive data
- Difficulty of data privacy and AI governance
- Managing intellectual property (IP) protection and maintaining control over sensitive information, especially in the context of government contracts and OEM IP
- Most significant challenge is ensuring the confidentiality and security of client data

Rate of AI Innovation

The following are challenges faced by small companies given the rapid and evolving nature of AI:

- Difficulty staying updated on new technologies related to AI to make informed decisions
- Exploring the use of AI to evaluate their proposals, but hesitant due to the evolving nature of the technology and the potential risks
- Need to be able to adapt to the changing landscape
- Hard to know how to implement AI given its evolving nature

Human Resources and Oversight

To address the above challenges, companies stated that they would need to invest in human resources for planning, implementation, and oversight. This leads to uncertainty about the return on investment given the level of human interaction required. Examples of responses include:

- Importance of human supervision and critical thinking given the complexities of data privacy and AI governance
- Monitoring for potential misuse of AI, such as misinformation and manipulation
- Ensuring the tool is used with proper training and evaluation
- Preparing the data so that it can be analyzed by AI, including good definition of both input parameters and output results
- More measurement is needed to fully understand the benefits and drawbacks of AI

Cost of AI Customized Software and Security Tools

Several companies also indicated that the cost and hosting of AI customized software, including ensuring proper firewalls are in place to protect information, are barriers in the adoption of AI tools. One company stated their concern that AI software companies were selling tools that were no more than putting a layer between a generative AI software like ChatGPT and the user. In these cases, it may not be worth the cost, and it is difficult for companies to assess the value being provided.

Company Specific Challenges

There were several concerns identified that did not fall under the above categories. They include:

- That employees will rely too heavily on AI, potentially leading to a loss of personal voice in communication and creating a “tone” that does not represent the company’s desired image
- That there is a potential for AI to generate more data than can effectively be utilized

Most companies lack formal AI policies but recognize their growing importance. Two companies have AI policies in place and took different approaches. One company extended their governance structure in evaluating software platforms to include AI while the other company introduced an AI policy that covers AI training and adoption of new AI tools. Both companies expect that their company's policies will be refined over time. A company that currently does not have an AI policy is planning to follow the NIST AI Risk Management Framework. However, most companies that recognized the growing importance of having a written policy did not have any plans at this point in adopting a written policy. One company representative suggested that it is important for Connecticut organizations to promote AI best practices and industry standards. Another company stated that their business is clear in its mission so there was no urgency in having a specific AI policy. On the other side of the spectrum, a company stated that they were not concerned at this point because of their small size.

STATE POLICIES/REGULATIONS

Companies agree on the need for AI education and funding support, but they differ on how much regulation is necessary and how the state should be involved. Some advocate for clear AI governance, while others prefer a hands-off approach to encourage innovation. Within this spectrum of under/over regulation, the overriding concerns were AI risks and data security.

AI Education and Funding

A range of education programs were suggested to support the integration of AI in small businesses and for employee training. Examples included:

- Create content around the practical applications of AI in various industries
- Inspire companies to think about the uses of AI within their business by providing a high-level overview of applications

Company representatives provided a range of educational formats. Many stated that Connecticut should take the lead while others suggested industry-centered collaboration would be beneficial. State-sponsored and funded programs included:

- Training programs to enhance employees AI skills which would include responsible uses
- Support programs that inform small businesses of the best practices for integrating AI into their operations
- Apprenticeship programs to train and develop the workforce in using AI
- Website providing options and guidance on AI usage

AI Policy Guidelines and Frameworks

The concern about AI risks and security was prevalent amongst the companies interviewed. A sample of comments included:

- Establish rules to minimize the risk to the public
- Need for clear policies and standards to ensure compliance and protection of sensitive data
- Concern about the potential of AI to mimic human behavior in deceptive ways
- Guidelines for ensuring that proprietary information is not shared

One company noted that these concerns are already addressed in many sectors such as healthcare and that there should be “carve-outs” to prevent overlaps between existing confidentiality and data security requirements and AI regulations. Furthermore, this could lead to conflicting regulations.

It is also important to note that two companies did recognize the challenge in the need to control and minimize risk while still allowing enough space for innovations without too many restrictions or roadblocks. Also, there was a general concern about having additional policy hoops to get through which can be especially challenging for small businesses.

Another common theme was the need for AI transparency and content labeling. These included creating stringent copyright laws, regulations around flagging content as AI-generated, and having a two-level system where you distinguish between AI being used in the development of content to those that are entirely AI-generated.

Some respondents indicated concern that AI regulations will differ from state-to-state with the potential that these state standards will contradict future national standards. One company expressed a desire for the state to adopt the NIST Risk Management Framework, which would help focus efforts in a reasonable direction.

Funding Support for Small Businesses

Many companies advocated for financial assistance to help small businesses adopt AI tools. Suggestions included offsetting costs, providing grants, and offering funding for AI automation through the Manufacturing Innovation Fund. In general, one company noted that there is a need for the state to be proactive in anticipating industry demands.



APPENDICES

Small Business Artificial Intelligence Skills: Core Interview Questions

Thank you for your willingness to participate in an interview as part of a project Connecticut Academy of Science and Engineering (CASE; www.ctcase.org) is conducting related to interest in or use of Artificial Intelligence by Small Businesses in Connecticut. The information you provide to us will be reported in aggregate and individual company responses will be kept anonymous.

The purpose of the interview is to provide policymakers with a better understanding for the challenges and opportunities small Connecticut businesses (<100 employees) are facing as they become exposed to, begin investing in, and/or use artificial intelligence tools in the conduct of their business.

The interview will take place via Zoom and is expected to require one hour. Meeting summary notes and/or transcripts will be available following the interview to provide you with the opportunity to review and edit your responses within days of the interview.

Please note that we plan to interview 15-20 small businesses in Connecticut. We expect to complete the interviews by Dec. 30, 2024, and then will prepare and deliver the briefing document in January.

If you have questions about this project, please contact Jeff Orszak, CASE, jorszak@ctcase.org.

Thank you.

Question 1. What is the nature of your business and ~ how many employees do you have?

Question 2. Name 2-3 ways your business is or may benefit from using artificial intelligence.

Question 3. Rate your use of artificial intelligence for your business's internal functions. <response scale: 1=fully use; 2=moderately use; 3=some use; 4=exploring use; 5=not using or exploring use>

Question 4. Rate your use of artificial intelligence for your business's interactions with other parties (i.e., customers, suppliers, contractors, regulators, etc.). <response scale: 1=fully use; 2=moderately use; 3=some use; 4=exploring use; 5=not using or exploring use>

Question 5. What major concerns do you have about the use of artificial intelligence for your business? What help would you need to address these concerns?

Question 6. What are the challenges for your business of using artificial intelligence and what do you need to be able to use, or to increase use?

Question 7. Talk about the skills/training your business is doing or planning for non-technical employees who are using artificial intelligence. Of these skills, which are the highest priority.

Question 8. Talk about the skills/training your business is doing or planning for technical employees who are using artificial intelligence. Of these skills, which are the highest priority.

Question 9. Talk about the major functional areas of your business that would be the focus of training for your employees.

Question 10. Which areas of your business/organization are you currently hiring staff with artificial intelligence skills? In the next 2 years? 3-5 years?

Question 11. Talk about the approaches used, or planned to be used, to train staff.

Question 12. Have you received external funding to assist you with training to implement artificial intelligence in your business? If so, from what source?

Question 13. If possible, estimate the impact of artificial intelligence on your workforce today? In 1-2 years? in 3-5 years?

Question 14. Does your business have written policies for the acceptable use of artificial intelligence? If not, are these policies in the planning process?

Question 15. Talk about any state of Connecticut regulations and/or policies that make it more challenging for your business to use artificial intelligence?

Question 16. Talk about any state of Connecticut regulations and/or policies that would help your business to use artificial intelligence?

Question 17. Do you have additional comments to share with us?

Connecticut Academy of Science and Engineering conducted this interview on behalf of the CT General Assembly's General Law Committee. CASE will not share individual responses; the briefing will report responses in aggregate.



The Connecticut Academy of Science and Engineering

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