

Artificial Intelligence Policy 101: Past, Present, Future

Representative Brian Cina

March 17, 2021

What is artificial intelligence?

“Artificial intelligence (AI), the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience.”

-Encyclopedia Britannica

<https://www.britannica.com/technology/artificial-intelligence>

In [Act 137 of 2018](#), an act related to the creation of the Vermont Artificial Intelligence Task Force, “artificial intelligence” means “models and systems performing functions generally associated with human intelligence, such as reasoning and learning.”

What is artificial intelligence?

Some common uses of AI:

- Google Maps
- Autopilot
- Spam filters
- Plagiarism filters
- Fraud protection
- Credit decisions
- Facebook
- Voice-to-text
- Siri

<https://www.techemergence.com/everyday-examples-of-ai/>

What is artificial intelligence?

According to the 2020 Final Report of the Vermont Artificial Intelligence Task Force:

“Artificial intelligence (A.I.) systems are systems (usually software) capable of perceiving an environment through data acquisition and then processing and interpreting the derived information to take action(s) or imitate intelligent behavior given a specified goal. AI systems can also learn/adapt their behavior by analyzing how the environment is affected by prior actions.

As a scientific discipline, AI includes several approaches and techniques, such as machine learning (of which deep learning and reinforcement learning are specific examples), machine reasoning (which includes planning, scheduling, knowledge representation and reasoning, search, and optimization), and robotics (which includes control, perception, sensors and 3 actuators, as well as the integration of all other techniques into cyber-physical systems).”

Adopted from the [European Commission High-Level Expert Group on Artificial Intelligence](#)

What is artificial intelligence?

“Instead of proposing yet another definition, we should consider why AI is so difficult to define, and why that matters. AI has become an umbrella term that includes a wide range of technologies and an even wider range of application areas. It includes concrete and familiar items such as smart thermostats, as well as imaginary future technologies that might never come to exist, such as self-aware androids. In other words, these can include products that exist or that we might reasonably expect to be developed in the next few years, as well as those that belong in sci-fi movies. All of these technologies are AI, and this inclusivity seems to present a problem for both public debate and policy formulation because, depending on which AI you have in mind, its impacts and desirability can vary enormously. But in order to have a productive debate, do we need a shared understanding of what is being considered?”

1. Everybody needs to get up to speed on AI
2. Protect human agency
3. Address uneven distribution of knowledge
4. Stay vigilant and focus on supporting the best AI possible

Philip Boucher, Rep. Brian Cina, Stefan Steinicke: [Defining and Understanding Artificial Intelligence](#)

The Origin of the Vermont Artificial Intelligence Task Force

[H.378: An act related to the creation of the Vermont Artificial Intelligence Commission \(introduced in 2017\)](#)

The Artificial Intelligence Commission would “conduct studies of matters concerning:

- (1) how to allocate rights and duties among human beings and artificial intelligence entities when robots or other artificial intelligence entities create benefits; and
- (2) how artificial intelligence entities could be used in State government, including an analysis of the fiscal impact, if any, on the State.”

Their first report to the Legislature would include:

- “(1) a proposal for a code of ethics for the development of artificial intelligence;
- (2) a proposal for a test or other method to determine whether an artificial intelligence entity has achieved consciousness;
- (3) a proposal for how the State could promote the ethical development of artificial intelligence, including an analysis of the potential risks and benefits of such development; and
- (4) a proposal for how the State could support the development of artificial intelligence entities, integrate artificial intelligence into education, and provide incentives to support artificial intelligence businesses within the State.”

The Creation of the Vermont Artificial Intelligence Task Force

[Act 137 of 2018 \(H.378\)](#) created **the Vermont Artificial Intelligence Task Force** to:

- (1) investigate the field of artificial intelligence; and
- (2) make recommendations on the responsible growth of Vermont's emerging technology markets, the use of artificial intelligence in State government, and State regulation of the artificial intelligence field.

The Task Force shall study the field of artificial intelligence, including the following:

- “(1) an assessment of the development and use of artificial intelligence technology, including benefits and risks;
- (2) whether and how to use artificial intelligence in state government, including an analysis of the fiscal impact, if any, on the state; and
- (3) whether state regulation of the artificial intelligence field is needed.”

The Work of the Vermont Artificial Intelligence Task Force

15 meetings of the Task Force from September 2018 to January 2020 (in Montpelier) to work on the report and to hear testimony from various sectors including health care, law enforcement/criminal justice, construction/infrastructure, agriculture/environmental science, economics, etc.

5 public forums around the state between July 2019 and December 2019 for members of the public to express their views on the topics and issues

- Burlington
- Lyndon (Northern Vermont University)
- Norwich (Montshire Museum)
- Manchester
- Essex Jct. (Tech Jam Conference)

[Artificial Intelligence Task Force minutes](#)

2020 Final Report of the Vermont Artificial Intelligence Task Force

On January 15, 2020, the task force released its final report, which included recommendations to guide responsible growth of artificial intelligence development and use, specifically:

- The establishment of a permanent commission on artificial intelligence to support its development and propose policy initiatives to make that development responsible.
- The adoption of an artificial intelligence code of ethics.
- The creation of incentives for the further development of the artificial intelligence industry.
- Support for the responsible use of artificial intelligence by state and local agencies.
- Enhancements in education and workforce development programs targeted to artificial intelligence, with the recommended involvement of Vermont's higher education community.
- Greater education of the public on the power and opportunity of artificial intelligence and the risks created by it.

[Artificial Intelligence Task Force FINAL REPORT January 15, 2020](#)

"We're at a turning point where the decisions we make now will affect the trajectory of AI and how it unfolds," said Brian Cina, Vermont State Representative and a member of the taskforce. "If Vermont sets some good policies right now about how to promote AI the right way, we can set an example for the national conversation and be part of that national and international dialogue."

Thayer School of Engineering, Dartmouth College, [Vermont releases report by nation's first state-led AI taskforce](#)

Global Impact of the Vermont Artificial Intelligence Task Force

“We realized that Vermont had a unique opportunity to lead the way in promoting responsible AI. The action of one government will not be enough. All of humanity must come together to harness the benefits and to mitigate the risks of artificial intelligence. Our common future depends on it.”

Rep. Brian Cina, [You Can Get There From Here: Travel Advice for Policymakers on the Roads of Artificial Intelligence](#)

As of 2020, bills had been introduced in at least 19 states: Alabama, California, Connecticut, Delaware, Florida, Hawaii, Illinois, Indiana, Massachusetts, Maryland, Missouri, New Jersey, Nevada, New York, Rhode Island, Utah, Virginia, Vermont, and Washington.

National Conference of State Legislatures, [Legislation Related to Artificial Intelligence](#)

Alabama actually passed a resolution in 2019 creating a task force “to study the growth of artificial intelligence in the state, its potential uses in various private and public sectors, and AI’s effect on Alabama residents and their quality of life.”

<https://www.govtech.com/policy/Task-Force-to-Study-Evolving-AI-Technology-in-Alabama.htm>

H.410: An act relating to the creation of the Artificial Intelligence Commission

Findings based on [Artificial Intelligence Task Force FINAL REPORT January 15, 2020](#):

- this technology presents tremendous opportunities for economic growth and improved quality of life but also presents substantial risks of loss of some jobs and invasions of privacy and other impacts to civil liberties.
- large-scale technological change makes states rivals for the economic rewards, where inaction leaves states behind. States can become leaders in crafting appropriate responses to technological change that eventually produces policy and action around the country.
- there are steps that the State can take to maximize the opportunities and reduce the risk, but action must be taken now.
- there is a role for local and State action, especially where national and international action is not occurring
- the final report of the Task Force presents a series of recommendations for policies and actions consistent with the limited role of Vermont to direct the path of AI development and use in the State. The final report also concludes that Vermont can make a difference, maximize the benefits of AI, and minimize, or adapt to, the adverse consequences

It is the intent of the General Assembly to carry out the work of the Task Force by creating the Artificial Intelligence Commission to implement the other recommendations of the Task Force and make the State a leader in the United States and globally by promoting the development and use of ethical AI technology in Vermont.

H.410: An act relating to the creation of the Artificial Intelligence Commission

Definition: “Artificial intelligence (A.I.) systems” means systems (usually software) capable of perceiving an environment through data acquisition and then processing and interpreting the derived information to take action(s) or imitate intelligent behavior given a specified goal. AI systems can also learn/adapt their behavior by analyzing how the environment is affected by prior actions.

from [Artificial Intelligence Task Force FINAL REPORT January 15, 2020](#)

Membership: the membership of the Commission in H.410 replicates the membership of the Task Force as a starting point, but testimony should be taken to refine the membership. Should consider inclusion of racial justice groups like NAACP or Vermont Racial Justice Alliance, for example. Also should consider intentional inclusion of the legislative branch.

<https://legislature.vermont.gov/Documents/2022/Docs/BILLS/H-0410/H-0410%20As%20Introduced.pdf>

H.410: An act relating to the creation of the Artificial Intelligence Commission

The Commission shall study and monitor the growth of artificial intelligence systems in Vermont, including the following:

- (1) adopt, publicize, and monitor a State code of ethics for artificial intelligence systems;
- (2) make recommendations to the Legislative, Executive, and Judicial Branches on policies, laws, and regulations for artificial intelligence systems;
- (3) report to the Office of the Governor, the House Committees on Commerce and Economic Development, on Energy and Technology, and on Government Operations, and the Senate Committees on Economic Development, Housing and General Affairs, on Finance, and on Government Operations, on or before January 15 each year, on the following:
 - (A) existing and future economic opportunities for artificial intelligence systems available in Vermont and any policies or legislative actions necessary to maximize those opportunities;
 - (B) the extent of use of artificial intelligence systems by State government and any actions needed to optimize that usage;
 - (C) the impact of using artificial intelligence systems in Vermont on the privacy interests of citizens and any necessary policies to protect the privacy and interests of Vermonters from any diminution caused by employment of artificial intelligence systems by State government or the private sector;
 - (D) the impact of artificial intelligence systems on jobs and incomes in Vermont and any necessary policies to protect jobs and incomes from any adverse effects of using artificial intelligence systems in Vermont;
 - (E) the state of education on artificial intelligence systems in the Vermont primary, secondary, and higher education systems, and the current level of education, including education of ethics on artificial intelligence systems; and
 - (F) any other information the Commission deems appropriate based on its work and any other recommendations from the Vermont Artificial Intelligence Task Force Report of 2020.

H.410: An act relating to the creation of the Artificial Intelligence Commission

Technology Director:

Creates the permanent, classified position of Technology Director within the Agency of Commerce and Community Development to manage and implement the work of the Artificial Intelligence Commission. The Technology Director shall have the administrative, legal, and technical support of the Agency of Commerce and Community Development.

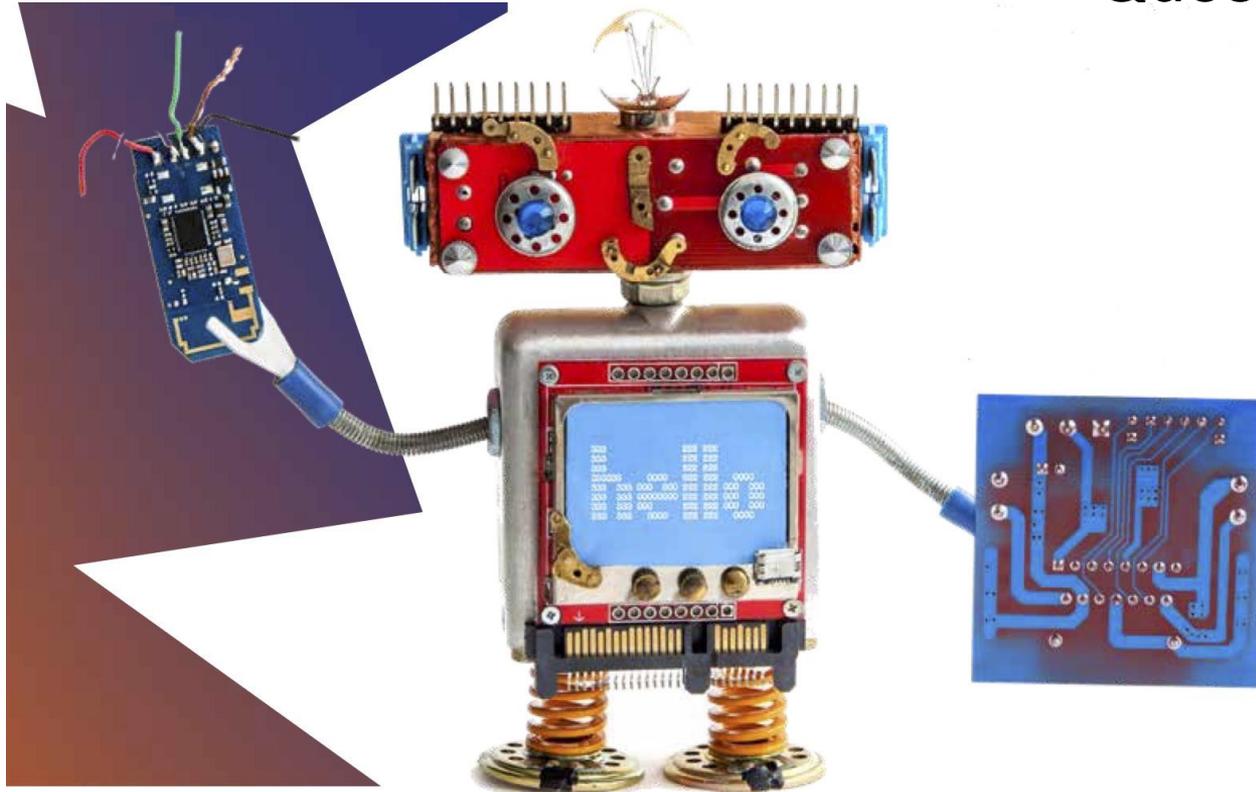
On or before January 15, 2022, the Commission shall include the following in its report required under 3 V.S.A. § 5111(d)(3):

- (1) a proposal, in coordination with the Agency of Commerce and Community Development, for incentives and mechanisms to promote the growth of businesses engaged in the ethical development and use of artificial intelligence systems in Vermont, including ways to provide increased access to accelerated computing, create co-working spaces, and create grant programs to fund artificial intelligence initiatives; and
- (2) a proposal, in coordination with the Agency of Education, for creating programs to increase awareness of artificial intelligence systems among students, teachers, and the general public.

Appropriation (we need a fiscal note to get accurate cost):

- \$80,000 for the Technology Director (salaries and benefits)
- Will need appropriation for reimbursement for the Commission

Questions?



Algorithmic Accountability

Artificial intelligence technology is being increasingly used to make decisions that affect the lives of people. Examples of possible uses of [AUTOMATED DECISION SYSTEMS](#) by government:

- Facial recognition
- Child risk and safety assessment
- School assignment algorithms
- Teacher evaluation algorithms
- DNA analysis
- Inmate Housing Classification
- Fire Department Funding Algorithms
- Fire Risk Assessments
- Healthcare Delivery and Workflow Decision Systems
- Building Inspection Predictive Analytics
- Source of Income Discrimination Analytics
- Automated License Plate Readers
- Social Media Monitoring
- Public Benefits Fraud Detection Systems
- Disease Surveillance and Treatment Systems
- School Violence Risk Assessment

[New York City Automated Decision Systems Task Force Report](#)

H.263: An act relating to State development, use, and procurement of automated decision systems

This bill seeks to promote algorithmic accountability.

This bill proposes to require:

- (1) the Secretary of Digital Services to conduct a review and inventory of all automated decision systems that are developed, used, or procured by the State;
- (2) the Secretary of Digital Services to adopt standards and practices on the development, use, and procurement of automated decision systems by the State;
- (3) any discrimination by an automated decision system to be deemed as an unfair practice.

H.263: An act relating to State development, use, and procurement of automated decision systems

- (1) “Algorithm” means a computerized procedure consisting of a set of steps used to accomplish a determined task.
- (2) “Automated decision system” means any algorithm, including one incorporating machine learning or other artificial intelligence techniques, that uses data-based analytics to make or support government decisions, judgments, or conclusions.
- (3) “Automated final decision system” means an automated decision system that makes final decisions, judgments, or conclusions without human intervention.
- (4) “Automated support decision system” means an automated decision system that provides information to inform the final decision, judgment, or conclusion of a human decision maker.

H.263: An act relating to State development, use, and procurement of automated decision systems

The Secretary of Digital Services, in consultation with the Secretary of Administration, shall conduct a review and make an inventory of all automated decision systems that are being developed, used, or procured by the State which includes the following for each automated decision system:

- (1) the automated decision system's name, vendor, and version;
- (2) a description of the automated decision system's general capabilities, including reasonably foreseeable capabilities outside the scope of the agency's proposed use and whether the automated decision system is used or may be used to deploy or trigger any weapon;
- (3) the type or types of data inputs that the technology uses, how that data is generated, collected, and processed, and the type or types of data the automated decision system is reasonably likely to generate;
- (4) whether the automated decision system has been tested by an independent third party, has a known bias, or is untested for bias;
- (5) a description of the purpose and proposed use of the automated decision system, including:
 - (A) what decision or decisions it will be used to make or support;
 - (B) whether it is an automated final decision system or automated support decision system;
 - (C) its intended benefits, including any data or research demonstrating those benefits;

H.263: An act relating to State development, use, and procurement of automated decision systems

The Secretary of Digital Services, in consultation with the Secretary of Administration, shall conduct a review and make an inventory of all automated decision systems that are being developed, used, or procured by the State which includes the following for each automated decision system:

(6) whether the automated decision system makes decisions affecting the constitutional or legal rights, duties, or privileges of any Vermont resident;

(7) whether the automated decision system gives notice to an individual impacted by the automated decision system of the fact that the automated decision system is in use and provides the following information:

(A) the automated decision system's name, vendor, and version;

(B) what decision or decisions it will be used to make or support;

(C) whether it is an automated final decision system or automated support decision system;

(D) what policies and guidelines apply to its deployment;

(E) whether a human verifies or confirms decisions made by the automated decision system; and

(F) how an individual can contest any decision made involving the automated decision system;

H.263: An act relating to State development, use, and procurement of automated decision systems

The Secretary of Digital Services, in consultation with the Secretary of Administration, shall conduct a review and make an inventory of all automated decision systems that are being developed, used, or procured by the State which includes the following for each automated decision system:

(8) whether the automated decision system ensures that the agency can explain the basis for its decision to any impacted individual in terms understandable to a layperson including:

(A) by requiring the vendor to create such an explanation;

(B) whether the automated decision system is subject to appeal or immediate suspension if a legal right, duty, or privilege is impacted by the decision;

(C) potential reversal by a human decision maker through a timely process clearly described and accessible to an individual impacted by the decision;

(9) a description of any potential impacts of the automated decision system on civil rights and liberties and potential disparate impacts on marginalized communities, and a mitigation plan;

H.263: An act relating to State development, use, and procurement of automated decision systems

(10) a clear use and data management policy, including protocols for the following:

(A) how and when the automated decision system will be deployed or used and by whom, including but not limited to: (i) the factors that will be used to determine where, when, and how the technology is deployed; (ii) whether the technology will be operated continuously or used only under specific circumstances; (iii) if the automated decision system will be operated or used by another entity on the agency's behalf, the algorithmic accountability report described in subsection (c) of this section must explicitly include a description of the other entity's access and any applicable protocols;

(B) how automated decision system data will be securely stored and accessed, and whether an agency intends to share access to the automated decision system or the data from that automated decision system with any other entity, and why;

(C) a description of the fiscal impact of the automated decision system, including: (i) initial acquisition costs; ongoing operating costs such as maintenance, licensing, personnel, legal compliance, use auditing, data retention, and security costs; (ii) any cost savings that would be achieved through the use of the technology; and (iii) any current or potential sources of funding, including any subsidies or free products being offered by vendors or governmental entities.

Provide a Report on the Inventory to relevant legislative committees by December 1, 2021.

H.263: An act relating to State development, use, and procurement of automated decision systems

Adds to the responsibilities of the Secretary of Digital Services:

- adopt, in consultation with Agency of Administration, standards and practices regarding State development, procurement, use, and issues of bias, in automated decision systems

Creates an unfair practice:

- for any automated decision system to discriminate against any individual on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, ancestry, place of birth, age, crime victim status, or physical or mental condition.
- The enforcement provisions and protections against retaliation in 9 V.S.A. 4506 shall apply to this section.
- For the purposes of this section, "automated decision system" means any algorithm, including one incorporating machine learning or other artificial intelligence techniques, that uses data-based analytics to make or support government decisions, judgments, or conclusions.

Effective date: on passage

Conclusion

“In Vermont, we have a saying: “You can’t get there from here.” Because our state is made up of so many mountains, hills, valleys, and rivers, there is not always a direct route from one place to another. The voyage is going to be an adventure that takes you over, around, and through other places, and you never know exactly what’s beyond that next bend in the road. My expedition with the Vermont Artificial Intelligence Task Force, from dream to reality, was like driving from southwest Vermont to the Northeast Kingdom of Vermont in a Nor’easter. There were many detours, obstacles, forks, and intersections, and I had to stop and ask for directions a few times along the way. However, I discovered that you actually will get there from here! You just have to be willing to figure it out as you go and to stay focused on your destination. In the process of reaching the journey’s end, I experienced the complex interplay between the influences of interpersonal dynamics and societal trends. One of the greatest lessons that I learned from my trek with the Vermont Artificial Intelligence Task Force is that our existing systems of government and regulation will never be able to keep up with the exponential growth of technological development. We will need new systems of accountability and transparency in order to manage the impact of technology in the near future. Without a tech-informed general public empowered to influence policy, we may see violations of our human rights and increased exploitation and destruction of our planet. With leadership grounded in ethics and justice, we can strengthen our democracies and improve life for humanity and all other beings in the future. We can get there from here.”

Rep. Brian Cina, [You Can Get There From Here: Travel Advice for Policymakers on the Roads of Artificial Intelligence](#)

Questions?

