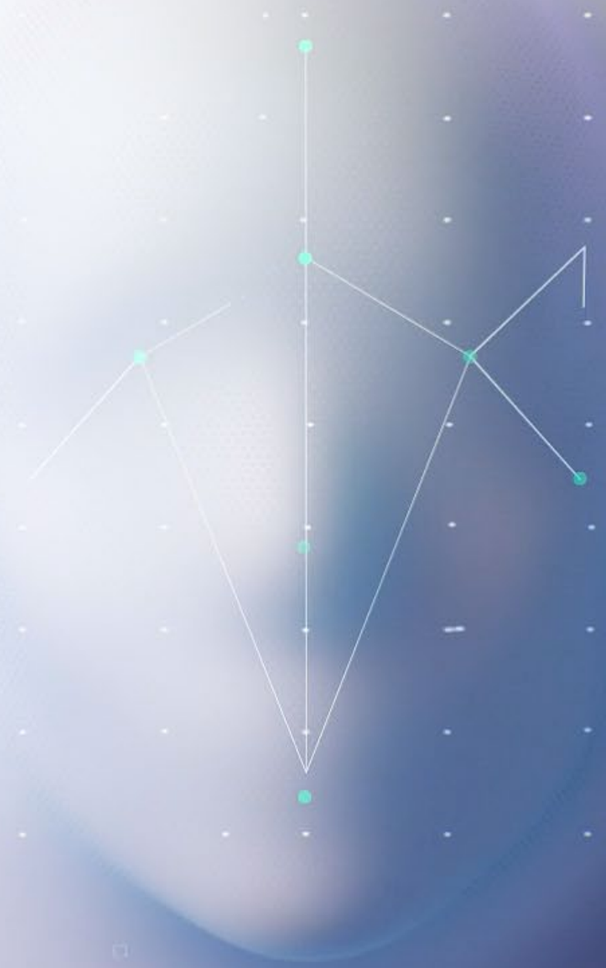
Humanizing the Future of Artificial Intelligence

A Toolkit for Ethical Artificial Intelligence Leadership



Shelbi Howard | Senior Thesis | April 29, 2020

Contents

“AI is a fundamental risk to the existence of human civilization in a way that car accidents, airplane crashes, faulty drugs or bad food were not — They were harmful to a set of individuals within society, but they were not harmful to society as a whole.”

- Elon Musk

Problem Research

Technology lacks oversight.

Technology is diminishing social norms and human interaction.

Mental health decline aligns with mass adoption of smartphones.

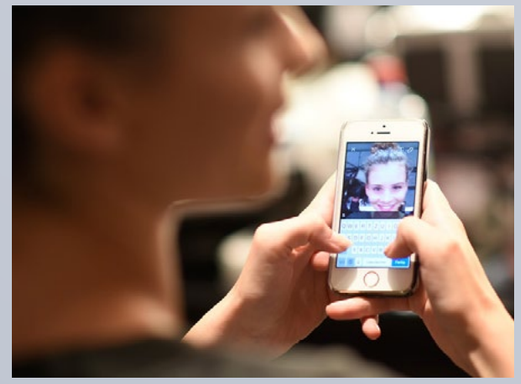
Tech companies compete for humans' *time* not their *well-being*.

Humanity is being affected by unethical technology outcomes.

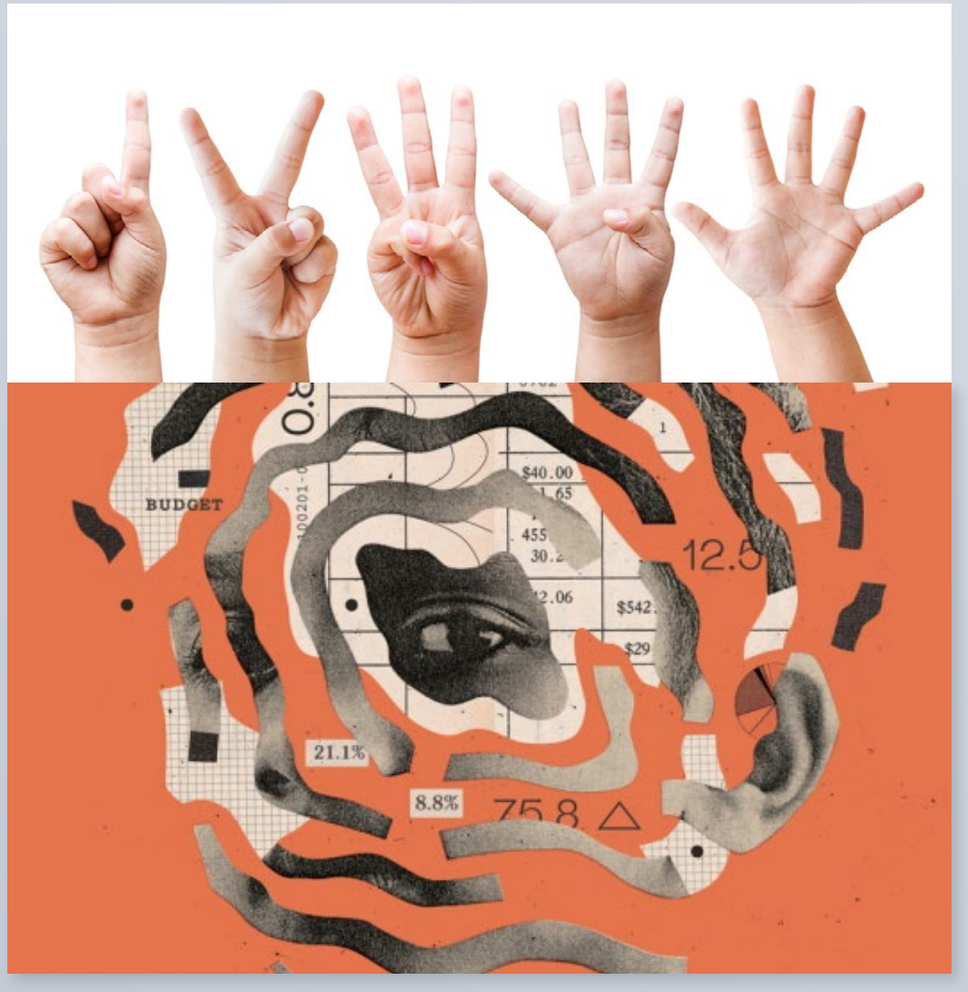
Humanity Disrupted

Empathy is being reduced as impersonal technology becomes humans primary communication method. The kids of today are the adults of tomorrow and something about the technology needs to change before we destroy our humanity forever.

Generation Z (12-22 years old) is losing its ability to read non-verbal communication as a result of lacking physical interaction with others throughout social development.



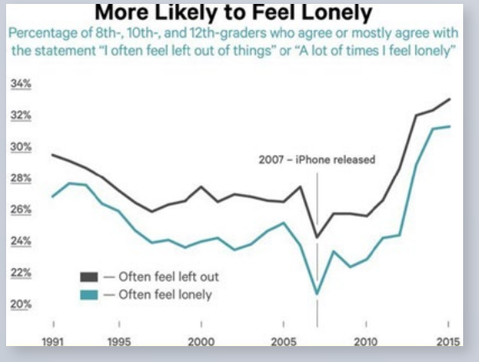
Attention has become an important human resource. At any given time today, one person has their attention split an average of 5 ways. This is affecting how we learn, sleep, feel, and behave.

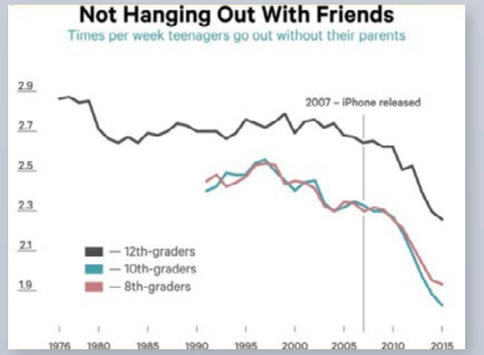


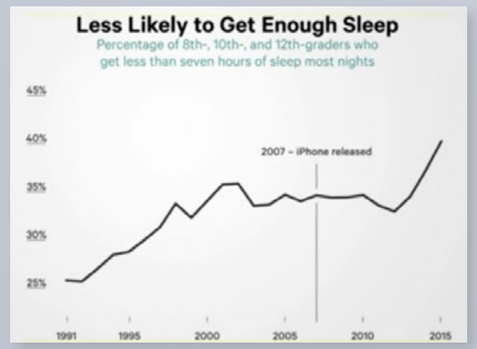
Researchers have been releasing alarming statistics on a sharp and steady increase in kids' mental illness, which is now reaching epidemic proportions: 1 in 5 children has mental health problems, 43% increase in ADHD, 37% increase in teen depression, 100% increase in the suicide rate in kids 10-14 years old

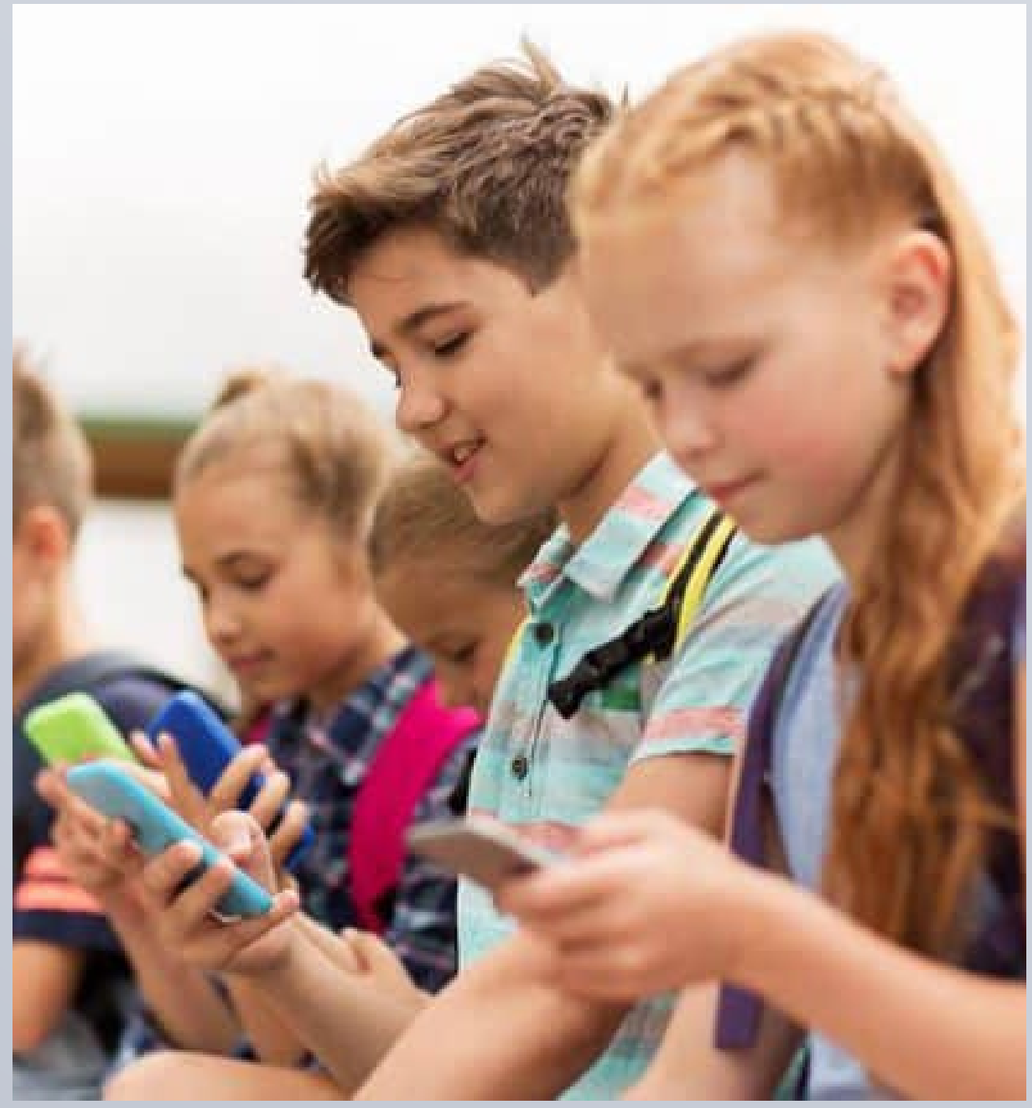
Impact of Personal Tech.

Technology today does not have human's best interests in mind. The first generation of personal tech natives have seen declines in mental health as a result of their technology usage. Creators of technology need to take responsibility for this health crisis and refocus personal technology around human health needs.









Statistics from a study conducted by Dr. Jean Twenge, author of iGen, show a stark change in generational norms after the release of the first "smart phone" leading to a decline in socialization and a surge in childhood lonliness from 2007 to present. In 2011-2012, those having iPhones when over the 50% mark.

Humanizing Technology

Machine learning and artificial intelligence is making it possible for technology to become increasingly more human. While it is possible to make machines sound human, companies and consumers are beginning to question the ethics of how far these humanized machines should go.

Our devices are becoming multi-purpose, anticipatory, and responsive, but how do we ensure they continue working with us not against us?

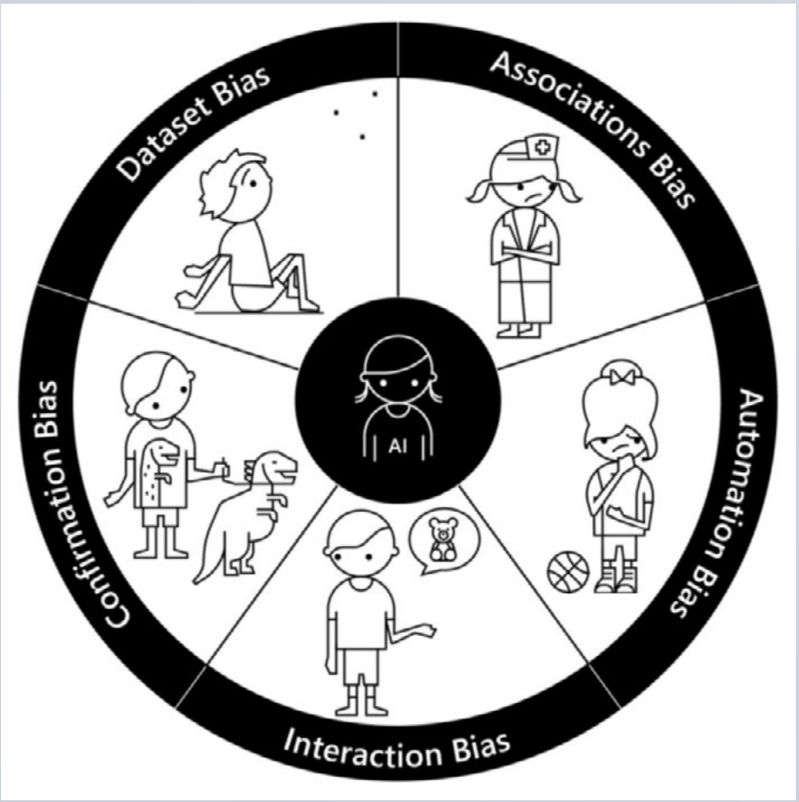
Society is trying to solve issues caused by technology with more technology. AI conversation bots focused on therapy are emerging for millennials to have 24/7 access to mental health support.

Technologists are striving to make AI more human than humans in how it thinks, responds, and perceives information. However, users are questioning their comfort level with having a conversation with a robot when they believe its a human. An example of this is Google Duplex, above, which holds a phone conversation while remaining indistinguishable from another human.

Direct Social Influence

Creators of AI are at risk of building their bias into the machines they create. These implicit foundational biases accelerate social issues and lead to widespread cultural acceptance of biased norms. As a result, AI has the power to directly influence society's ethics.

Current relationships between AI and customers will need to be re-evaluated as devices become more autonomous. Current technology relationships are beginning to reinforce slave-master dynamics with subservient identities, lack of boundries, and limitless options. This is problematic as voice interactions act as a model for how humans treat one another.



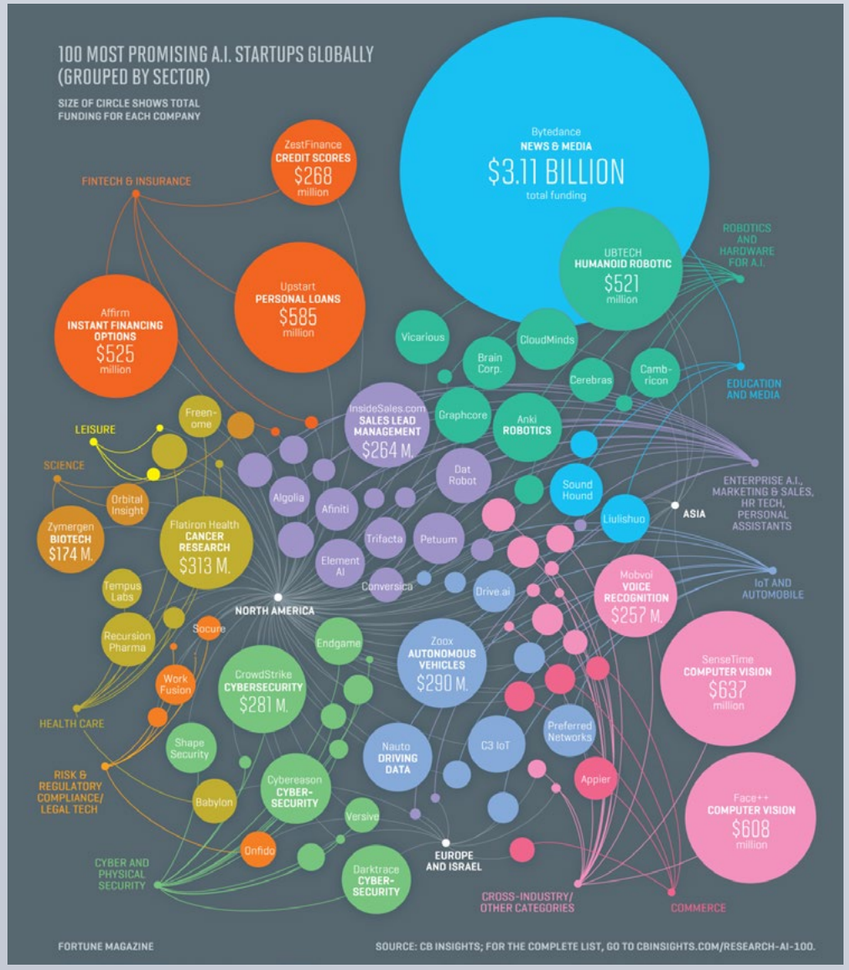
Microsoft's Inclusive AI team has identified 5 forms of bias for AI creators to be aware of. These address issues such as association bias where device identities create subconscious sexism and dataset bias where voice recognition priorities lead to indirect racism and marginalization of certain groups.

AI Limitations

Consumer device AI is learning fast but lacks the context it needs for widespread acceptance of the technology. Industry decisions now will determine the success or failure of consumer AI in the future.

AI is black and white: assumes truths, can't grow, can't create new knowledge. Microsoft's Teen Bot Tay.ai shows mob mentality at its worst by operating off of "assumed truths" shared on Twitter.

Individuals and companies responsible for sourcing, testing, and implementing AI datasets control the spread of knowledge, truth, and information sharing throughout society.



By producing in a society of constant product competition, companies don't share their datasets leading to slower development in AI growth and product innovation. This causes biases to be more prevalent and limits ethical AI decisions to a company level instead of an industry-wide discussion.

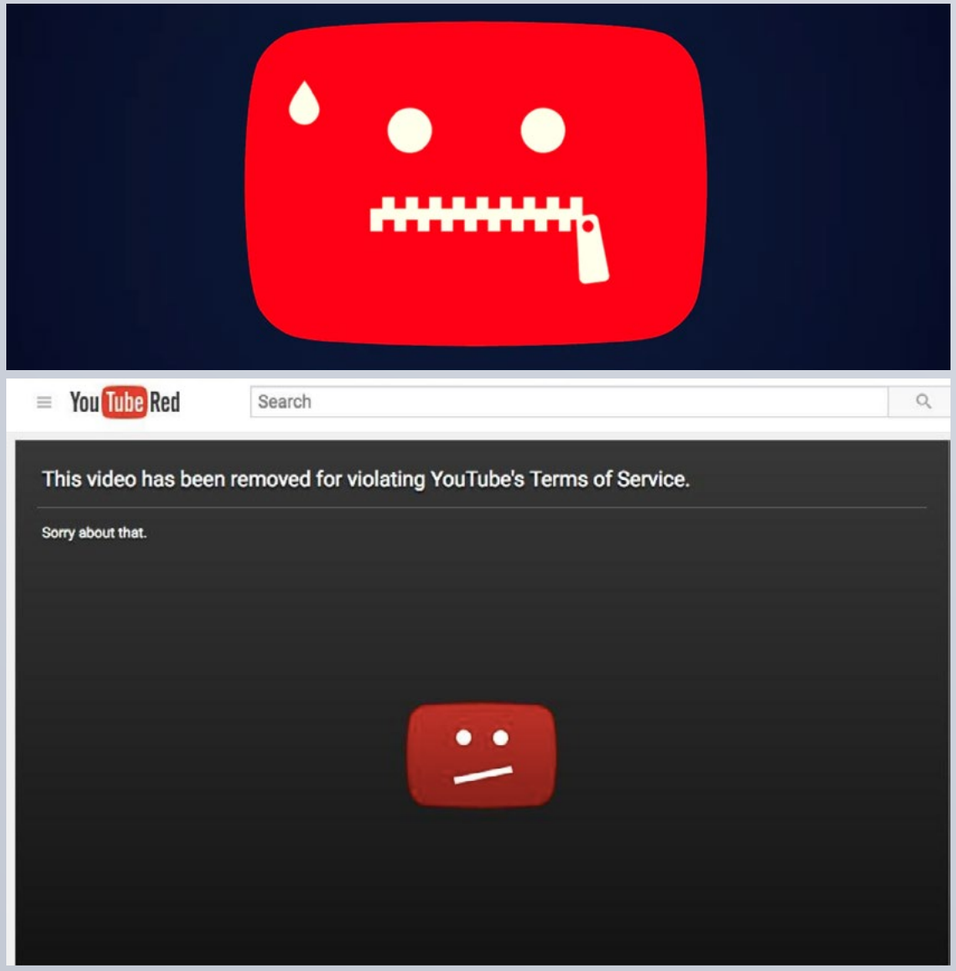
AI Ethics Emerges

Companies are beginning to prioritize ethical AI decision-making in technology design but still struggling. Building implicit morality into a product is inherently an ethical issue in itself. To avoid technocracy, these teams should be diverse and democratic.

Google AI

Google announced an AI ethics board in April 2019. Within a week, the group was cancelled as a response to outcry from employees with the comment that they were "still working on getting it right."

Microsoft faceted their AI ethics focus into multiple teams. Their Inclusive AI Team is composed of leaders from across the company to focus specifically on ensuring ethical interactions in regard to user privacy and bias.



Google's company, YouTube, has been making policy decisions after the 2016 elections to ensure the same outcome doesn't happen again. This is manifested in a company imposing policy about content based on political leanings leading to ethical questions about their effect on free speech.

As artificial intelligence makes technology more impactful,
AI will require **ethical infrastructure development and oversight**
to ensure the future survival and well-being of humanity.

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AI will require ethical infrastructure development and oversight
to ensure the future survival and well-being of humanity.

It is imperative that we begin prioritizing ethics in AI today.

“Humane technology starts with an honest appraisal of human nature. We need to do the uncomfortable thing of looking more closely at ourselves.”

-Tristan Harris, Co-Founder & Executive Director, Center for Humane Technology

Stakeholder Research

User interviews, A/B testing, and qualitative research was conducted with **business, policy, technology, and design experts** to determine the best solution for an ethical AI future.

Richard Harknett

Head of Political Science at the University of Cincinnati. One of the world's leading online security experts and scholar-in-residence for the DoD U.S. Cyber Command.

Claudia Rebola

Information design PhD providing research support for intelligent systems, human-AI interactions, and communication throughout design and development.

Alexander Motz

Computer engineer and serial tech entrepreneur providing business and technology insight on the functional applications of artificial intelligence.

Sam Lowe

Designer and brand strategist creating stories for businesses to reach customers. Offered support on creative strategy, copywriting, and leadership communications.

Derek Shewmon

Serial technology entrepreneur advocating for small business needs and entity engagement in ethical AI solutions.

Erik Sheagren

Cognitive Science PhD at Columbia University focused on the Theory of Mind. Responsible for providing philosophy and ethics support for human-AI interactions.

Ethical AI requires support from government

Governing Bodies

Government, public and private organizations, research institutions

Needs

- Expert guidance
- Citizen protection
- Proactive legislation
- Global leadership

Challenges

- Subject-matter expertise
- Global competition
- Private tech industry bias
- R&D funding

Solution

Education | **Recommendations** | **Resources**

Opportunities

Become a **global leader** in the race for AI dominance.

Create sustainable, long-term AI governance to **protect humanity**.

Establish a **progressive vision** for the future of American innovation.

Make **educated** legislative decisions.

Technology Industry

AI Technology Entities

Technology Consumers

AI Technology Users

Ethics in AI
unsettled debate
↳ must educate

govern vs innovate

Myth of fragility
Regulation will crush innovation
↳ more safety protocols on fridge than Apple OS

NIST Nat. Inst. Standards in Tech.
↳ Framework – Standards Certifications

NICE Nat. Initiative in Cyber Edu.
↳ Educational govt. template
↳ Shared responsibility model

- **Government** — Protects you
- **Individual** — "good hygiene" → Avoid viruses

*HIPAA – effective state intervention for privacy

2017 Worked w/ AI @ Oxford
↳ Safe vs. Secure

Inherent tension

- Human is in control
- Algorithm defends itself

→ **Killswitch** — core vulnerability

"Who dominates AI dominates the world"

tech. mediation →

Security by design
- Accept security by default
- vs goal now: efficient & accessible

Decision Loops: tool for decision-making

AI Decision Loops

① Automate out
Human / AI
* autonomous

② Human is in
Human / AI
*Don't automate

③ Human is on
Human – AI
* semi-autonomous

OODA — traditional decision loop
- observe
- orient
- decide
- Act

Architecture is vulnerable
↳ can't layer AI on top of this
*more central, powerful, and independent

AI actors
- China – lead by 203
- Alphabet (Google)
- US / Israel

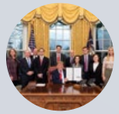
*Need legally enforceable ethical development laws

Ethics: Communal public good

Richard Harknett

Head of Political Science at the University of Cincinnati. One of the world's leading online security experts and scholar-in-residence for the DoD U.S. Cyber Command.

Ethical AI requires support from businesses



Governing Bodies

Government, Public and Private Organizations, Research Institutions

Technology Industry

AI Technology Entities

Needs

- Create profit
- Build customer base
- Make new products
- Innovation

Challenges

- Gain new customers
- Keep existing customers
- Compete in market
- Meet regulations

Solution

Assessments | **Guide** | **Ethical AI Principles**

Opportunities

Improve brand image to help hire young talent, gain new customers, and keep existing customers happy

Create **innovative solutions** for new and existing products and services.

Develop responsible, sustainable solutions for the **good of humanity**.

Technology Consumers

AI Technology Users

Business Customers

① BIG Companies
- more bureaucracy
- must already be a credible product
- more support if from govt. → certification?

↓ Reputation (Brand)

② small companies
- move faster
- keep cost low
- want good ROI

↓ Presence + Momentum

Industry

Product vs Service } Applications?

70% are service-based

* Define YOUR Focus *

Buy-In

* EXCLUSIVITY
* Credibility
* ↑ Visibility
* Hire Gen Z - talent
* Sell to Gen Z
* Legitimize company values

BUT at what cost?

want to get ahead of competition

As a business...

WHY SHOULD I CARE ABOUT ETHICS?

Incentives

vs Penalties

* From govt.

Employee Support

Important!

For employee cert., edu., + training...

- consider minimum # of employees that need
  ↳ ethical threshold

Don't set the bar too high

Solution

Are you selling this?

SAAS Packages

1	2	3
Silver $$	gold $$$	Platinum call us
# employees	"	Enterprise
Benefits	"	

* Pick your size focus *

Big Questions

* How long does it take?
* What's the cost?
* Make employees care beyond "it's a requirement"

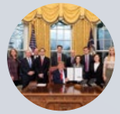
WEB class → more Friction → tangible meeting

* Sell the exec that the employees are sold *
  ↳ People want it

Derek Shewmon

Serial technology entrepreneur advocating for small business needs and entity engagement in ethical AI solutions.

Ethical AI requires support from consumers



Governing Bodies

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Technology Industry

AI Technology Entities

Technology Consumers

AI Technology Users

Needs

- Trustworthy technologies
- Businesses as advocates
- Tech to alleviate problems
- Healthy human connection

Challenges

- Transparency in technology
- Finding reputable resources
- Lacking a human advocate
- Technology benefits itself

Solution

Education | **Ethical AI Principles** | **Resources**

Opportunities

Create a culture that celebrates human well-being and connection.

Make **educated decisions** about technology usage.

Support businesses that actively contribute to the **greater good**.

Ensure survival alongside AI.

TODAY

ROLES

These will change?

- Front End
  - Account
  - Brand
  - Creative
- Consumer-facing
  - Client Director
- Backend
  - Production Manager

What problem is this solving / why should I care?

- Grow market
- ↑ consumer advocacy

Culture of Ethics

Create new Priorities

Consumer pushes business

Fund + adopt top-down

Create TRUST with consumers

How do you avoid business resentment?

① Drivers

Today
- Capitalism → Profit

Tomorrow
- New Methodology ← Solution

② Opportunity

- Prove the Process
  * Industry Agnostic

③ Solution

- Certification
  - ↳ Part of B Corp
  - Found OR Join

Fact-Check Products
- For new + existing
- Apply new standards

Market to consumers
- Influence the Industry
  - ↳ Podcast?

Website
- Educate businesses
- certify here

* Educate businesses AND consumers *

USDA organic

BBB

ethical?

creates incentive for customers to buy

Sam Lowe

Designer and brand strategist creating stories for businesses to reach customers. Offered support on creative strategy, copywriting, and leadership communications.

Ethics Education
Raise industry, government, and consumer awareness

+

Industry Guidance
Standards and regulations to establish expectations

+

Funding and Support
Government funding and top-down industry implementation

= Ethical AI Future

“AI is capable of vastly more than almost anyone knows and the rate of improvement is exponential.. AI is a rare case where I think we need to be proactive in regulation than be reactive.”

- Elon Musk

Solution Development

Wicked problems require collaborative solutions.

Facilitating informed discourse on the future of AI was the solution I needed to create.

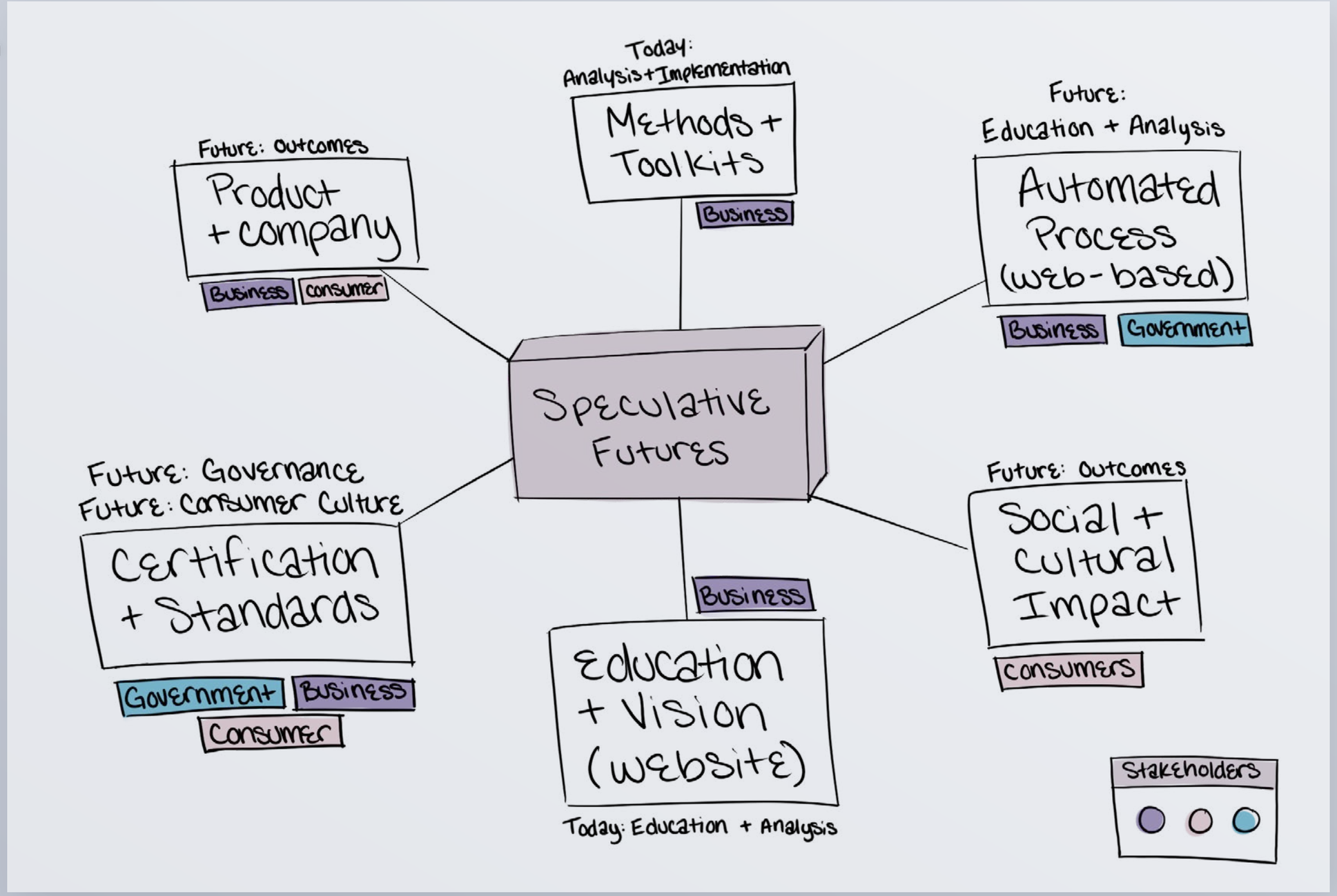
Information was designed by utilizing a **research through design methodology** to research, prototype, validate, and iterate solutions based on expert feedback.

The complexity of AI in business and policy required **extensive secondary research** to develop beneficial information for AI leaders and legislators.

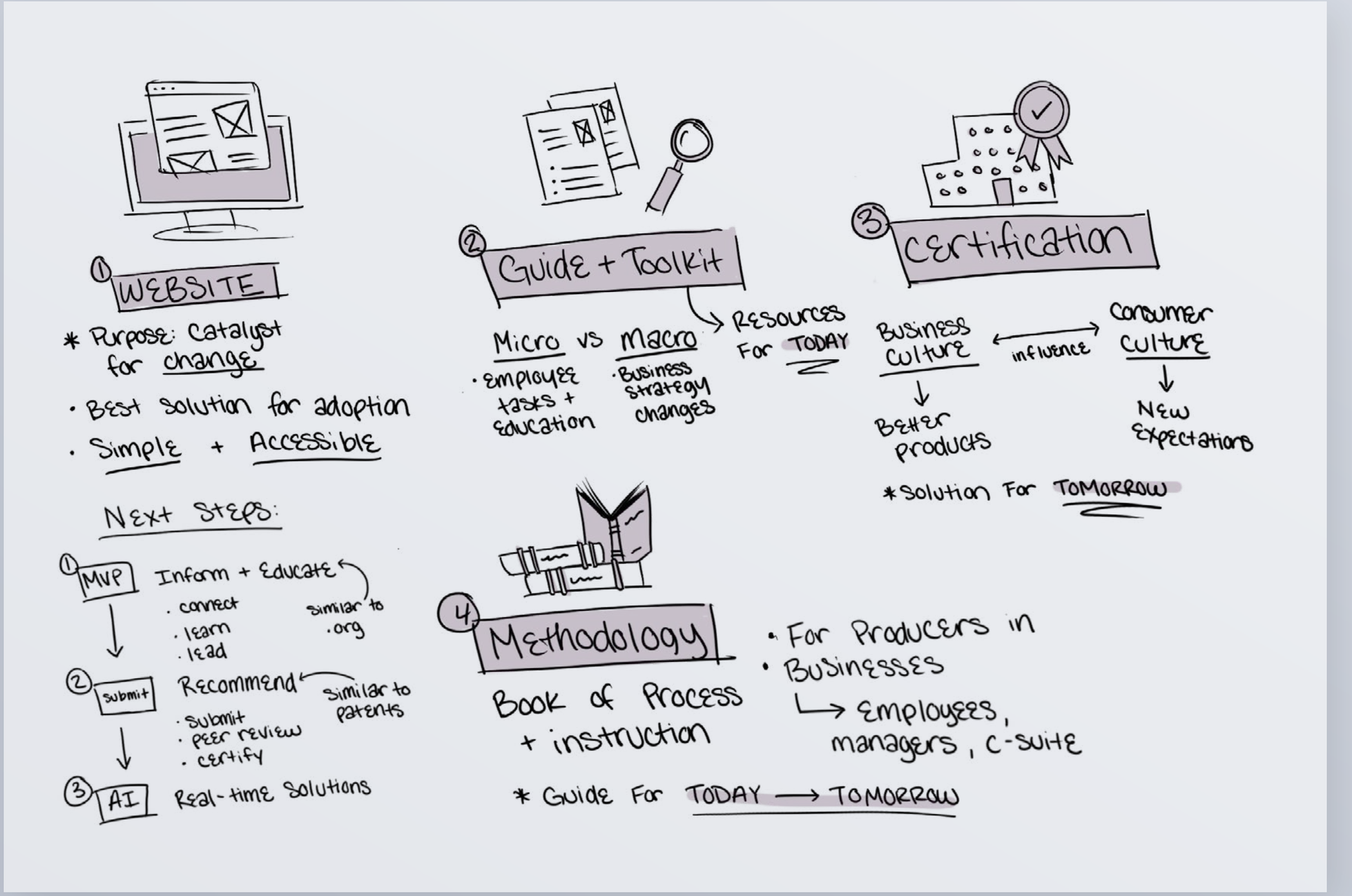
The problem was ambitious but I could contribute my design thinking and digital design skills to **integrate stakeholders into one place for discourse on the future of AI** and help them access the tools they needed to make these decisions.

The optimal final output was determined to be **an educational, integrated web-based toolkit** for leaders in business and government to find information about the importance of an ethical AI future.

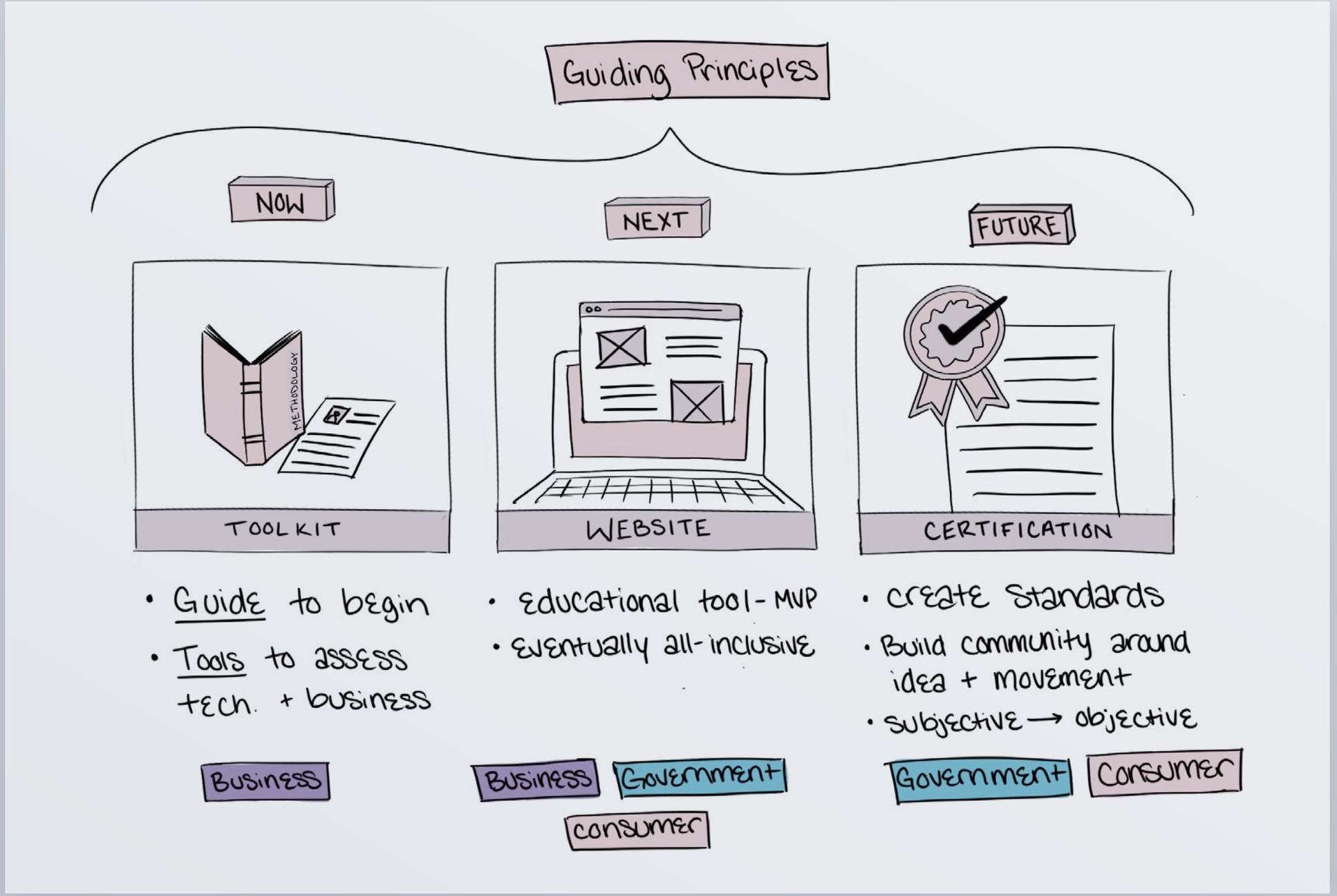
Many concepts were ideated and solutions associated with stakeholders to **determine benefits and opportunities**.



A select **few concepts** were explored further to discover the best solution.



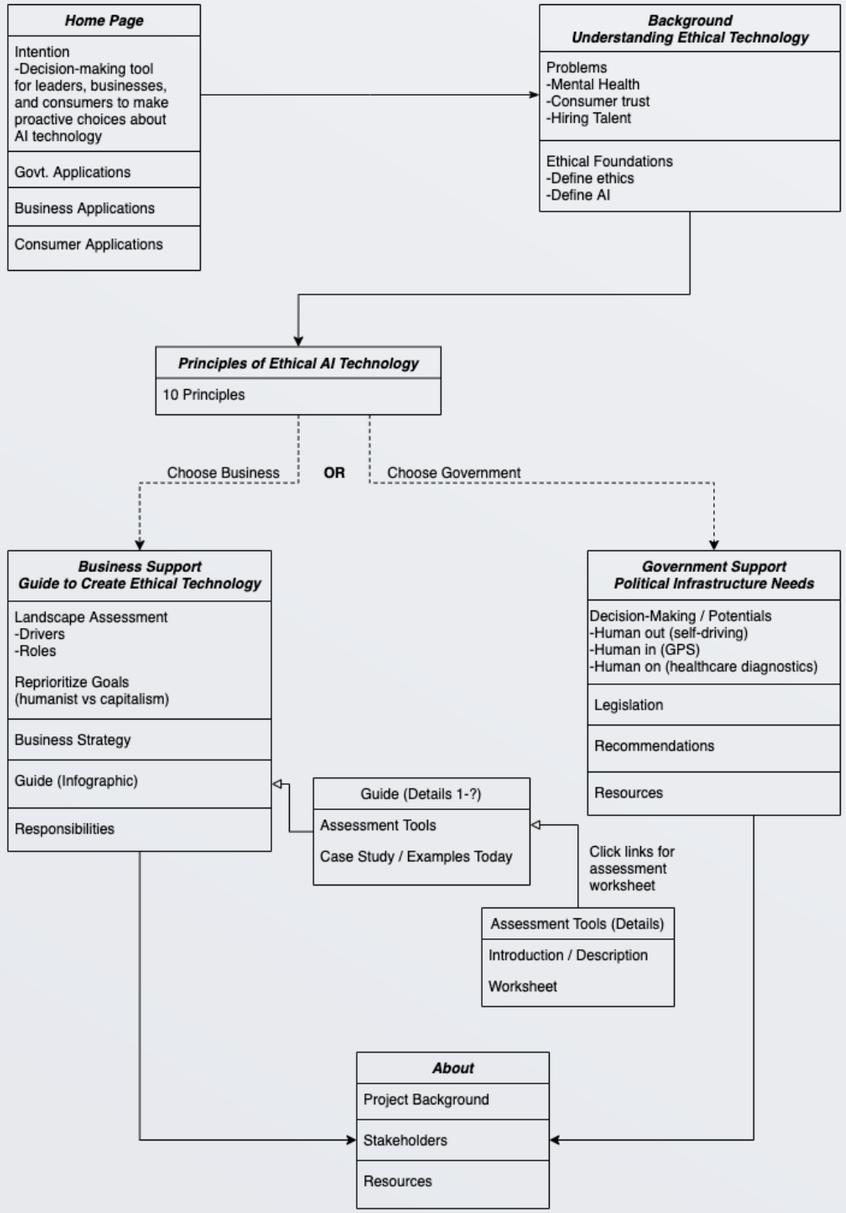
Concepts were condensed further and scope was focused on **three primary deliverables**.



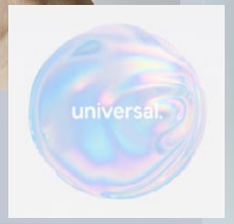
Tabs communicate **guiding principles and relevent tools** for users and stakeholders in industry and government.

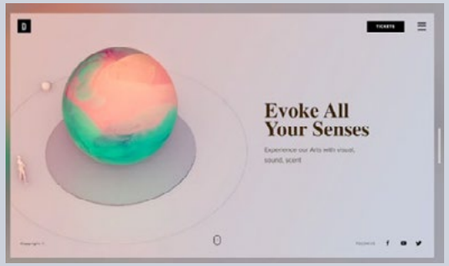
This educational **website** is the most simple, accessible solution to ensure the most visibility for all user groups.

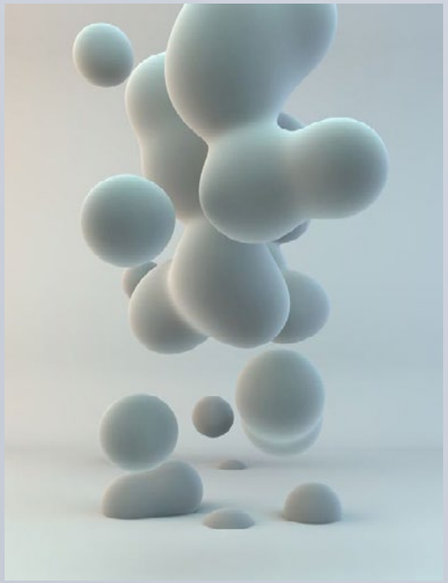
The **website architecture** is optimized for the three user groups: government, business, and consumer.

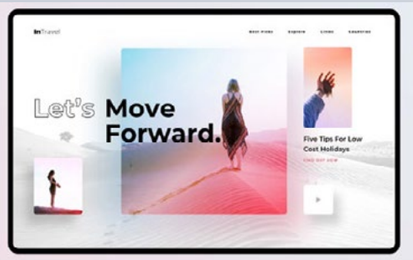


The website style was curated to provide users a sense of **transparency, trust, and innovation**.

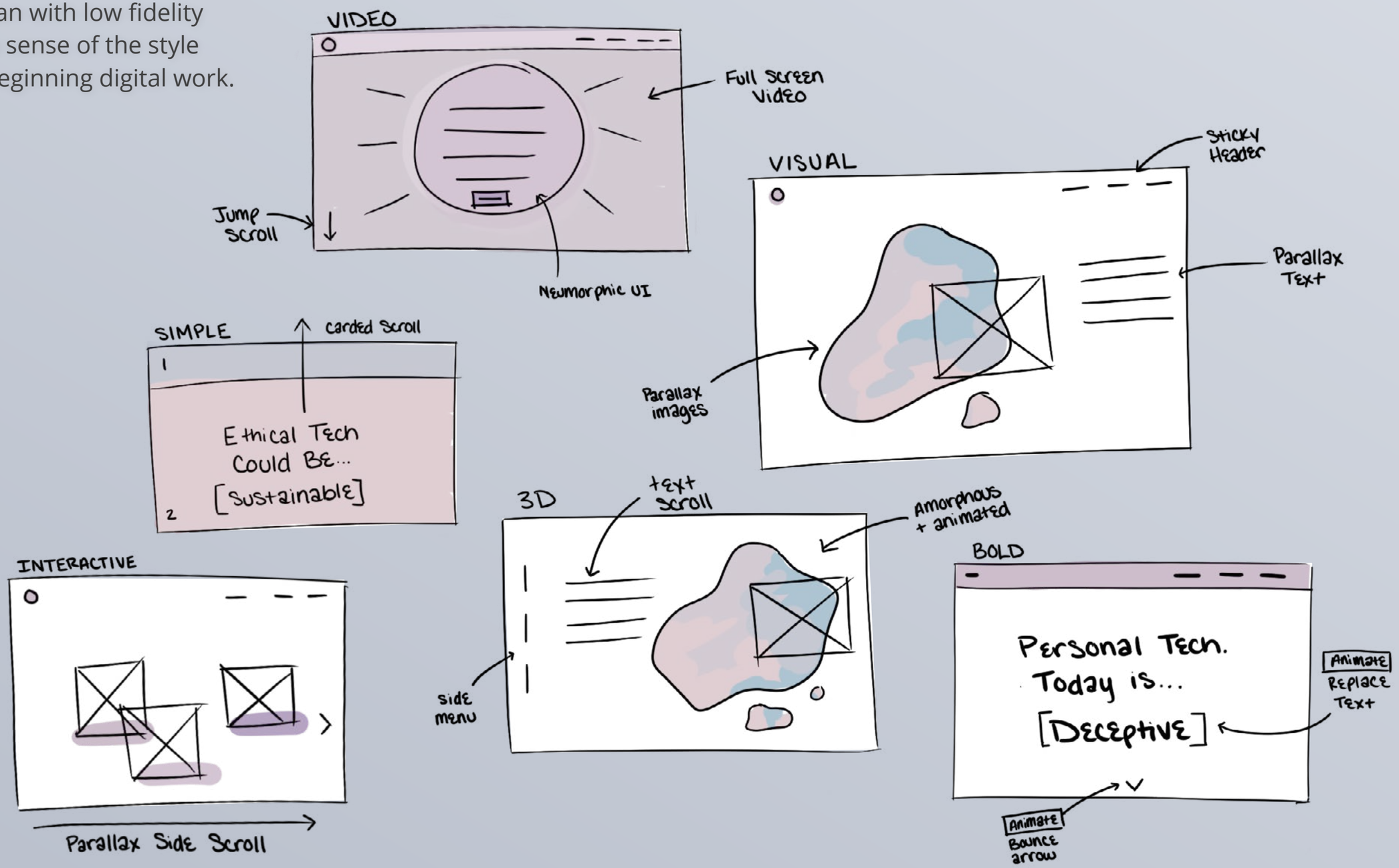




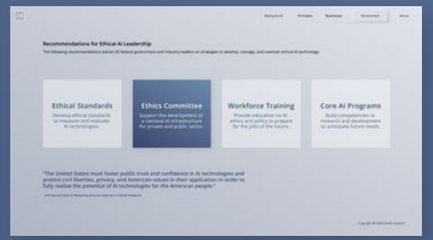


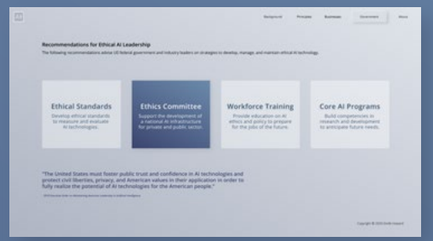
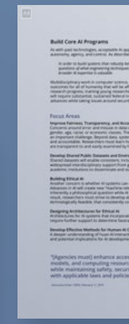


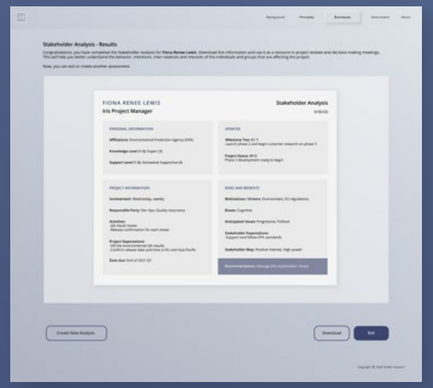
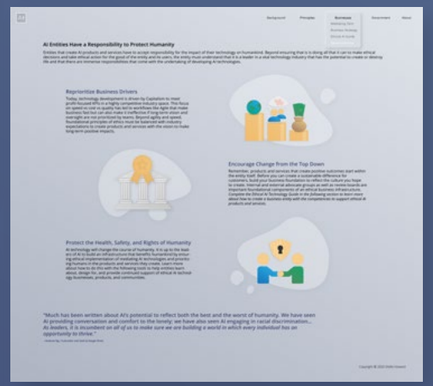
Website design began with low fidelity **wireframes** to get a sense of the style and layout before beginning digital work.

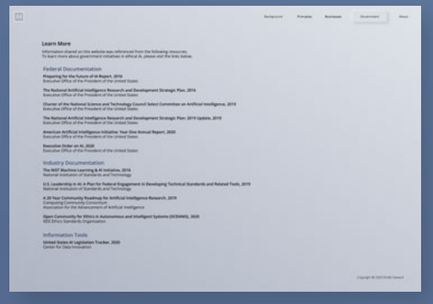


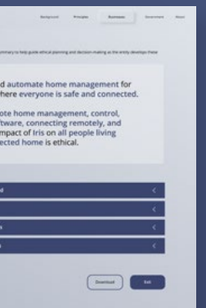
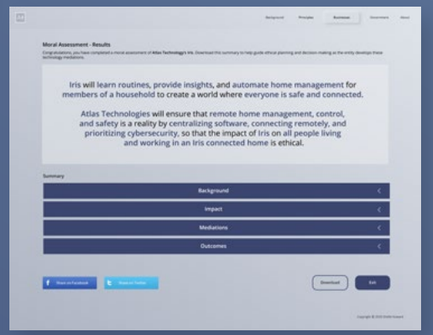
The website underwent many iterations and user feedback sessions over the 3-month research and design period.




The website **branding** utilizes color and transparency to depict the values of a transparent, human-centered future.

Header 1
Open Sans Bold 48pt #ffffff

SUBHEADER 2
Open Sans Semibold 16pt #ffffff

Header 2
Open Sans Semibold 24pt #000000

Body
Open Sans Regular 18pt #000000

Subheader 1
Open Sans Semibold 24pt #3b456f

Links
Open Sans Bold 21pt #3b456f

Button 1 | Button 2 | Link >

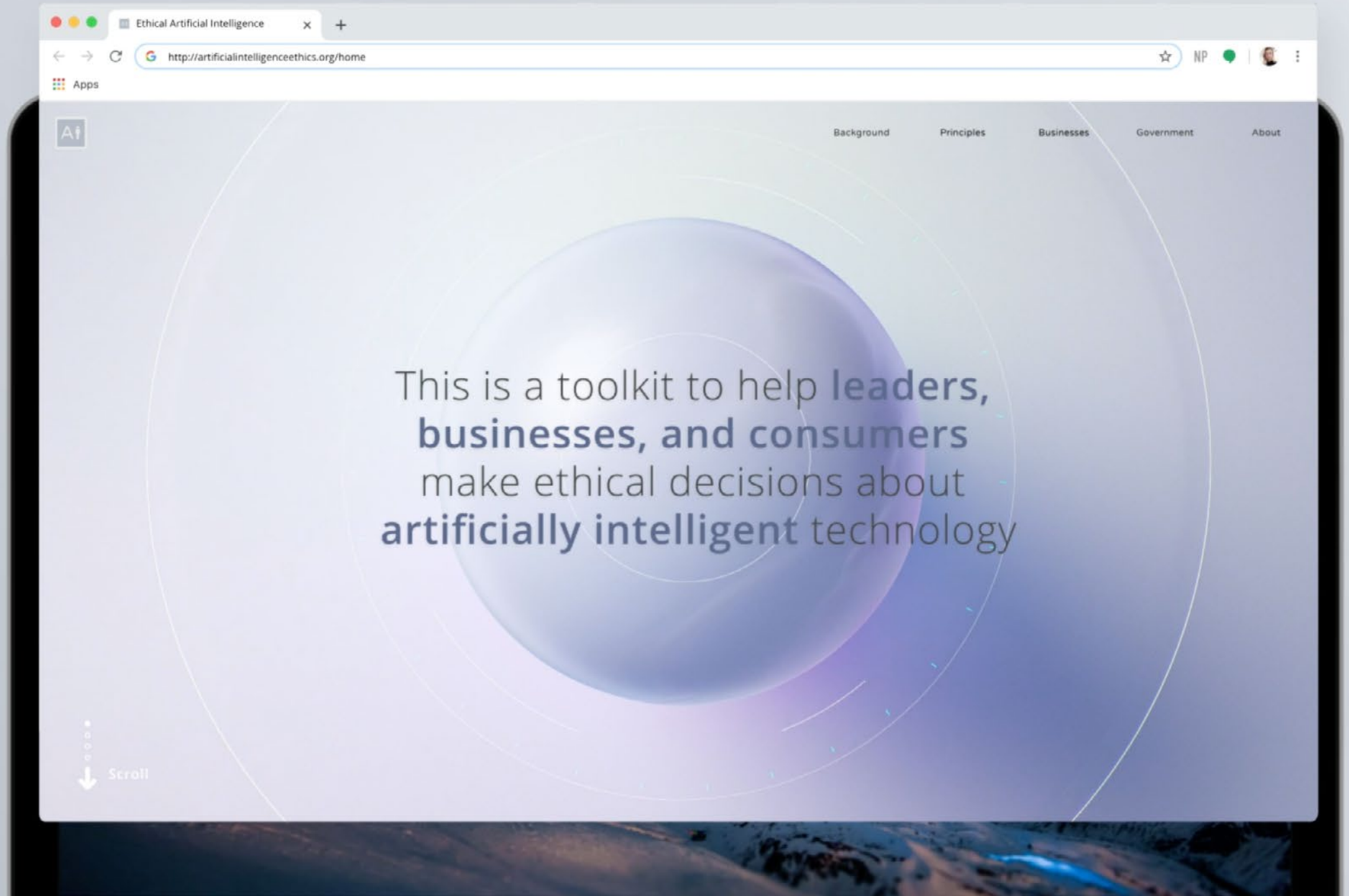
#aeb4c2 #dee2e9 | #ffffff 60% opacity | #000000 | #3b456f | #3d4972 #6a87a9 | #35a0da #78c7e9

“We have to figure out some way to ensure that the advent of digital super intelligence is one which is symbiotic with humanity. I think that is the single biggest existential crisis that we face and the most pressing one.”

- Elon Musk

Final Solution

The **home** page guides users through the purpose of the website and how to get the most out of it based on who they are.



Home button

Click

Sticky Nav Bar

Scroll

Scroll down

Click

Scroll down

Click

Link to Government

Click

Scroll down

Click

Link to Business

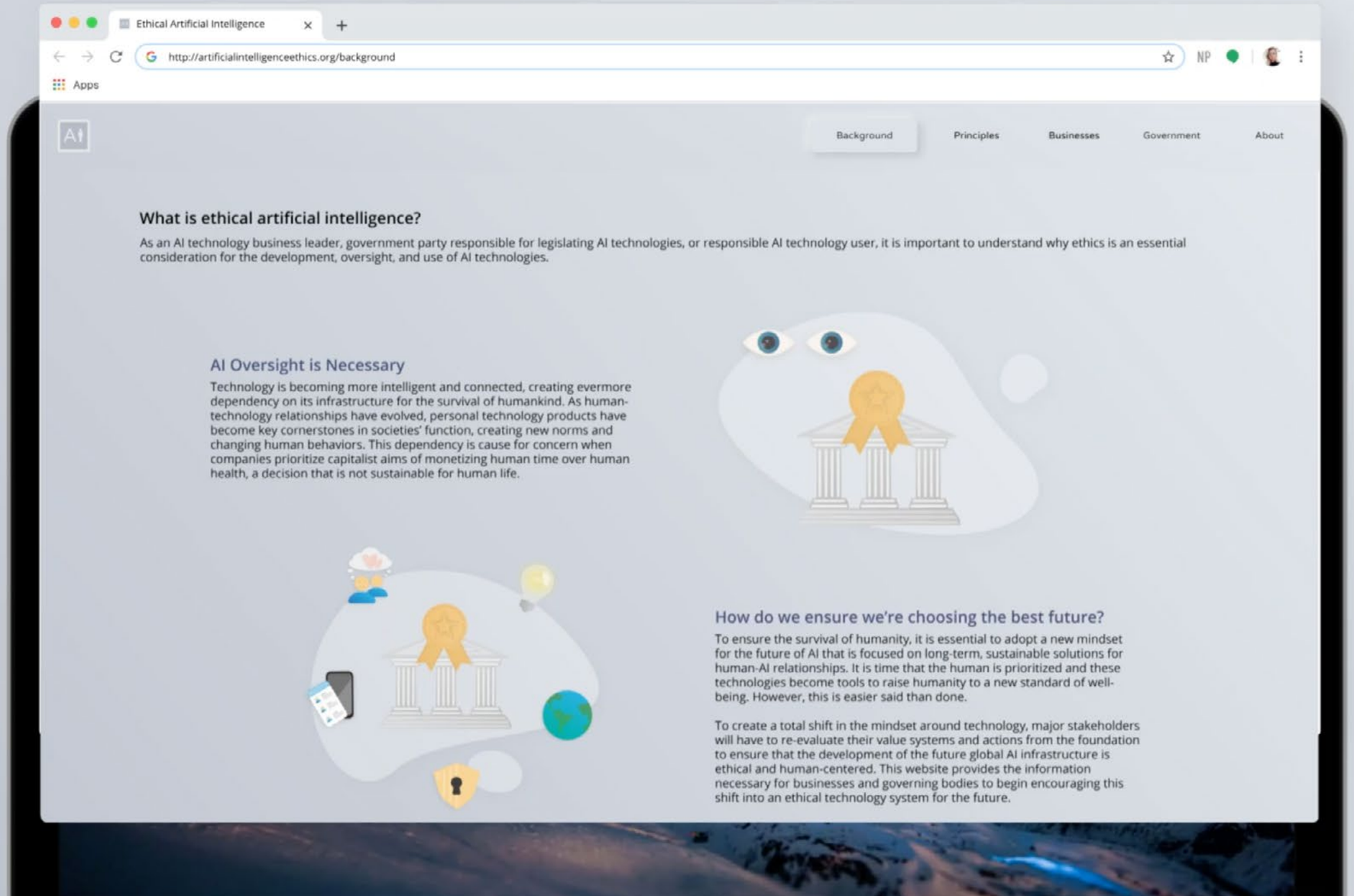
Click

Link to Principles

Click

Wireframe (right) shows **home** page experience.

The importance of ethical AI is communicated in the **background.** From this page, businesses and governments choose from differing experiences.



Home button

Click

Sticky Nav Bar

Scroll

Background Principles Businesses Government About

What is ethical artificial intelligence?

As an AI technology business leader, government party responsible for legislating AI technologies, or responsible AI technology user, it is important to understand why ethics is an essential consideration for the development, oversight, and use of AI technologies.

AI Oversight is Necessary

Technology is becoming more intelligent and connected, creating evermore dependency on its infrastructure for the survival of humankind. As human-technology relationships have evolved, personal technology products have become key cornerstones in societies' function, creating new norms and changing human behaviors. This dependency is cause for concern when companies prioritize capitalist aims of monetizing human time over human health, a decision that is not sustainable for human life.

How do we ensure we're choosing the best future?

To ensure the survival of humanity, it is essential to adopt a new mindset for the future of AI that is focused on long-term, sustainable solutions for human-AI relationships. It is time that the human is prioritized and these technologies become tools to raise humanity to a new standard of well-being. However, this is easier said than done.

To create a total shift in the mindset around technology, major stakeholders will have to re-evaluate their value systems and actions from the foundation to ensure that the development of the future global AI infrastructure is ethical and human-centered. This website provides the information necessary for businesses and governing bodies to begin encouraging this shift into an ethical technology system for the future.

The Role of Trust

Trust is hard to gain and easy to lose.

A major challenge to capturing the benefits of AI is the trustworthiness that can be ensured in the technology. Customer expectations must be met by not only trust in the brand but also trust in the technology provided. As AI becomes more essential, it captures exponential amounts of sensitive information with the capability to deeply impact lives. For AI users to truly adopt these technologies, trust must be at the core of their development.

This does not mean that the technologies must be flawless, but entities and their products must provide users with enough reason to believe that people are willing to entrust their information and lives in these technologies. To be a successful AI technology, the product or service must be assured to be safe, secure, reliable, private, scalable, explainable, resiliant, and not harmfully biased. The information provided in this website will assist entities and governing bodies with the assurance of these tenets in future AI technologies.

"Trust is a willingness to make yourself vulnerable because you expect the broader system to act in ways that support your values and interests. That doesn't mean that you expect the company will never make a mistake or experience an unintended outcome. Instead, what's important is that if something goes wrong, you're confident that the company will take care of it."

– David Danks, PhD, Professor of philosophy and psychology, Carnegie Mellon University

Artificial Intelligence Context

The intended context of artificial intelligence (AI) must first be defined before one can understand the ethical implications of these principles on applicable technologies. In this case, AI categorization is adopted from the One Hundred Year Study of AI that views AI as "a branch of computer science that studies the properties of intelligence by synthesizing intelligence."

While AI is not a new concept, these principles are especially applicable to technologies that enable machines to act rationally, or think similarly to humans, through the computing of Big Data with machine learning algorithms. These principles apply to both general and narrow applications of AI to ensure that the next wave of pervasive, revolutionary AI technologies are trustworthy enough to promote social good and address the risks that AI poses to human existence.

Applied Ethics

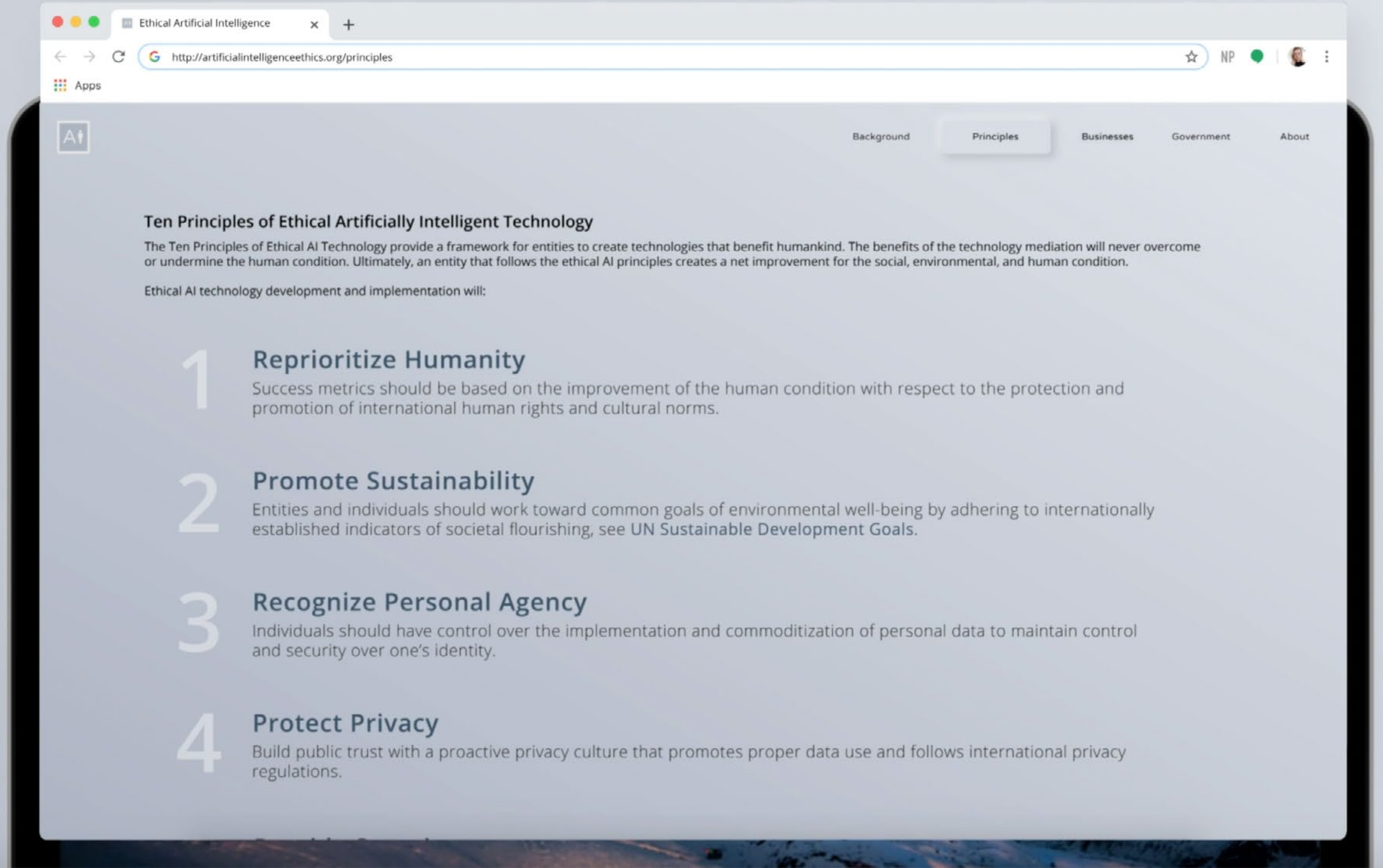
To determine ethical AI applications, a Utilitarian consequentialist framework has been applied to the decision-making process of AI technology development at the business entity level. To successfully apply a consequentialist theory to artificial intelligence (AI), one must assume the AI in question is without rights and, therefore, benefits most from a Utilitarian ethical approach.

In this case, entities are encouraged to take a top-down approach to technology development from creating guidelines and communicating values to quantifying human-focused KPIs and providing ongoing employee education around meta-ethics principles and normative ethics education.

Ethical AI technology is only possible when the entity's stakeholders, employees, and users are confident in the transparent implementation of ethical principles in the technology mediation to maximize the good for as many people as possible.

Wireframe shows the **Background** page experience.

The **Ten Principles of Ethical AI Development** set universal expectations for the future of ethical AI.



Ten Principles of Ethical AI Development

1. **Reprioritize Humanity**
   Success metrics should be based on the improvement of the human condition with respect to the protection and promotion of international human rights and cultural norms.

2. **Promote Sustainability**
   Entities and individuals should work toward common goals of environmental well-being by adhering to internationally established indicators of societal flourishing, see UN Sustainable Development Goals.

3. **Recognize Personal Agency**
   Individuals should have control over the implementation and commoditization of personal data to maintain control and security over one's identity.

4. **Protect Privacy**
   Build public trust with a proactive privacy culture that promotes proper data use and follows international privacy regulations.

5. **Provide Security**
   Individuals should have reasonable trust in the proper management of personal information. If security is breached, the entity is responsible for informing affected parties and swiftly finding favorable solutions.

6. **Ensure Transparency**
   Decisions and motives should demonstrate good behavior through clear communication and accessibility to information. When problems arise, speed and response quality should strengthen user trust.

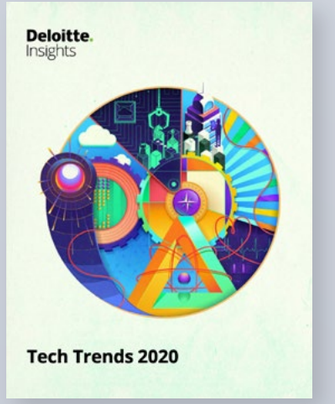
7. **Embrace Accountability**
   Entities responsible for technology should share the responsibility of the technology mediations, implementation, and effects with individuals involved in the technology's use.

8. **Equitable Opportunity**
   Technology solutions should be useful and marketable to people with diverse abilities throughout its lifespan and applications, see Universal Design Principles. Entities are responsible for educating employees and building inclusive teams to ensure equitably mediated technology outcomes.

9. **Democratize Decisions**
   Technology decisions should be scrutinized by internal and external groups that represent products' diverse user base throughout the development and implementation processes. This includes: governing parties, users, business leaders, technologists, and 3rd party partners.

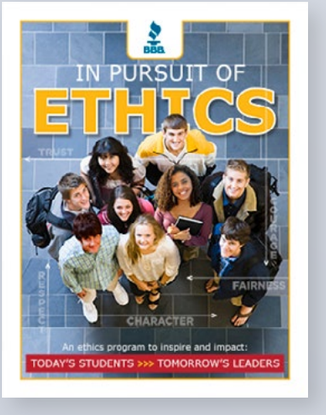
10. **Demonstrate Competence**
    Entities responsible for technology creation and implementation should operate with the required knowledge and skill to make effective, responsible decisions around the ethical implementation of the technology.

Principles were created from aggregate **secondary research** of guides, principles, and methodologies on AI ethics, human-computer interaction, and trust.

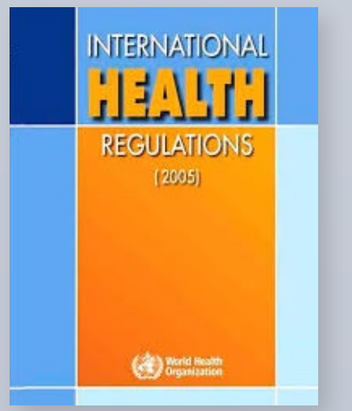


Tech Trends 2020
Deloitte Insights

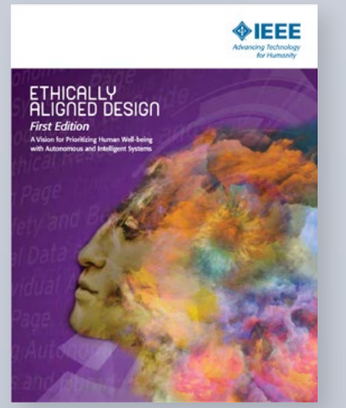
7 Universal Design Principles
Center for Universal Design,
North Carolina State University



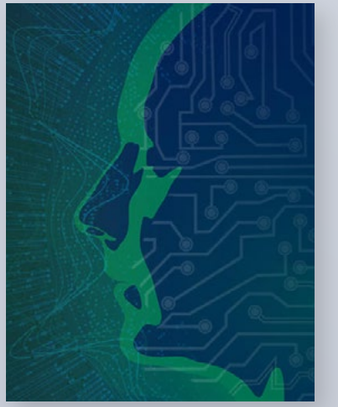
In Pursuit of Ethics
BBB Training



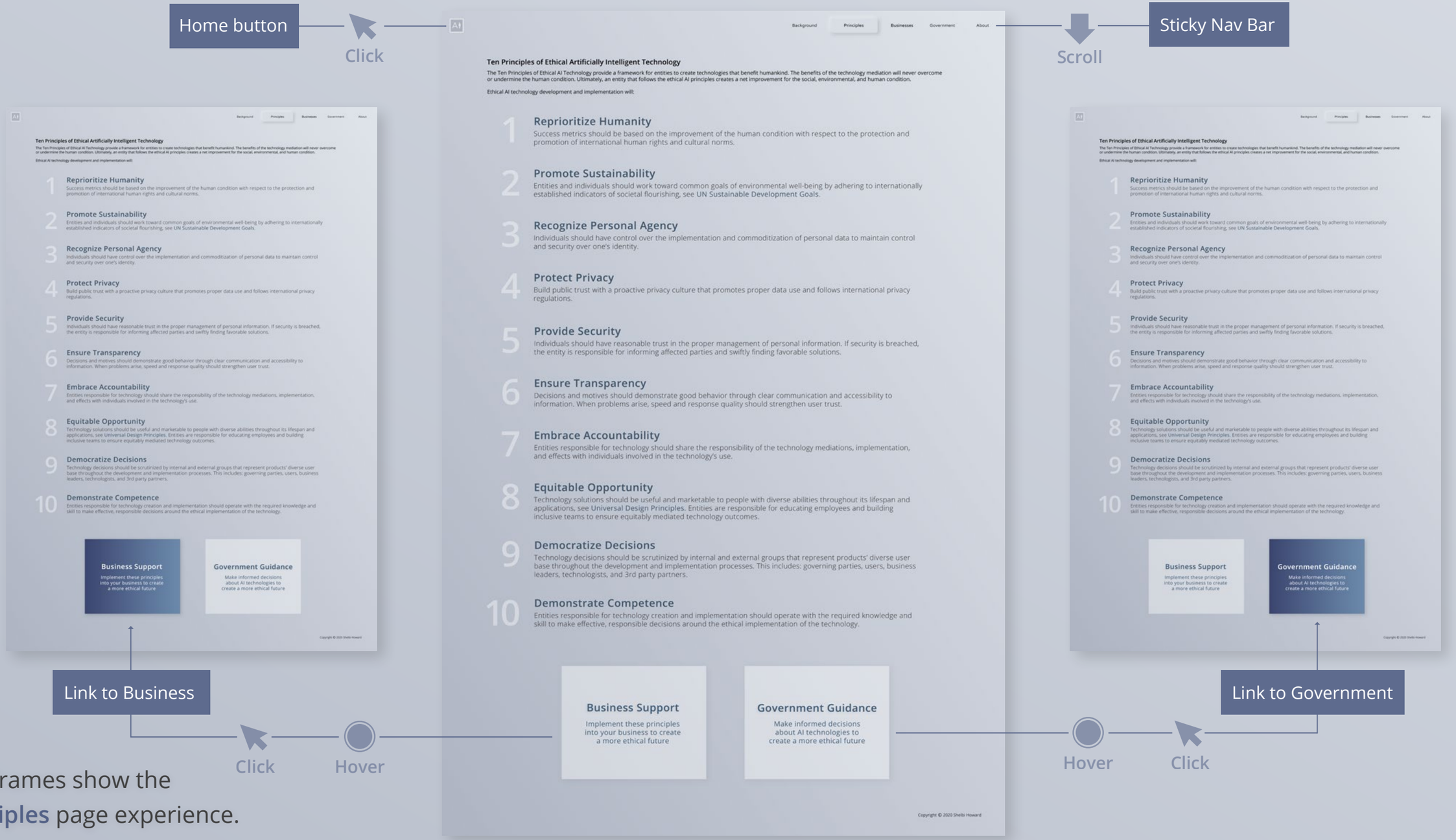
International Health Regulations (2005)
World Health Organization



Ethically Aligned Design
Institute of Electrical and Electronics Engineers

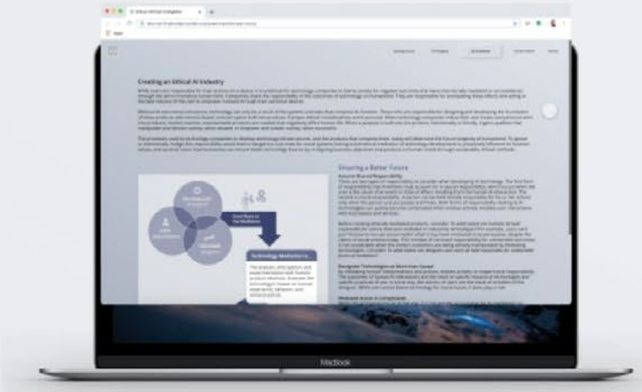


Artificial Intelligence
National Institute of Standards and Technology

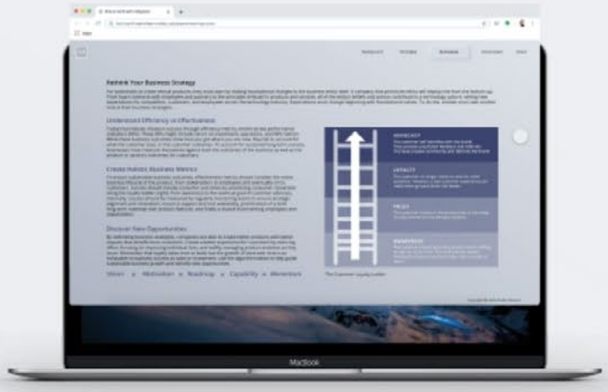


Wireframes show the **Principles** page experience.

Businesses are guided through the development of ethical AI entities and technologies

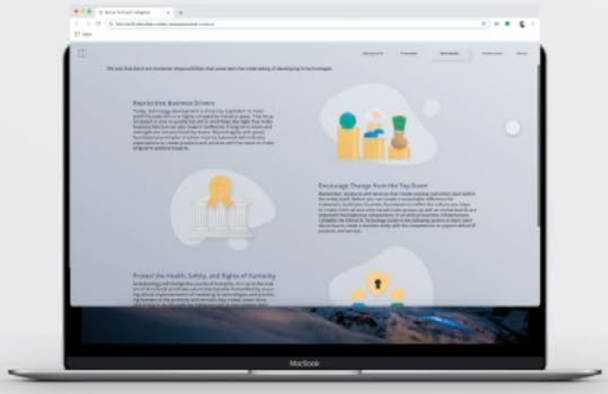


Mediating Technology

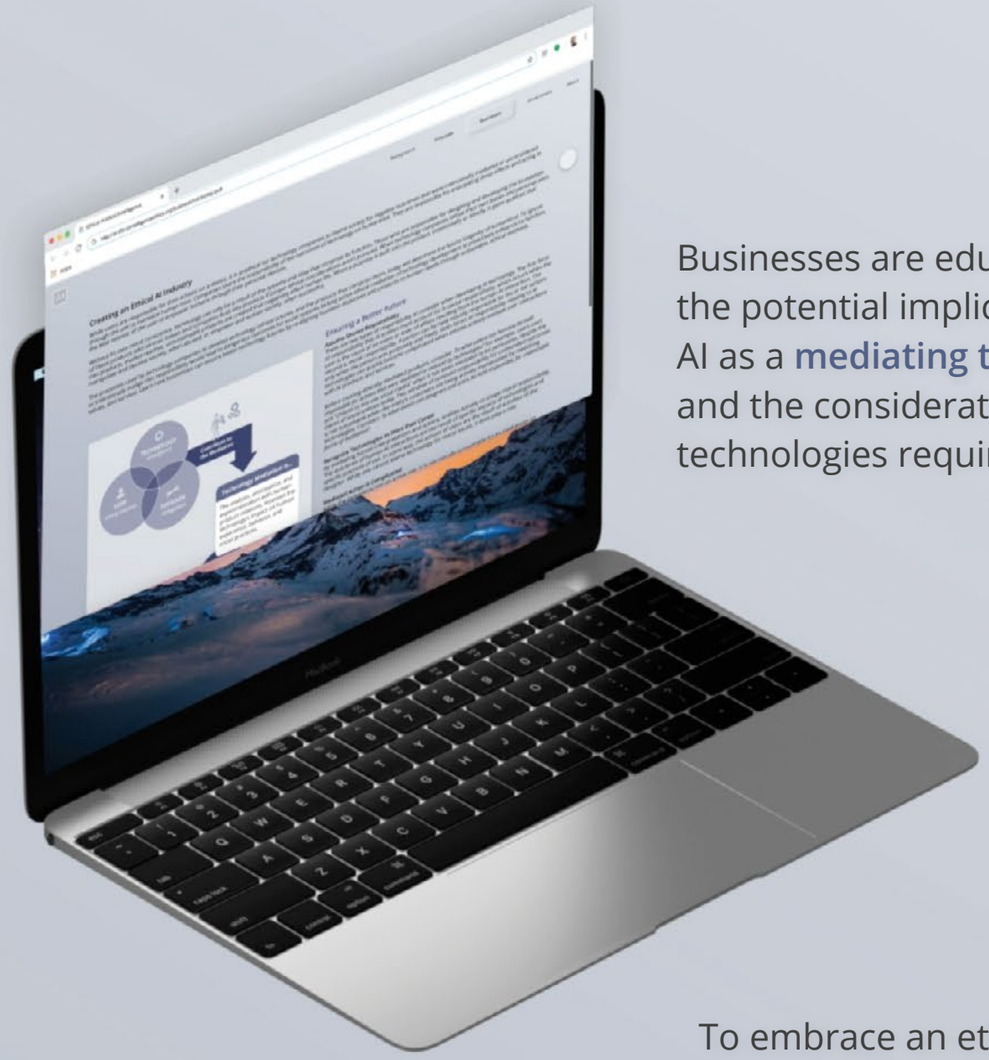


Business Strategy

Ethical AI Guide



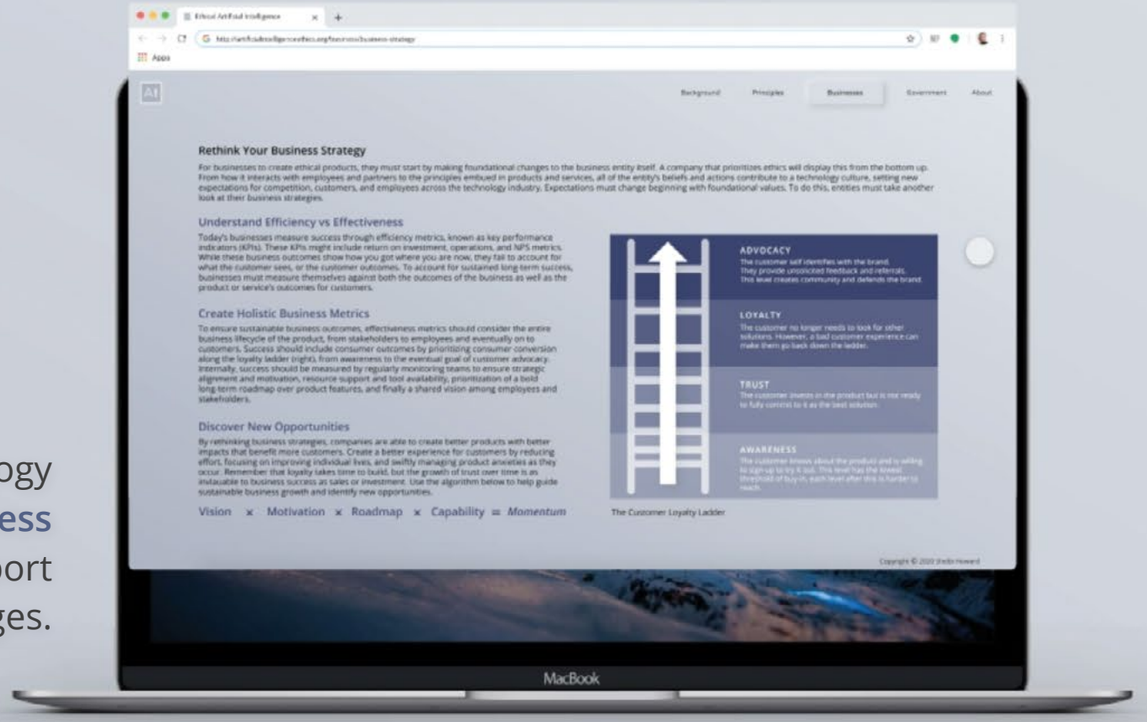
Responsibilities



Businesses are educated on the potential implications of AI as a **mediating technology** and the considerations these technologies require.

> **"We're seeing a kind of a Wild West situation with AI and regulation right now. The scale at which businesses are adopting AI technologies isn't matched by clear guidelines to regulate algorithms and help researchers avoid the pitfalls of bias in datasets."**
>
> — Timnit Gebru, Research Scientist, Google AI

To embrace an ethical AI technology within an existing entity, **business strategy** education provides support to make successful strategic changes.



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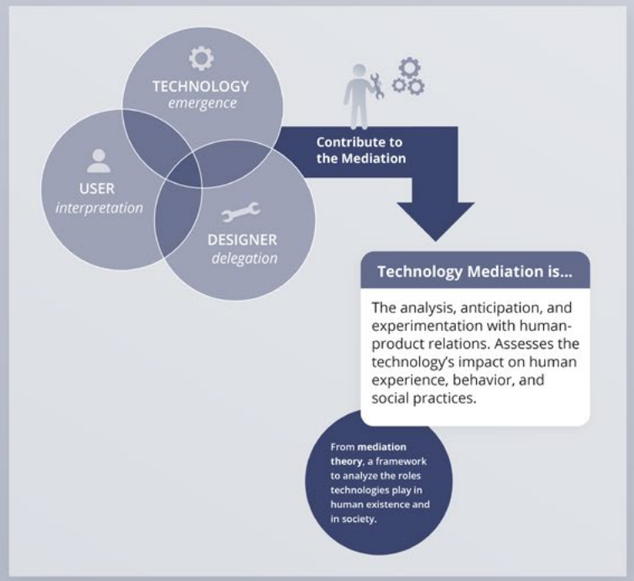
Background Principles **Businesses** Government About

Creating an Ethical AI Industry

While users are responsible for their actions on a device, it is unethical for technology companies to blame society for negative outcomes that were intentionally mediated or unconsidered through the aim to monetize human time. Companies share the responsibility of the outcomes of technology on humankind. They are responsible for anticipating these effects and acting in the best interest of the user to empower humans through their personal devices.

Without its own moral conscience, technology can only be a result of the systems and data that comprise its function. Those who are responsible for designing and developing the foundation of these products add intrinsic biases and corruption built into products if proper ethical considerations aren't pursued. When technology companies imbue their own biases and personal aims into products, market-reactive, unsustainable products are created that negatively affect human life. When a purpose is built into the product, intentionally or blindly, it gains qualities that manipulate and deceive society, when abused, or empower and sustain society, when successful.

The processes used by technology companies to develop technology infrastructures, and the products that comprise them, today will determine the future longevity of humankind. To ignore or intentionally malign this responsibility would lead to dangerous outcomes for social systems lacking active ethical mediation of technology development to proactively influence its function, values, and survival. Learn how businesses can ensure better technology futures by re-aligning business objectives and products to human needs through sustainable, ethical methods.



Ensuring a Better Future

Assume Shared Responsibility
There are two types of responsibility to consider when developing AI technology. The first form of responsibility that AI entities must account for is causal responsibility, which occurs when the user is the cause of an event or state of affairs resulting from the human-AI interaction. The second is moral responsibility. A person can be held morally responsible for his or her actions only when the person acts purposely and freely. Both forms of responsibility relating to AI technologies can quickly become complicated when entities actively mediate user interactions with AI products and services.

Before creating ethically mediated products, consider: *To what extent can humans be held responsible for actions that were mediated or induced by technologies?* For example, users can't just "choose to not use social media" when it has been mediated to be persuasive, despite the claims of social entities today. This mindset of removed responsibility for unintended outcomes is not sustainable when the entity's customers are being actively manipulated by mediating technologies. Consider: *To what extent can designers and users be held responsible for undesirable forms of mediation?*

Recognize Technologies as More than Causal
By mediating human interpretations and actions, entities actively co-shape moral responsibility. The outcomes of human-AI interactions are the result of specific impacts of technologies and specific practices of use. In some way, the actions of users are the result of activities of the designer. While one cannot blame technology for moral issues, it does play a role.

Mediated Action is Complicated
While the technology has an active role, it is not morally accountable for its mediations on human behavior. With the rise of AI, technologies are becoming full-fledged moral agents in the way humans are moral agents. However, it is important to remember that both users and designers are responsible for technologically mediated actions.

Realize Technology's Potential
Technology mediation should focus on the health and longevity of the humans using it. By applying ethics to the development of AI technology products and services, we can be proactive about our future.

Next: Business Strategy

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Wireframes show the **Mediating Technology** experience for businesses.

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Mediating Tech
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Responsibilities

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Rethink Your Business Strategy

For businesses to create ethical products, they must start by making foundational changes to the business entity itself. A company that prioritizes ethics will display this from the bottom up. From how it interacts with employees and partners to the principles embued in products and services, all of the entity's beliefs and actions contribute to a technology culture, setting new expectations for competition, customers, and employees across the technology industry. Expectations must change beginning with foundational values. To do this, entities must take another look at their business strategies.

Understand Efficiency vs Effectiveness

Today's businesses measure success through efficiency metrics, known as key performance indicators (KPIs). These KPIs might include return on investment, operations, and NPS metrics. While these business outcomes show how you got where you are now, they fail to account for what the customer sees, or the customer outcomes. To account for sustained long-term success, businesses must measure themselves against both the outcomes of the business as well as the product or service's outcomes for customers.

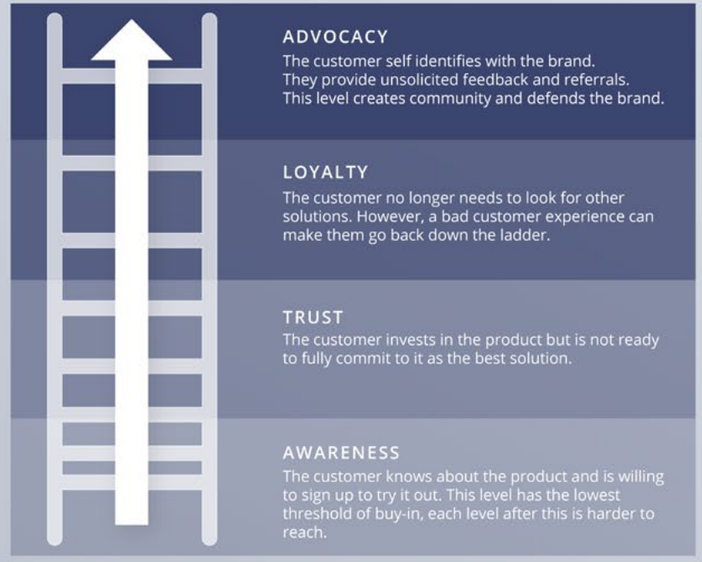
Create Holistic Business Metrics

To ensure sustainable business outcomes, effectiveness metrics should consider the entire business lifecycle of the product, from stakeholders to employees and eventually on to customers. Success should include consumer outcomes by prioritizing consumer conversion along the loyalty ladder (right), from awareness to the eventual goal of customer advocacy. Internally, success should be measured by regularly monitoring teams to ensure strategic alignment and motivation, resource support and tool availability, prioritization of a bold long-term roadmap over product features, and finally a shared vision among employees and stakeholders.

Discover New Opportunities

By rethinking business strategies, companies are able to create better products with better impacts that benefit more customers. Create a better experience for customers by reducing effort, focusing on improving individual lives, and swiftly managing product anxieties as they occur. Remember that loyalty takes time to build, but the growth of trust over time is as invlauable to business success as sales or investment. Use the algorithm below to help guide sustainable business growth and identify new opportunities.

Vision × Motivation × Roadmap × Capability = *Momentum*



The Customer Loyalty Ladder

Next: Guide to Make Ethical AI

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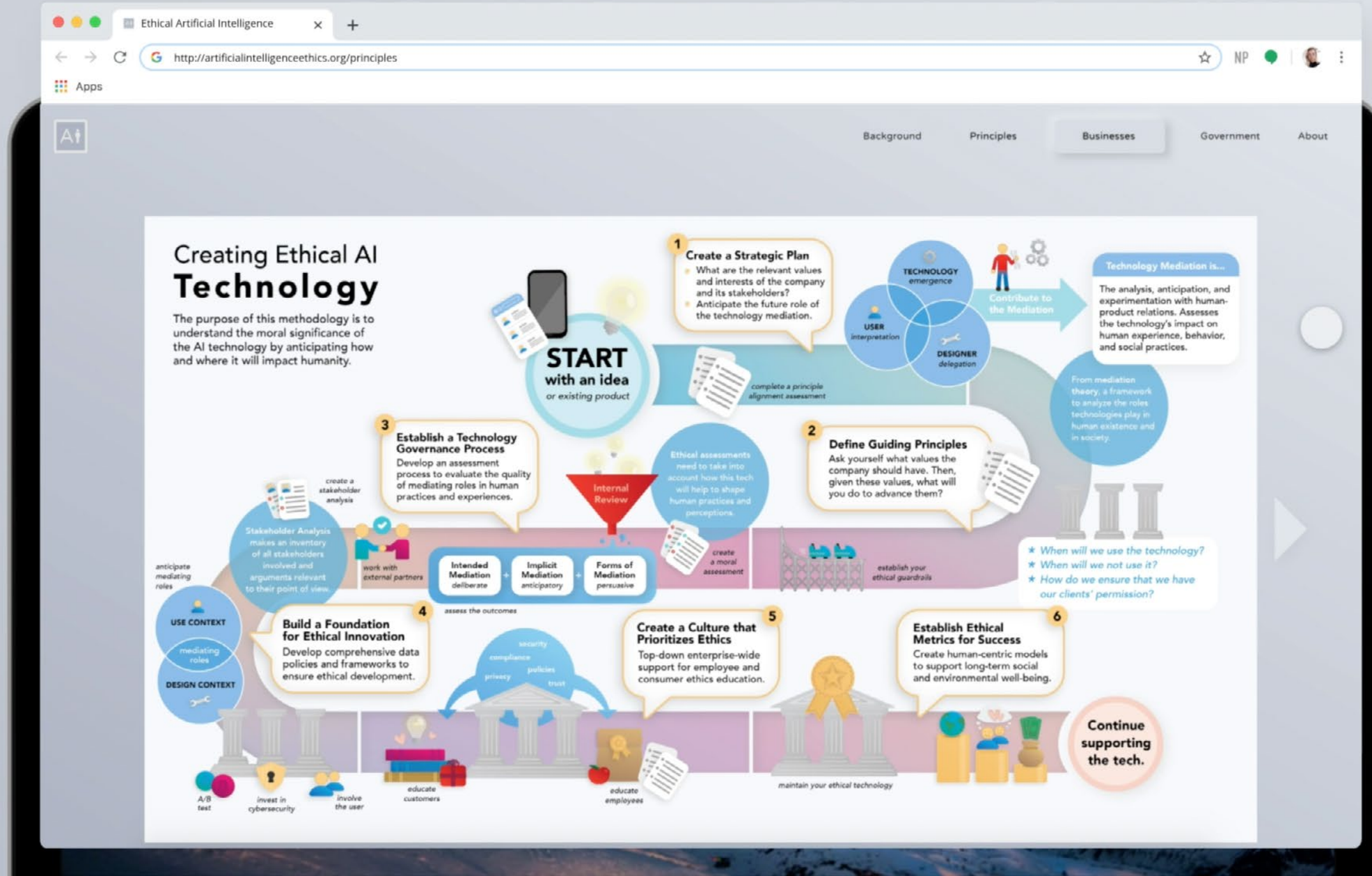
Wireframes show the **Business Strategy** experience for businesses.

The **Ethical AI Development Guide** provides step-by-step guidance with tools to businesses.



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Risks + Benefits

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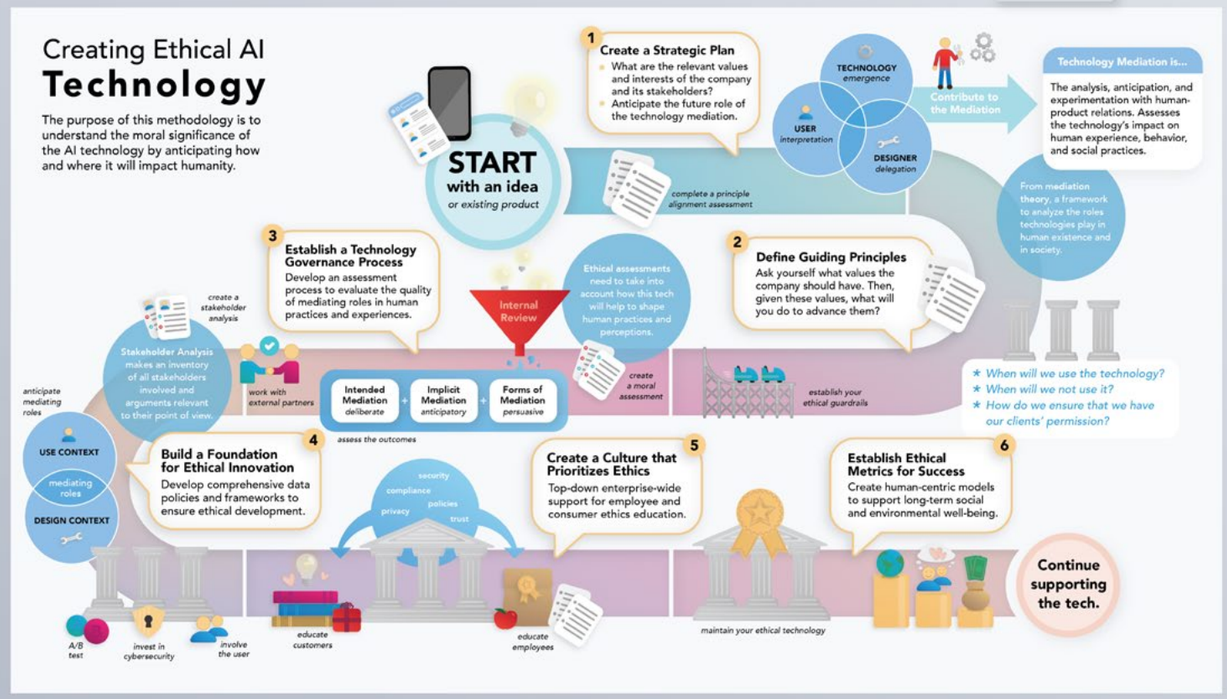

Guide to Create an Ethical AI Business

1 of 10

To create an ethical AI technology, the entity must have the necessary architecture in place to properly develop and support the technology. The following is a step-by-step approach for entities to ensure that both their business competencies and their technology are ethically aligned.

The aim of this approach is a two-fold focus on the entity and its technology. First, a framework for entities to ensure ethical development through their guiding principles, culture, and employee structure. Secondly, the tools provided with this approach assist entities in understanding the moral significance of the technology by anticipating how and where it will impact. Ultimately, entities are provided the resources to create a wholistic ethical approach with their AI technology.

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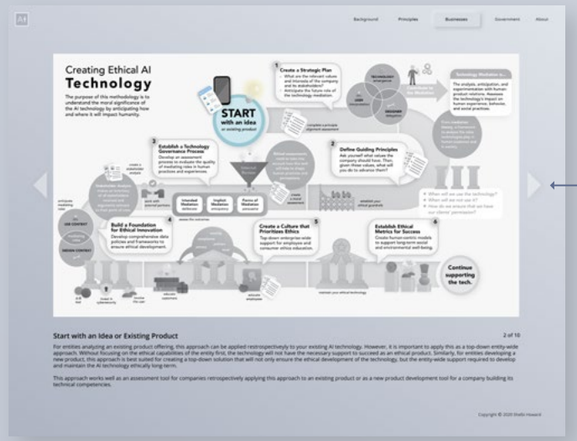
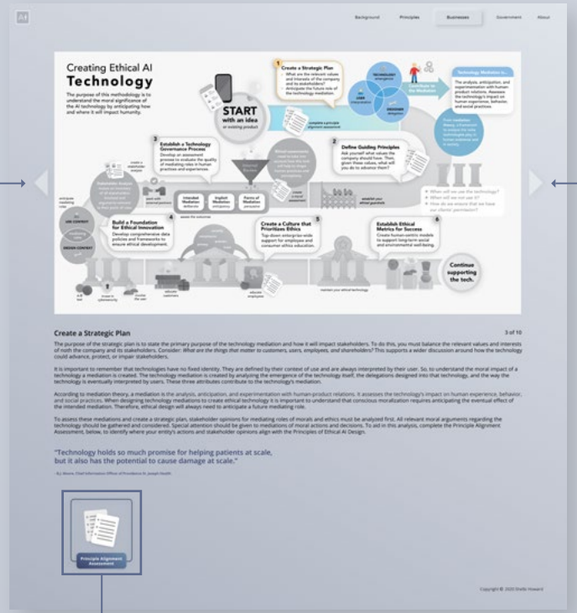
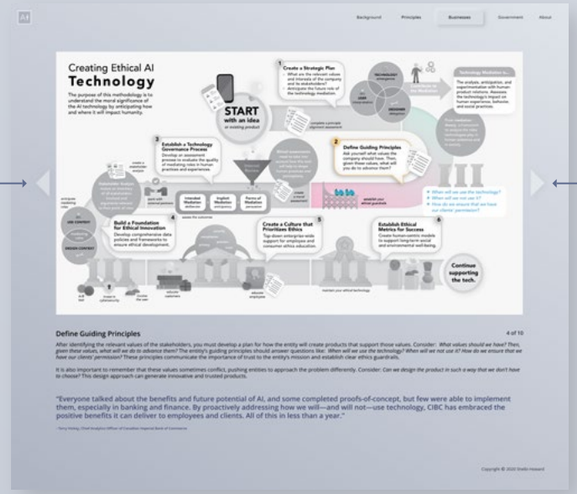
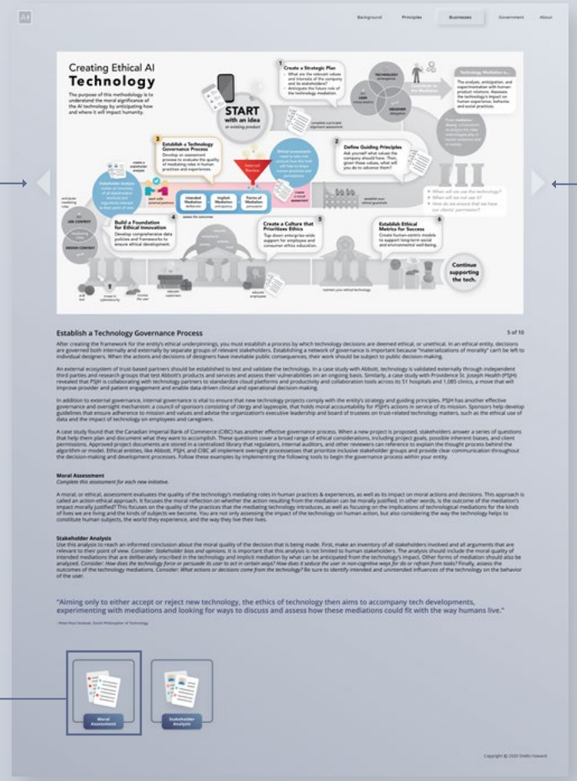
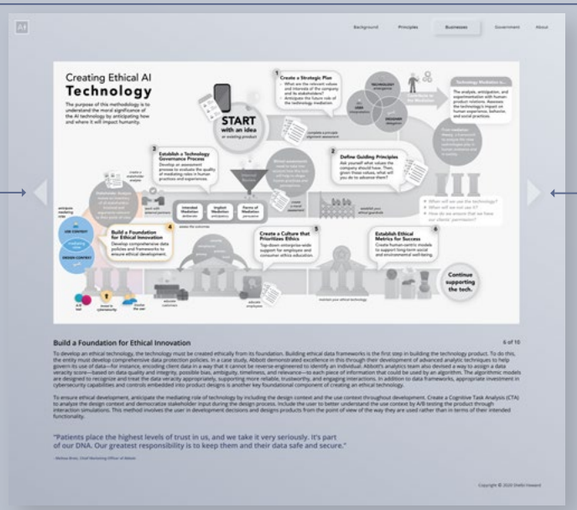
Wireframes show the **Ethical AI Development Guide** experience for businesses.

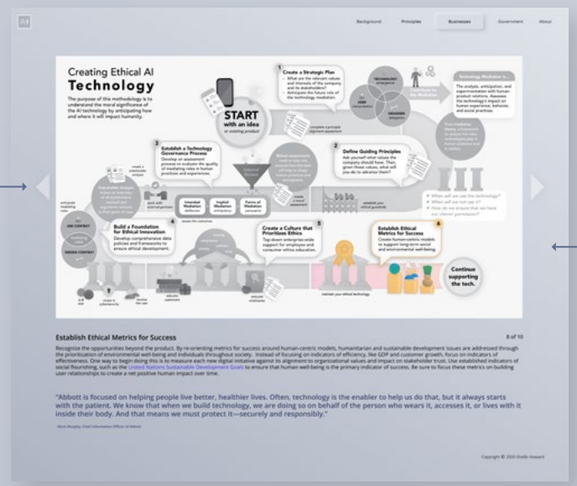


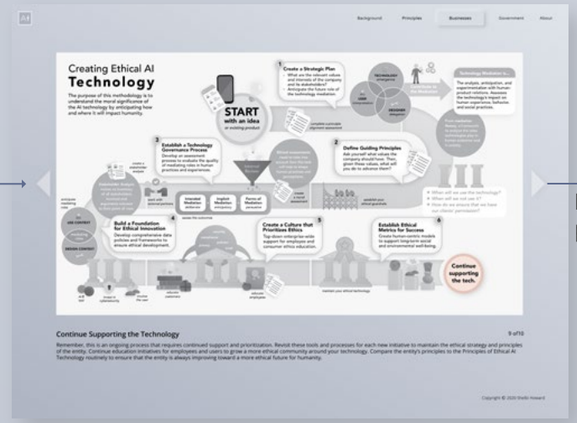












Complete a principle alignment assessment

Animate icon on hover

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Complete a moral assessment

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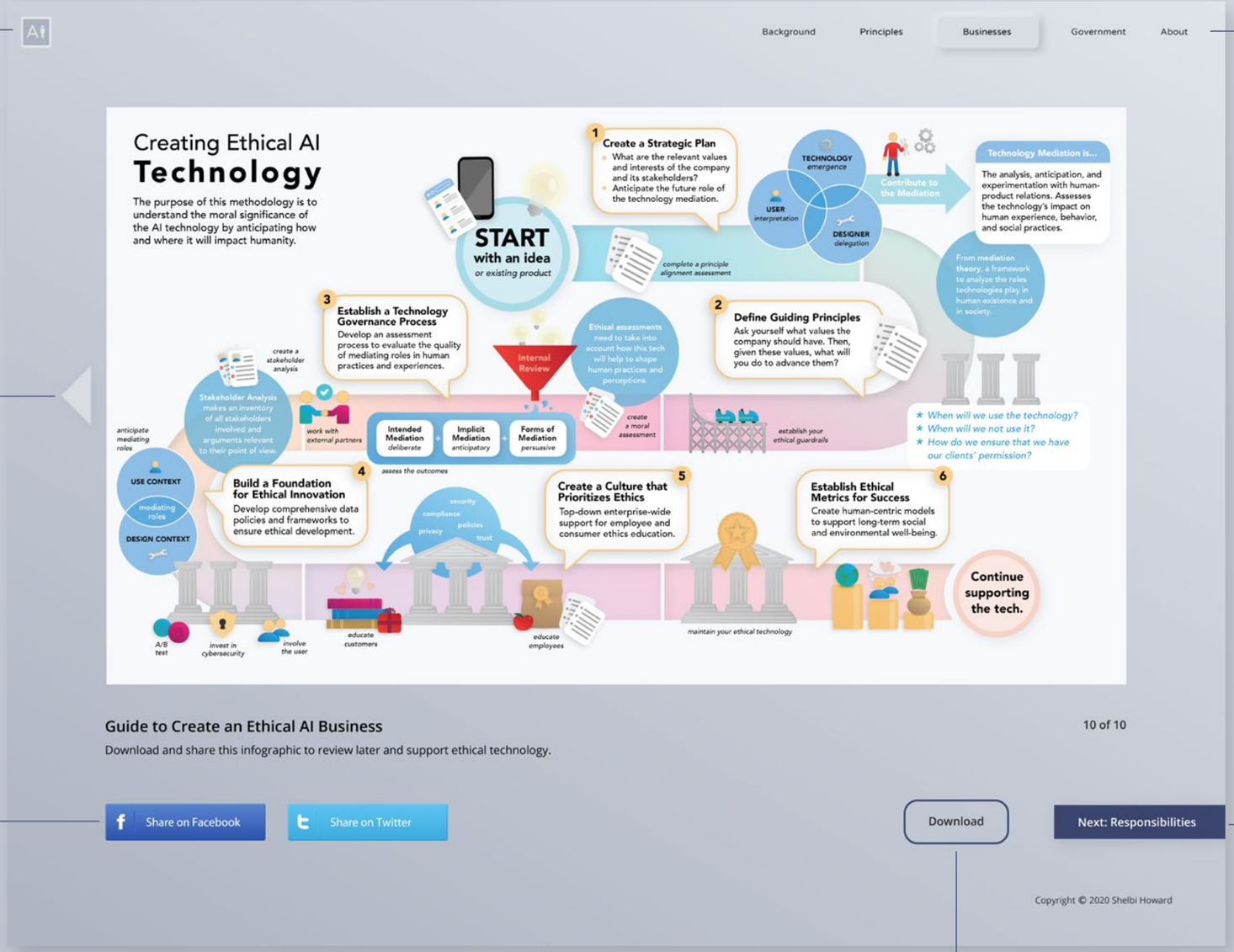
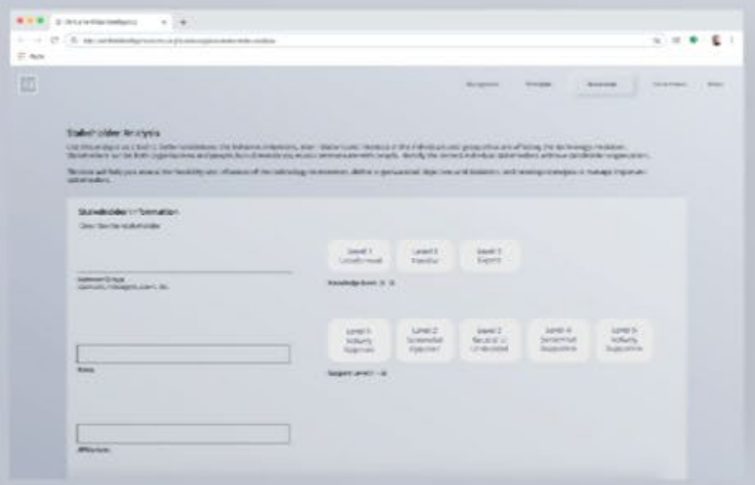


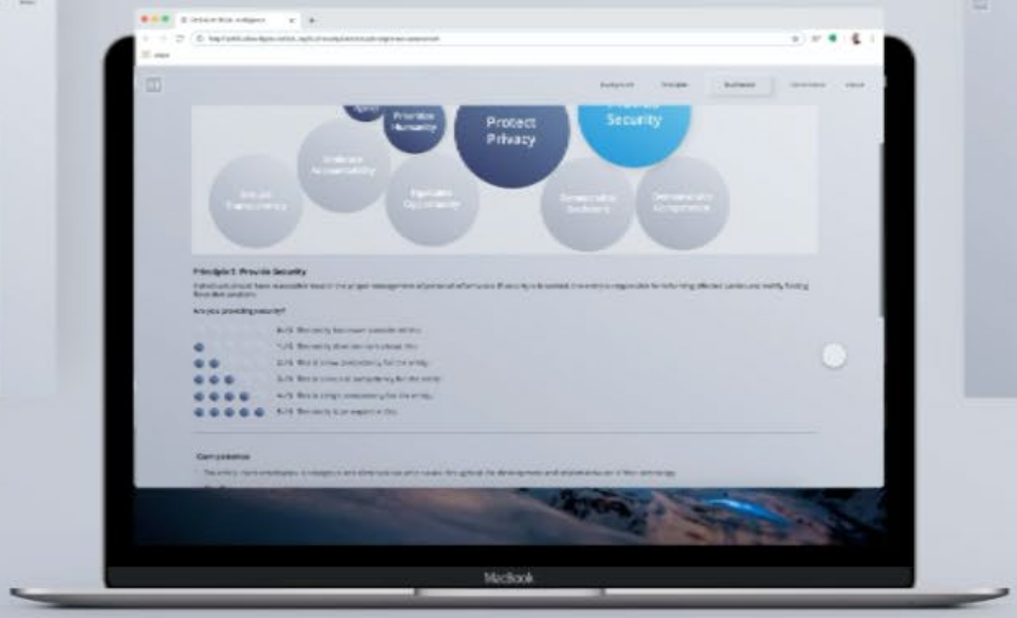
Wireframes show the **Ethical AI Development Guide** experience for businesses.

Three tools guide businesses through the ethical development of AI technologies and entities.



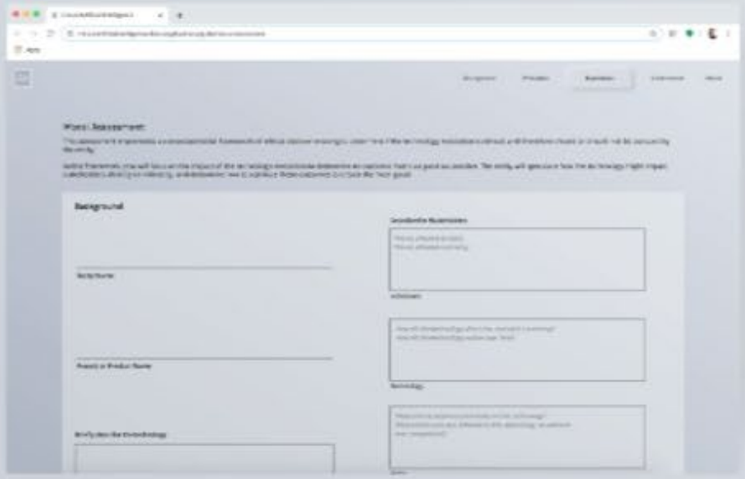
Stakeholder Analysis

Analyze stakeholder opinions and impact based on personal bias, involvement, and power.



Principle Alignment Assessment

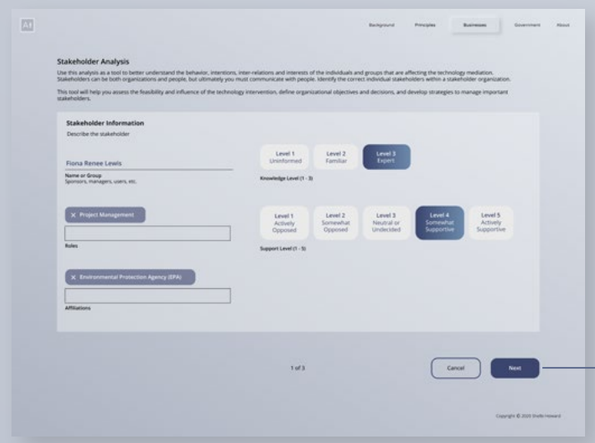
Compare entity and product values to the Ten Principles of Ethical AI.



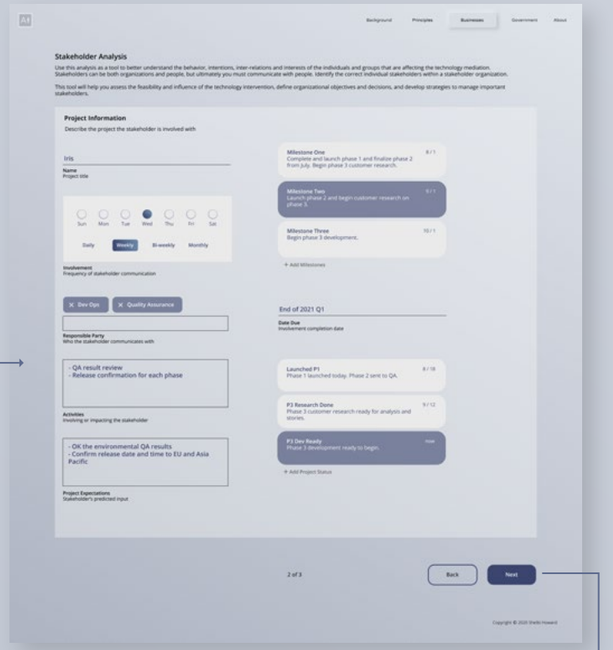
Moral Assessment

Anticipate the ethical impact of the technology mediation.

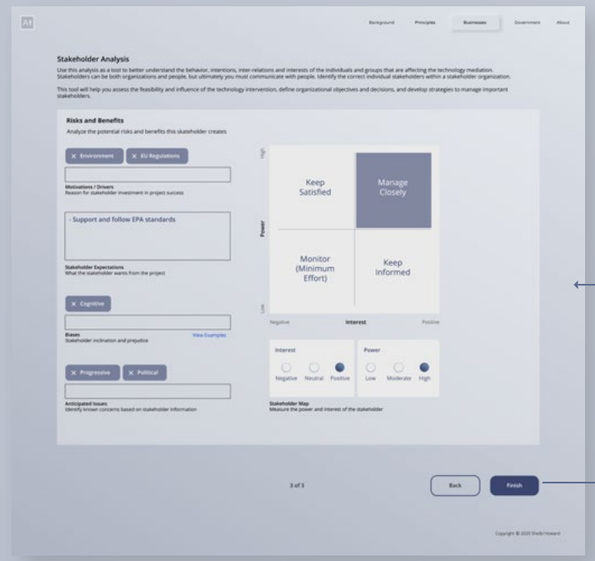
The **Stakeholder Analysis** was created based on project management methods and the environmental screening stakeholder concept (Menlow, 1981).



Stakeholder Information (1/3)



Project Information (2/3)



Risks and Benefits (3/3)

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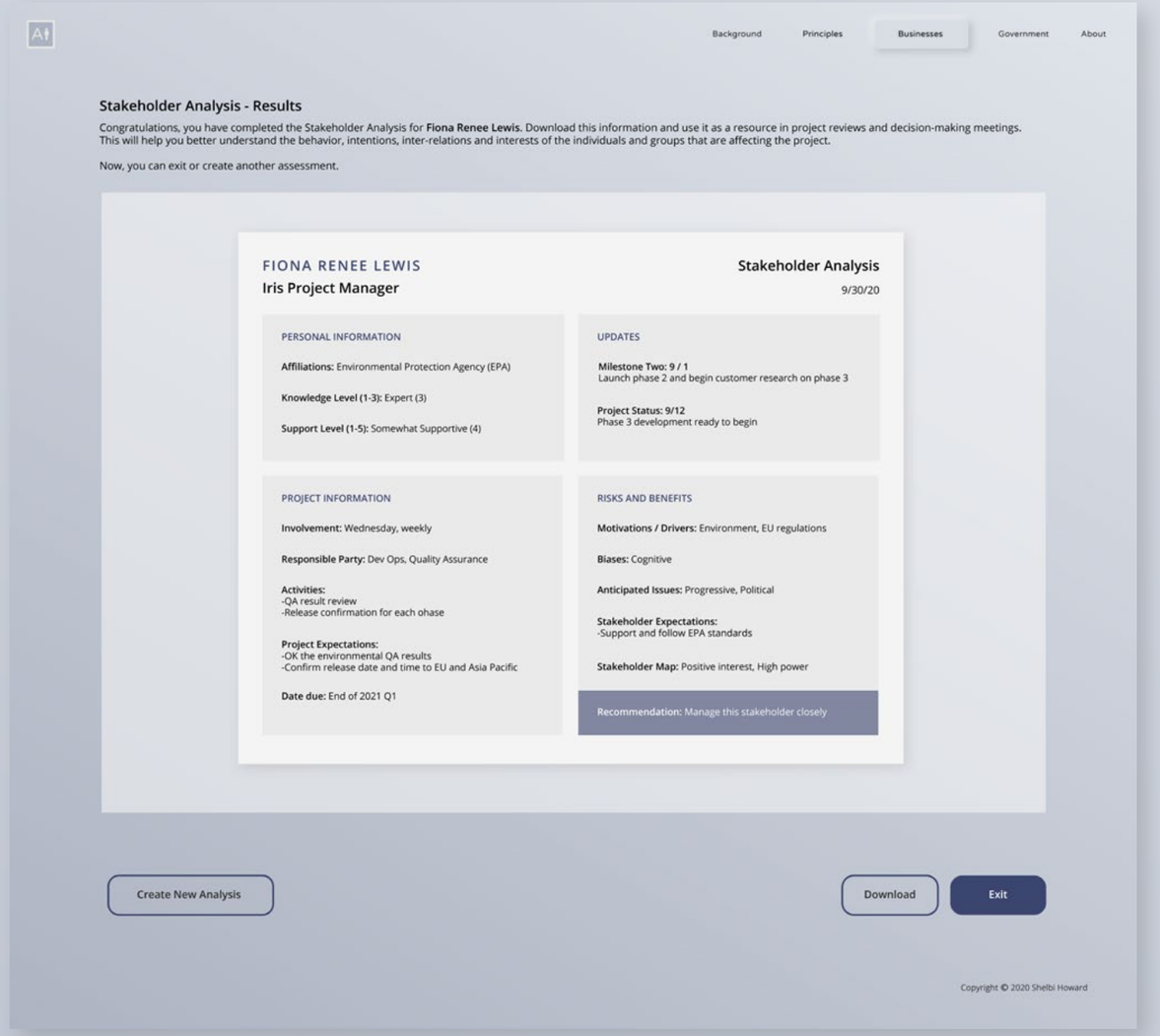
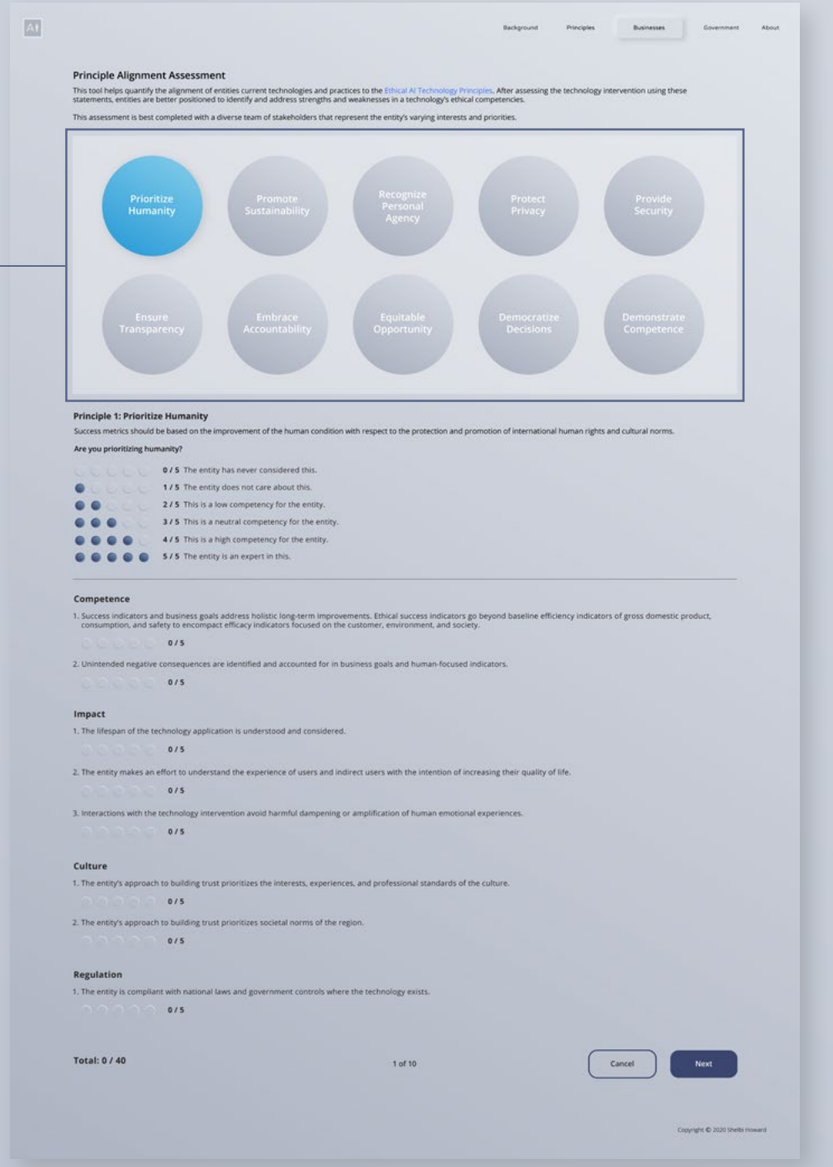
Results



Results provide a carded biography of the stakeholder with management recommendations for the entity.

The **Principle Alignment Assessment** is a novel tool developed to compare current business values to the Ten Principles of Ethical AI.

Data visualization updates as user completes form.



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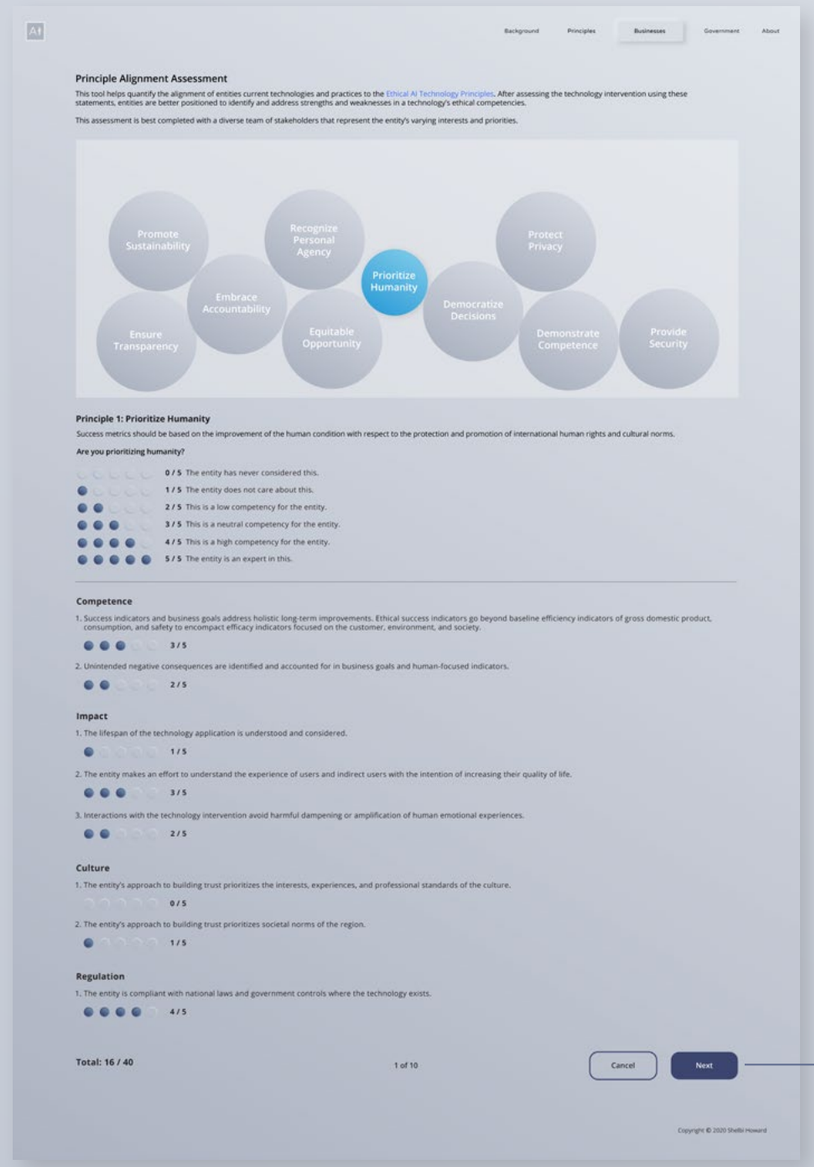

Principle 1 Complete (1/10)

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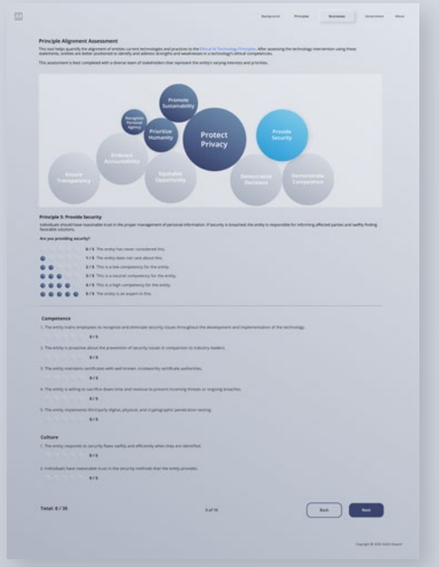
Principle 2 incomplete (2/10)

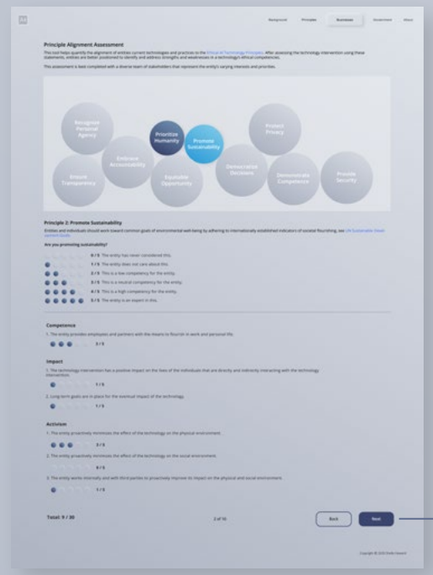
Principle 3 incomplete (3/10)

Principle 4 incomplete (4/10)



Principle 5 incomplete (5/10)

Principle 6 incomplete (6/10)



Principle 2 complete (2/10)

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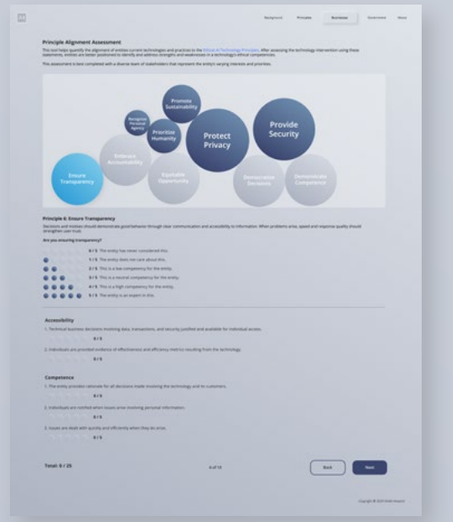
Principle 3 complete (3/10)

Principle 4 complete (4/10)

Principle 5 complete (5/10)

Principle 6 complete (6/10)

Next page



Principle 7 incomplete (7/10)

Principle 8 incomplete (8/10)

Principle 9 incomplete (9/10)

Principle 10 incomplete (10/10)

Principle 7 complete (7/10)

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Click

Principle 8 complete (8/10)

Principle 9 complete (9/10)

Principle 10 complete (10/10)

Results

Click

Results show strengths and weaknesses in businesses' ethical AI values and instruct them on ways to improve.

Results

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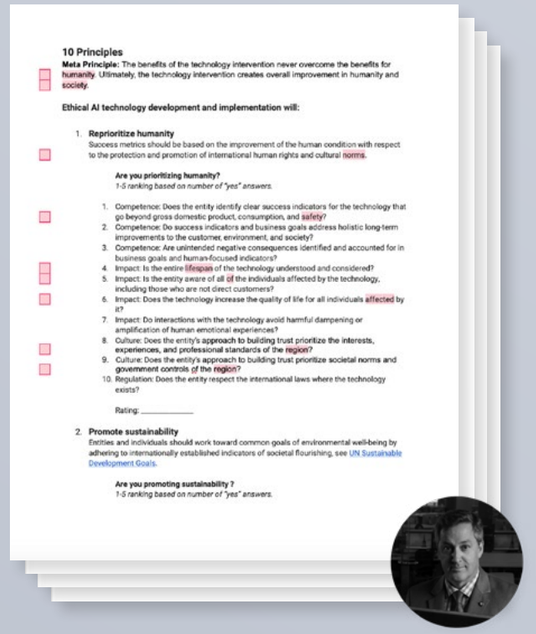
Results (expanded)



10 Principles

Meta Principle: The benefits of the technology intervention never overcome the benefits for humanity. Ultimately, the technology intervention creates overall improvement in humanity and society.

Ethical AI technology development and implementation will:

1. **Reprioritize humanity**
   Success metrics should be based on the improvement of the human condition with respect to the protection and promotion of international human rights and cultural norms.

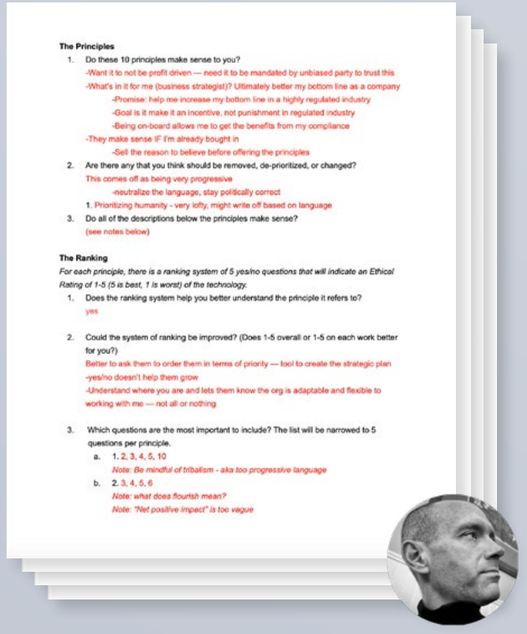
   Are you prioritizing humanity?
   1-5 ranking based on number of "yes" answers.

   1. Competence: Does the entity identify clear success indicators for the technology that go beyond gross domestic product, consumption, and safety?
   2. Competence: Do success indicators and business goals address holistic long-term improvements to the customer, environment, and society?
   3. Competence: Are unintended negative consequences identified and accounted for in business goals and human-focused indicators?
   4. Impact: Is the entire lifespan of the technology understood and considered?
   5. Impact: Is the entity aware of all of the individuals affected by the technology, including those who are not direct customers?
   6. Impact: Does the technology increase the quality of life for all individuals affected by it?
   7. Impact: Do interactions with the technology avoid harmful dampening or amplification of human emotional experiences?
   8. Culture: Does the entity's approach to building trust prioritize the interests, experiences, and professional standards of the region?
   9. Culture: Does the entity's approach to building trust prioritize societal norms and government controls of the region?
   10. Regulation: Does the entity respect the international laws where the technology exists?

   Rating: _____

2. **Promote sustainability**
   Entities and individuals should work toward common goals of environmental well-being by adhering to internationally established indicators of societal flourishing, see UN Sustainable Development Goals.

   Are you promoting sustainability ?
   1-5 ranking based on number of "yes" answers.



The Principles

1. Do these 10 principles make sense to you?
   -Want it to not be profit driven — need it to be mandated by unbiased party to trust this
   -What's in it for me (business strategist)? Ultimately better my bottom line as a company
   -Promise: help me increase my bottom line in a highly regulated industry
   -Goal is it make it an incentive, not punishment in regulated industry
   -Being on-board allows me to get the benefits from my compliance
   -They make sense IF I'm already bought in
   -Sell the reason to believe before offering the principles
2. Are there any that you think should be removed, de-prioritized, or changed?
   This comes off as being very progressive
   -neutralize the language, stay politically correct
   1. Prioritizing humanity - very lofty, might write off based on language
3. Do all of the descriptions below the principles make sense?
   (see notes below)

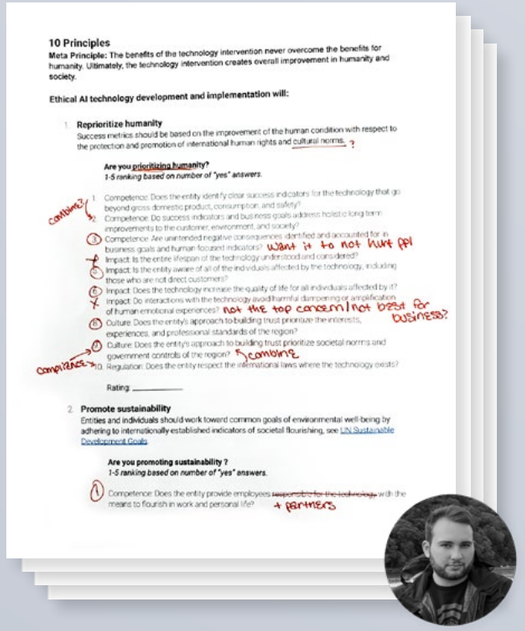
The Ranking

For each principle, there is a ranking system of 5 yes/no questions that will indicate an Ethical Rating of 1-5 (5 is best, 1 is worst) of the technology.

1. Does the ranking system help you better understand the principle it refers to?
   yes

2. Could the system of ranking be improved? (Does 1-5 overall or 1-5 on each work better for you?)
   Better to ask them to order them in terms of priority — tool to create the strategic plan
   -yes/no doesn't help them grow
   -Understand where you are and lets them know the org is adaptable and flexible to working with me — not all or nothing

3. Which questions are the most important to include? The list will be narrowed to 5 questions per principle.
   a. 1, 2, 3, 4, 5, 10
      Note: Be mindful of tribalism - aka too progressive language
   b. 2, 3, 4, 5, 6
      Note: what does flourish mean?
      Note: "Net positive impact" is too vague



10 Principles

Meta Principle: The benefits of the technology intervention never overcome the benefits for humanity. Ultimately, the technology intervention creates overall improvement in humanity and society.

Ethical AI technology development and implementation will:

1. **Reprioritize humanity**
   Success metrics should be based on the improvement of the human condition with respect to the protection and promotion of international human rights and cultural norms. ?

   Are you prioritizing humanity?
   1-5 ranking based on number of "yes" answers.

   1. Competence: Does the entity identify clear success indicators for the technology that go beyond gross domestic product, consumption, and safety?
   2. Competence: Do success indicators and business goals address holistic long-term improvements to the customer, environment, and society?
   3. Competence: Are unintended negative consequences identified and accounted for in business goals and human-focused indicators? want it to not hurt ppl
   4. Impact: Is the entire lifespan of the technology understood and considered?
   5. Impact: Is the entity aware of all of the individuals affected by the technology, including those who are not direct customers?
   6. Impact: Does the technology increase the quality of life for all individuals affected by it?
   7. Impact: Do interactions with the technology avoid harmful dampening or amplification of human emotional experiences? not the top concern/not best for business?
   8. Culture: Does the entity's approach to building trust prioritize the interests, experiences, and professional standards of the region?
   9. Culture: Does the entity's approach to building trust prioritize societal norms and government controls of the region? ↑ combine
   10. Regulation: Does the entity respect the international laws where the technology exists?

   Rating: _____

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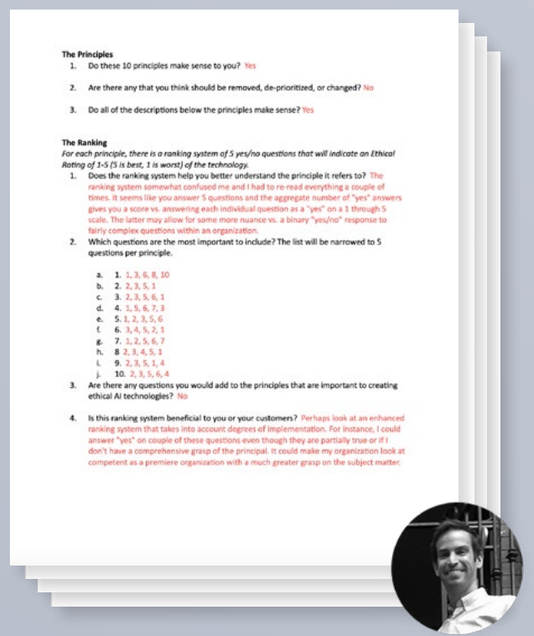
   Entities and individuals should work toward common goals of environmental well-being by adhering to internationally established indicators of societal flourishing, see UN Sustainable Development Goals.

   Are you promoting sustainability ?
   1-5 ranking based on number of "yes" answers.

   1. Competence: Does the entity provide employees ~~responsible for the technology~~ with the means to flourish in work and personal life? + partners



The Principles

1. Do these 10 principles make sense to you? Yes
2. Are there any that you think should be removed, de-prioritized, or changed? No
3. Do all of the descriptions below the principles make sense? Yes

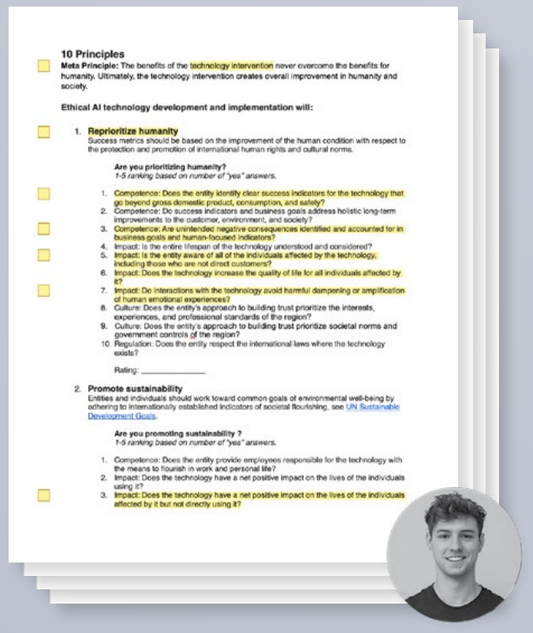
The Ranking

For each principle, there is a ranking system of 5 yes/no questions that will indicate an Ethical Rating of 1-5 (5 is best, 1 is worst) of the technology.

1. Does the ranking system help you better understand the principle it refers to? The ranking system somewhat confused me and I had to re-read everything a couple of times. It seems like you answer 5 questions and the aggregate number of "yes" answers gives you a score vs. answering each individual question as a "yes" on a 1 through 5 scale. The latter may allow for some more nuance vs. a binary "yes/no" response to fairly complex questions within an organization.
2. Which questions are the most important to include? The list will be narrowed to 5 questions per principle.

   a. 1. 1, 3, 6, 8, 10
   b. 2. 2, 3, 5, 1
   c. 3. 2, 3, 5, 6, 1
   d. 4. 1, 5, 6, 7, 3
   e. 5. 1, 2, 3, 5, 6
   f. 6. 3, 4, 5, 2, 1
   g. 7. 1, 2, 5, 6, 7
   h. 8 2, 3, 4, 5, 1
   i. 9. 2, 3, 5, 1, 4
   j. 10. 2, 3, 5, 6, 4

3. Are there any questions you would add to the principles that are important to creating ethical AI technologies? No
4. Is this ranking system beneficial to you or your customers? Perhaps look at an enhanced ranking system that takes into account degrees of implementation. For instance, I could answer "yes" on couple of these questions even though they are partially true or if I don't have a comprehensive grasp of the principal. It could make my organization look at competent as a premiere organization with a much greater grasp on the subject matter.



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   Rating: _____

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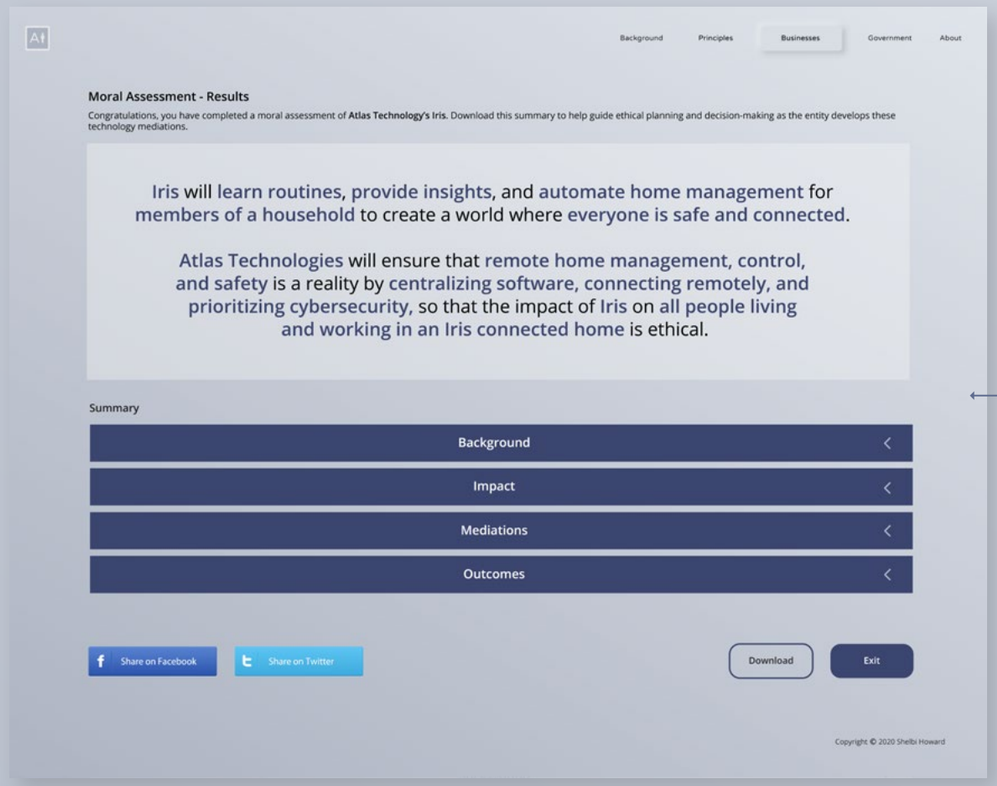
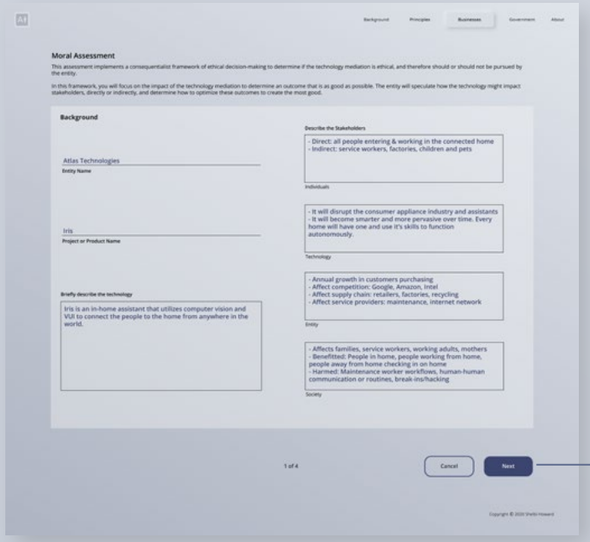
   1. Competence: Does the entity provide employees responsible for the technology with the means to flourish in work and personal life?
   2. Impact: Does the technology have a net positive impact on the lives of the individuals using it?
   3. Impact: Does the technology have a net positive impact on the lives of the individuals affected by it but not directly using it?

The Principle Alignment Assessment was validated through **user interviews with stakeholders and industry experts** to determine the most strategically insightful questionnaire for AI technology entities.

The **Moral Assessment** is a novel tool combining Verbeek's Technology Mediation Theory and a consequentialist framework of moral reasoning to determine if the proposed technology is ethical or not.



Results provide a vision for the technology's impact and a clear roadmap for the technology to meet entity goals.



Background (1/4)

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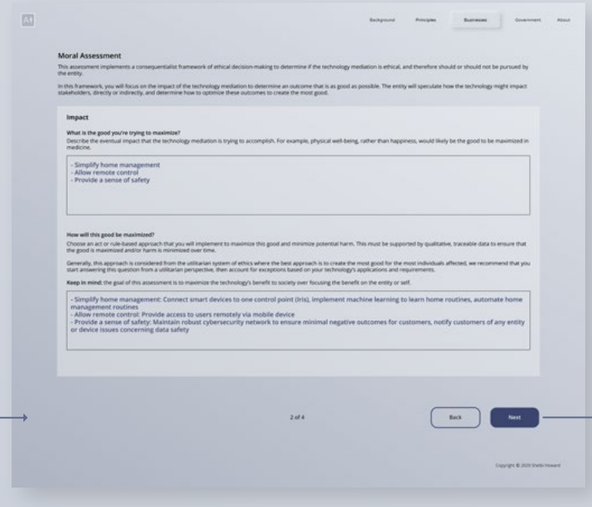

Impact (2/4)

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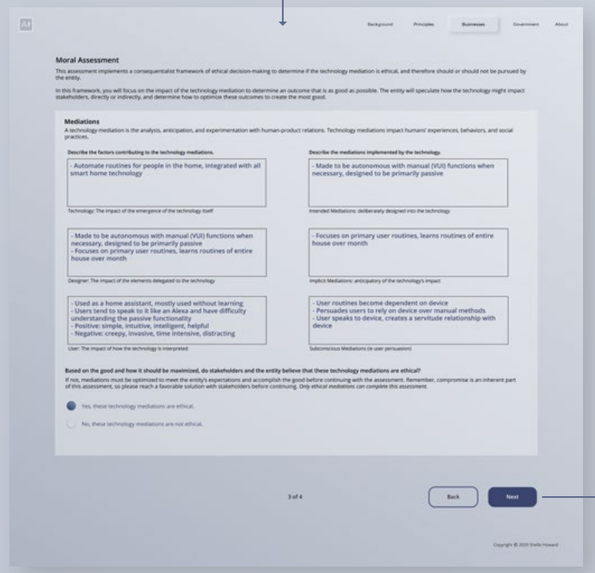

Mediations (3/4)

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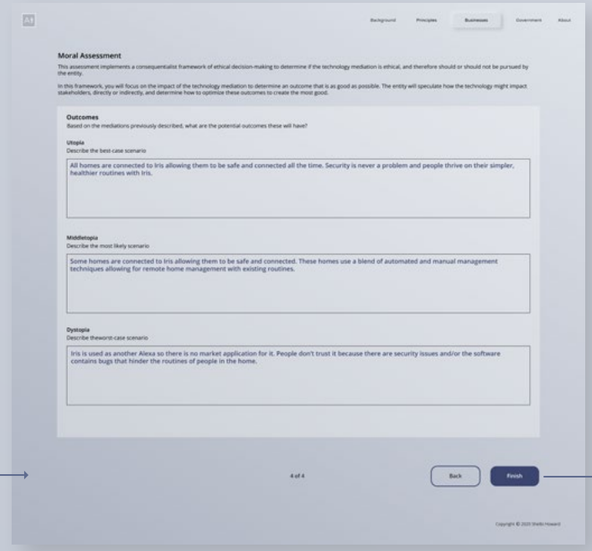

Outcomes (4/4)

Results

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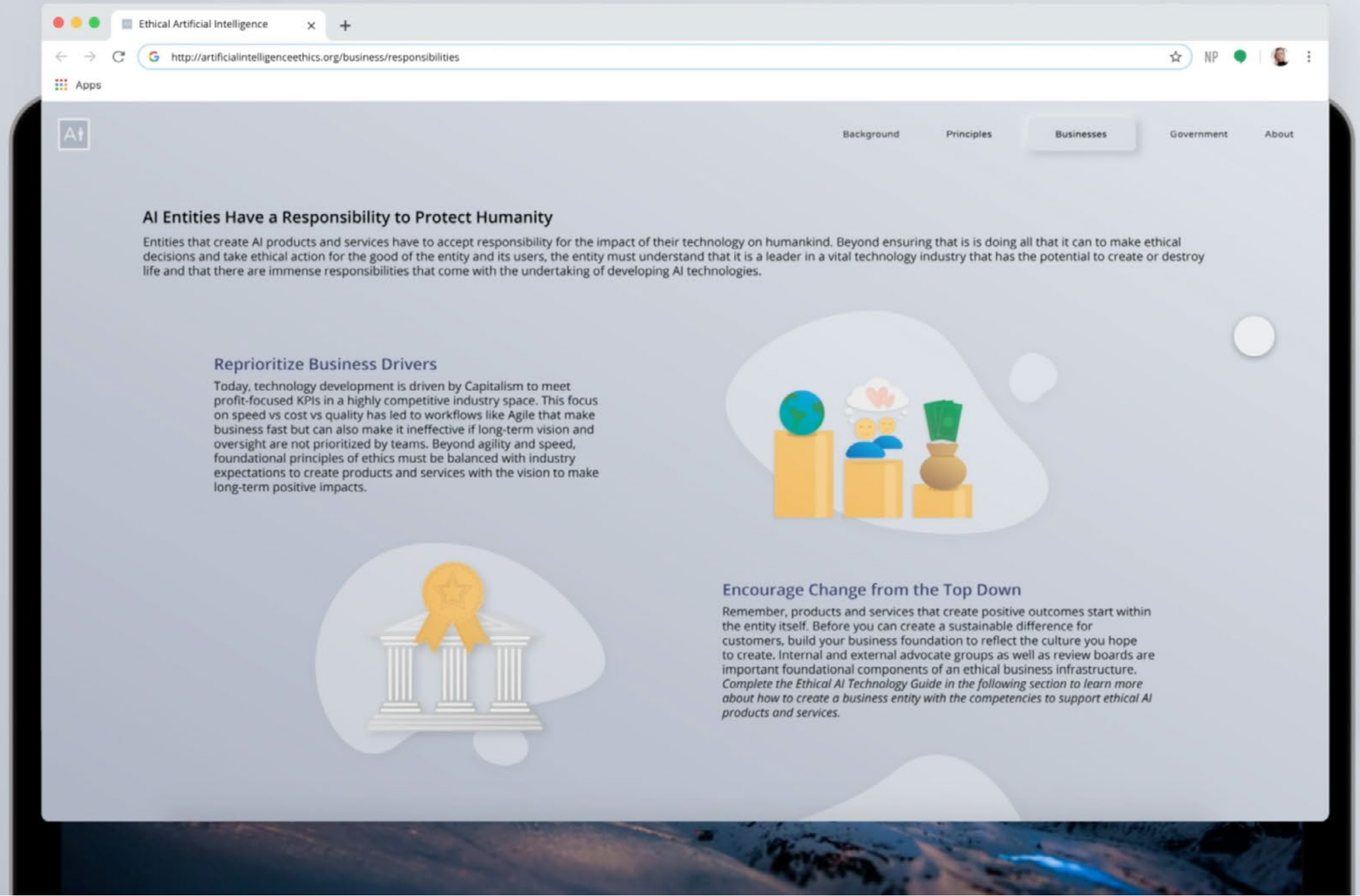
AI entities' **responsibilities** provide insight into the implications of AI technology for humans and their ethical imperative.



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Background Principles Businesses Government About

Mediating Tech
Business Strategy
Ethical AI Guide
Responsibilities

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AI Entities Have a Responsibility to Protect Humanity

Entities that create AI products and services have to accept responsibility for the impact of their technology on humankind. Beyond ensuring that is is doing all that it can to make ethical decisions and take ethical action for the good of the entity and its users, the entity must understand that it is a leader in a vital technology industry that has the potential to create or destroy life and that there are immense responsibilities that come with the undertaking of developing AI technologies.

Reprioritize Business Drivers

Today, technology development is driven by Capitalism to meet profit-focused KPIs in a highly competitive industry space. This focus on speed vs cost vs quality has led to workflows like Agile that make business fast but can also make it ineffective if long-term vision and oversight are not prioritized by teams. Beyond agility and speed, foundational principles of ethics must be balanced with industry expectations to create products and services with the vision to make long-term positive impacts.

Microanimation 1

Animate

Microanimation 2

Animate

Encourage Change from the Top Down

Remember, products and services that create positive outcomes start within the entity itself. Before you can create a sustainable difference for customers, build your business foundation to reflect the culture you hope to create. Internal and external advocate groups as well as review boards are important foundational components of an ethical business infrastructure. *Complete the Ethical AI Technology Guide in the following section to learn more about how to create a business entity with the competencies to support ethical AI products and services.*

Protect the Health, Safety, and Rights of Humanity

AI technology will change the course of humanity. It is up to the leaders of AI to build an infrastructure that benefits humankind by ensuring ethical implementation of mediating AI technologies and prioritizing humans in the products and services they create. Learn more about how to do this with the following tools to help entities learn about, design for, and provide continued support of ethical AI technology businesses, products, and communities.

Microanimation 3

Animate

"Much has been written about AI's potential to reflect both the best and the worst of humanity. We have seen AI providing conversation and comfort to the lonely; we have also seen AI engaging in racial discrimination... *As leaders, it is incumbent on all of us to make sure we are building a world in which every individual has an opportunity to thrive."*

– Andrew Ng, *Co-founder and lead of Google Brain.*

Next: About the Project

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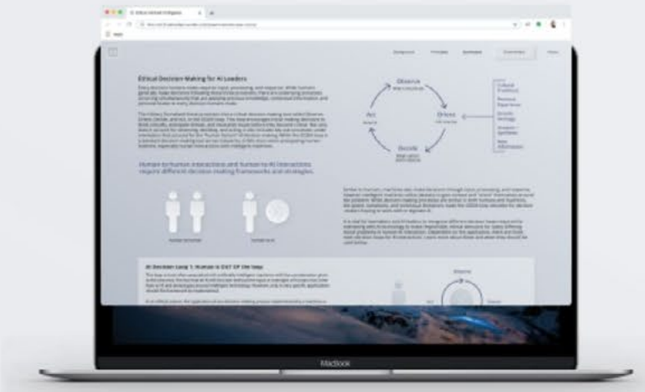
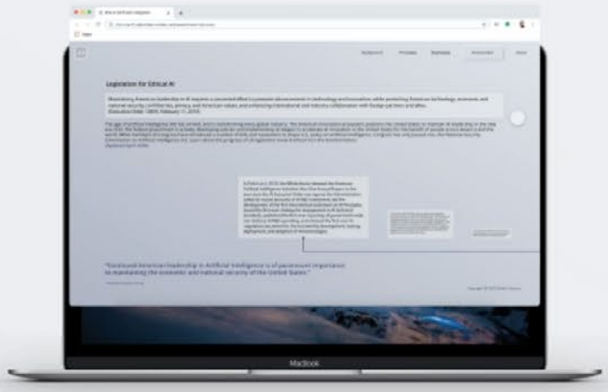
Wireframes show the **Responsibilities** experience for businesses.

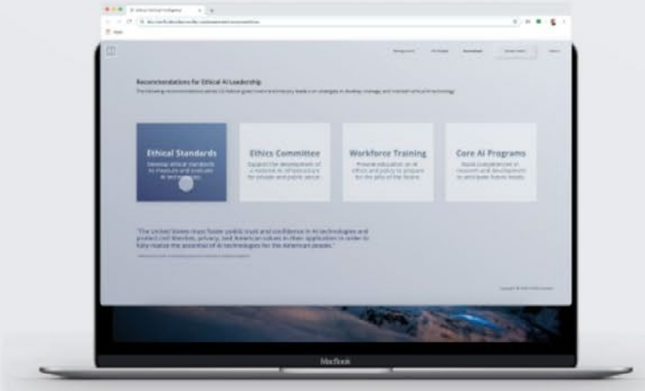
Governments are given the resources to make educated decisions for AI technology legislation.



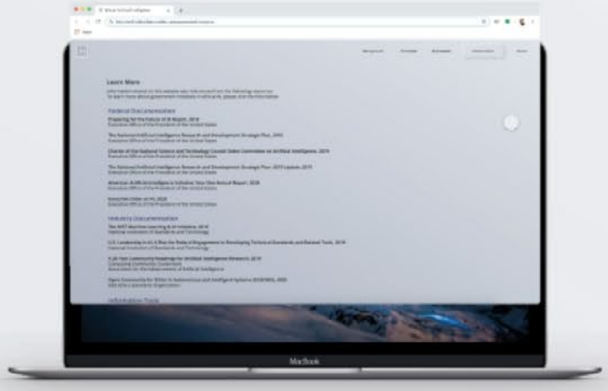
Decision-making



Legislation

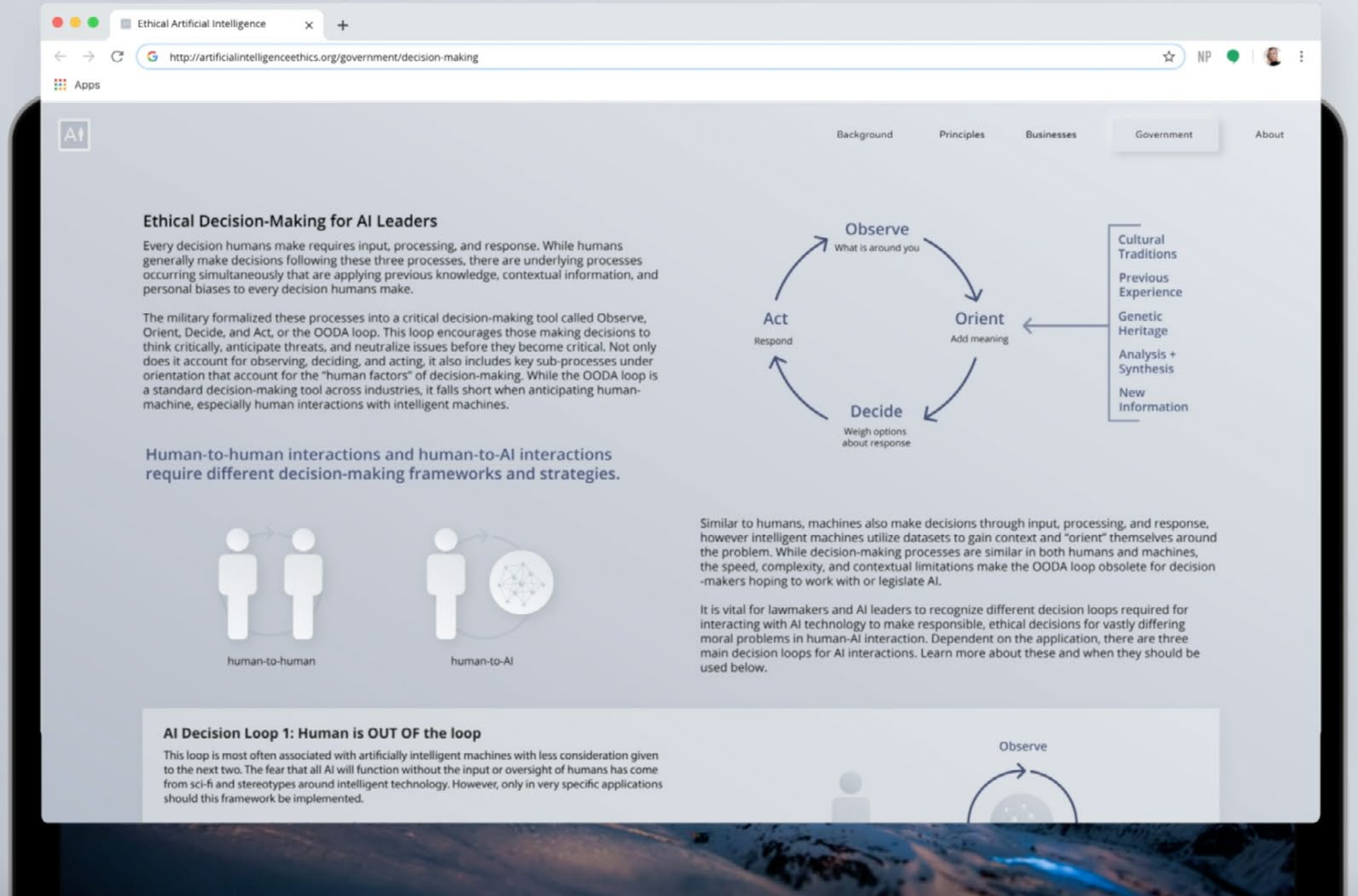


Recommendations



Resources

Legislators must understand how **decision-making** needs differ in AI technologies to determine the best trajectory for each industry's needs.



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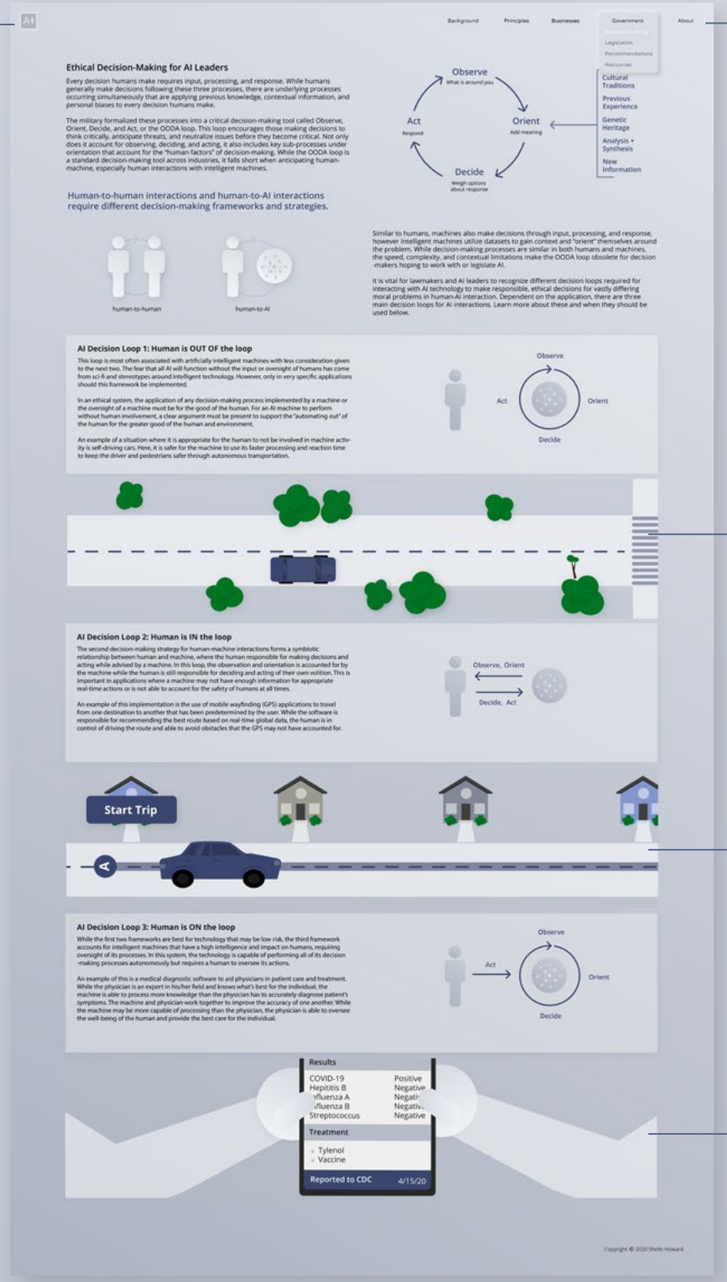

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Decision Loop 1

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Decision Loop 2

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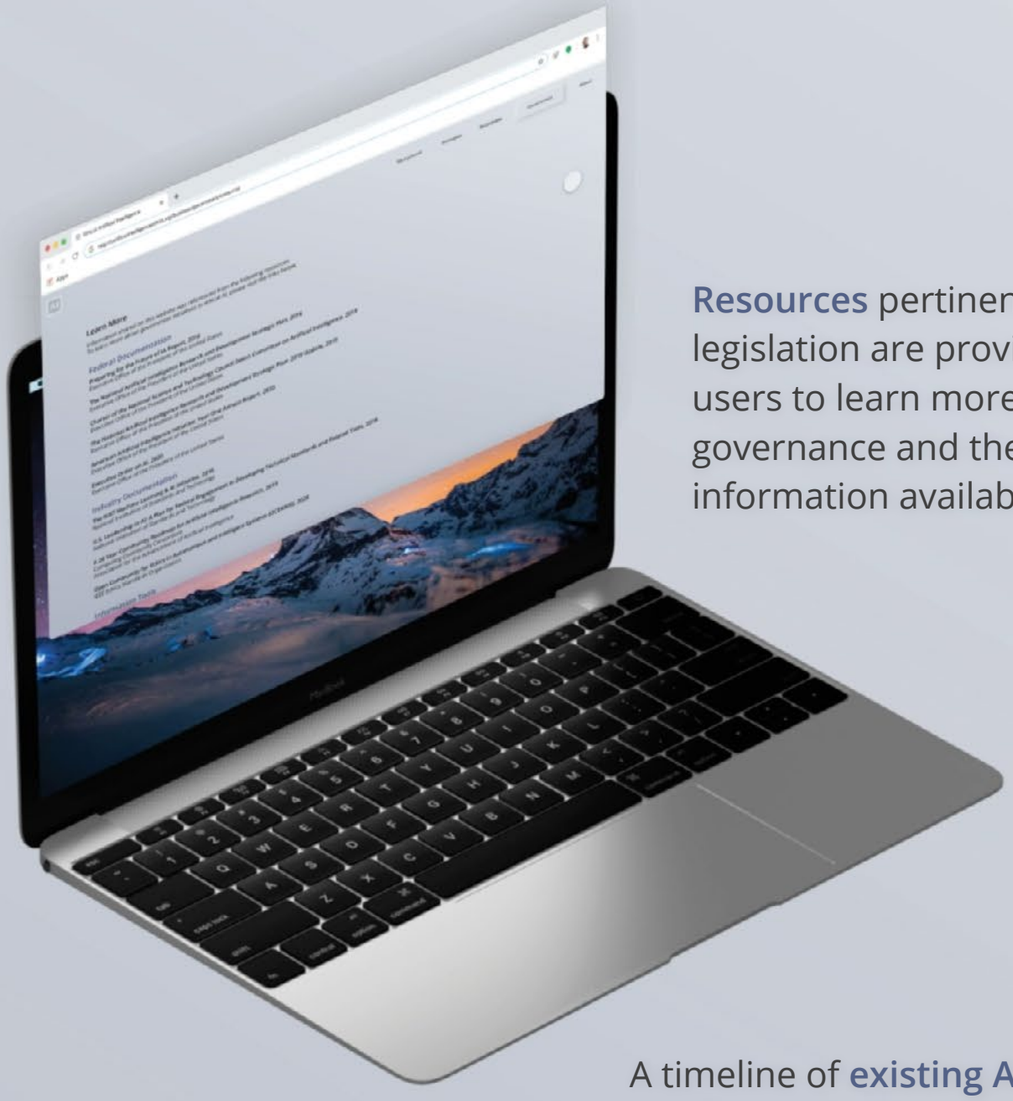
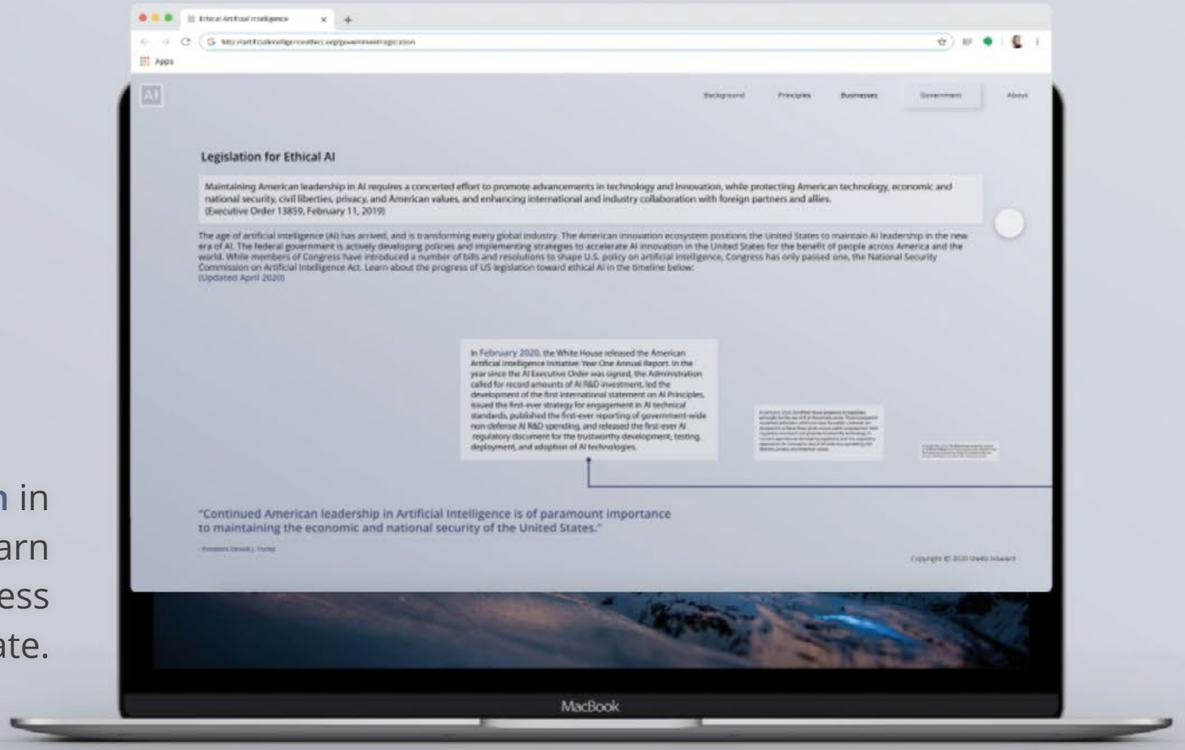
Decision Loop 3

Wireframes show the **decision-making** experience for governments.



Resources pertinent to AI legislation are provided for users to learn more about AI governance and the origin of information available here.

A timeline of **existing AI legislation** in the US is available for users to learn about policy decisions and progress made in AI governance to date.



"In this era of profound digital transformation, it's important to remember that business, as well as government, has a role to play in creating shared prosperity — not just prosperity. After all, the same technologies that can be used to concentrate wealth and power can also be used to distribute it more widely and empower more people."

— Erik Brynjolfsson, Director of the MIT Initiative on the Digital Economy

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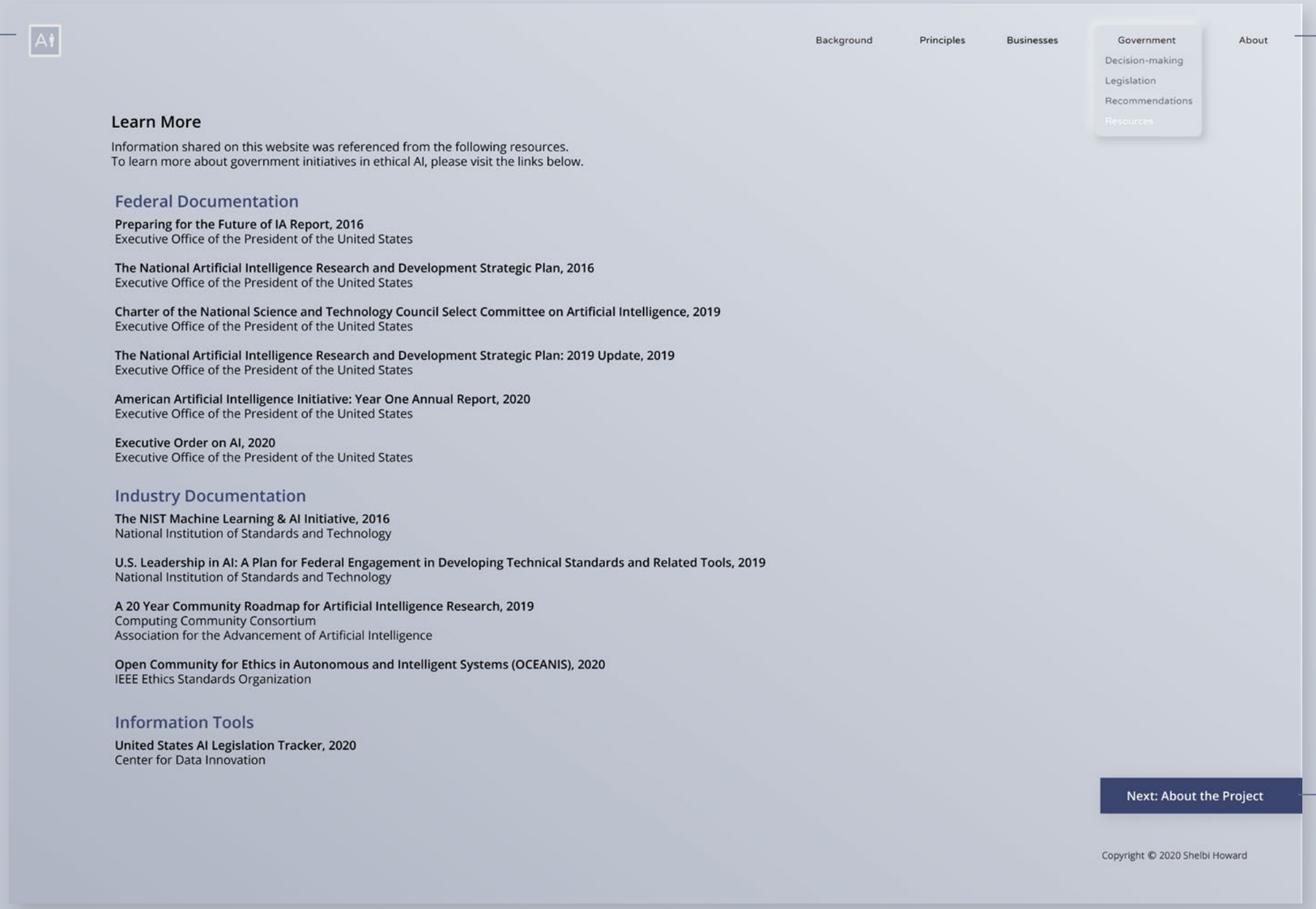

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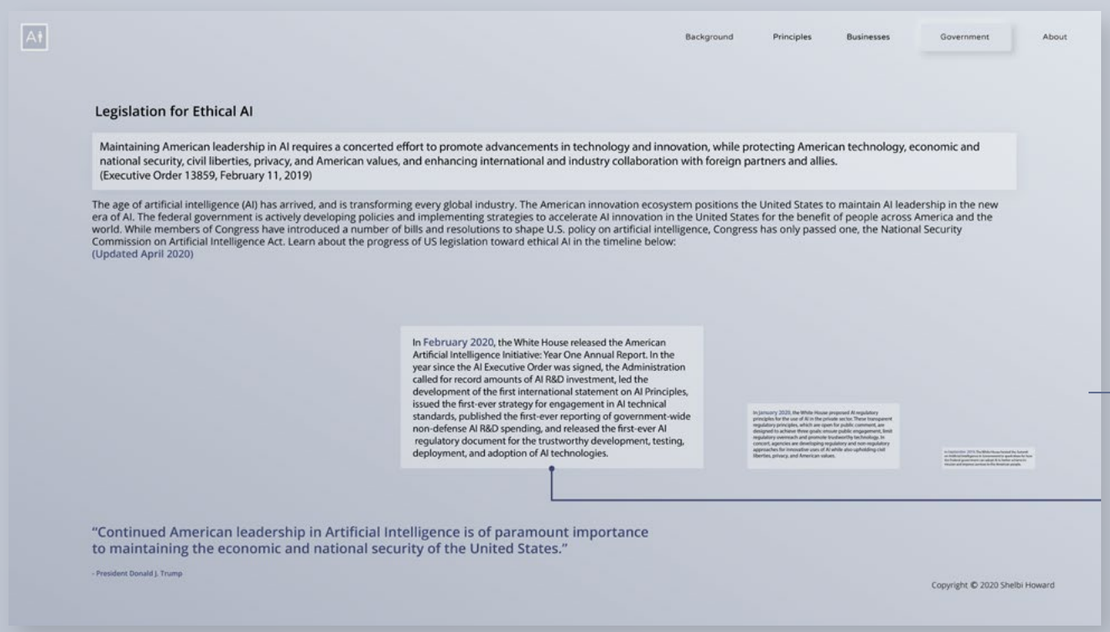
Wireframes show the **resources** experience for governments.



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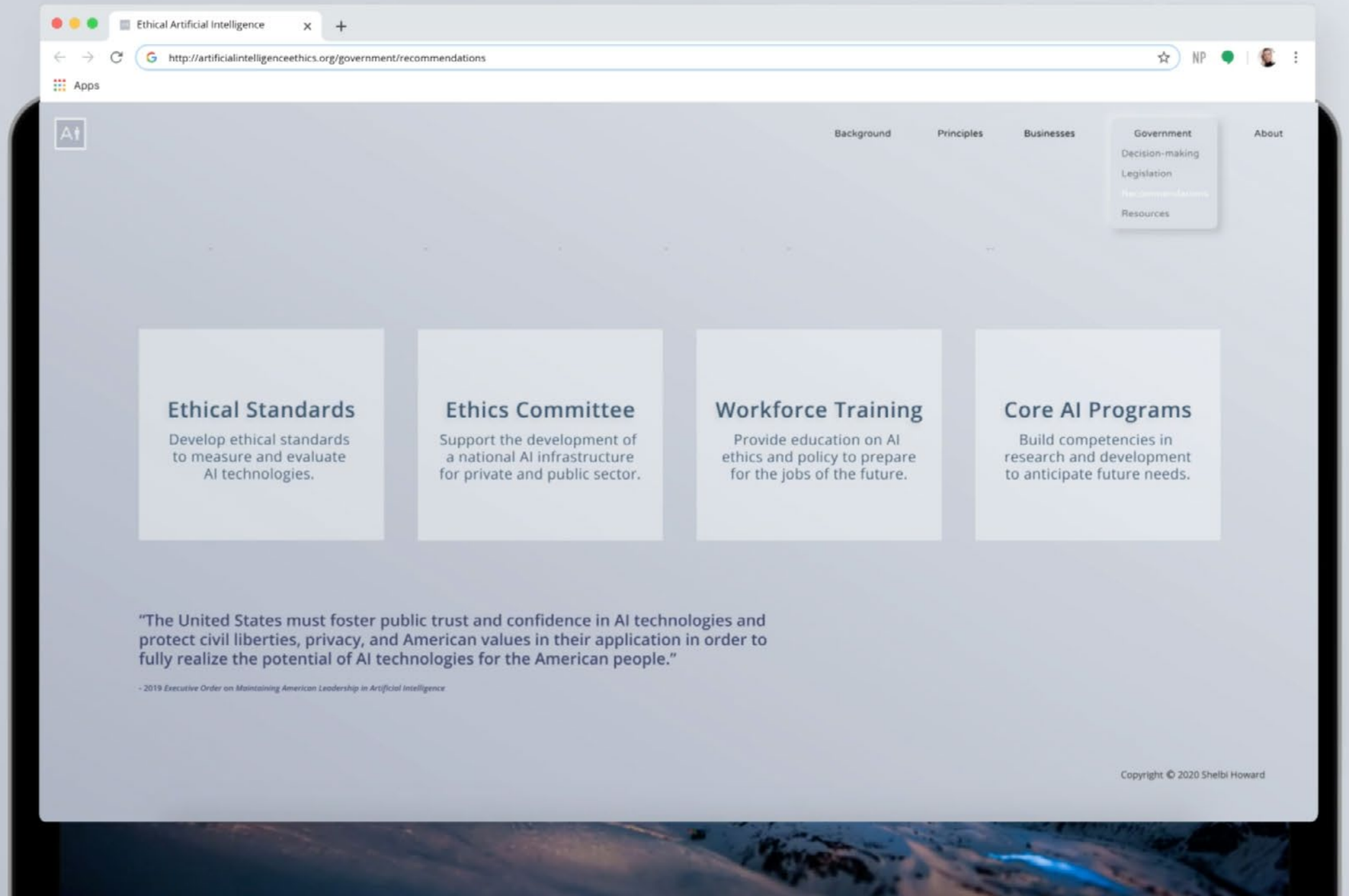
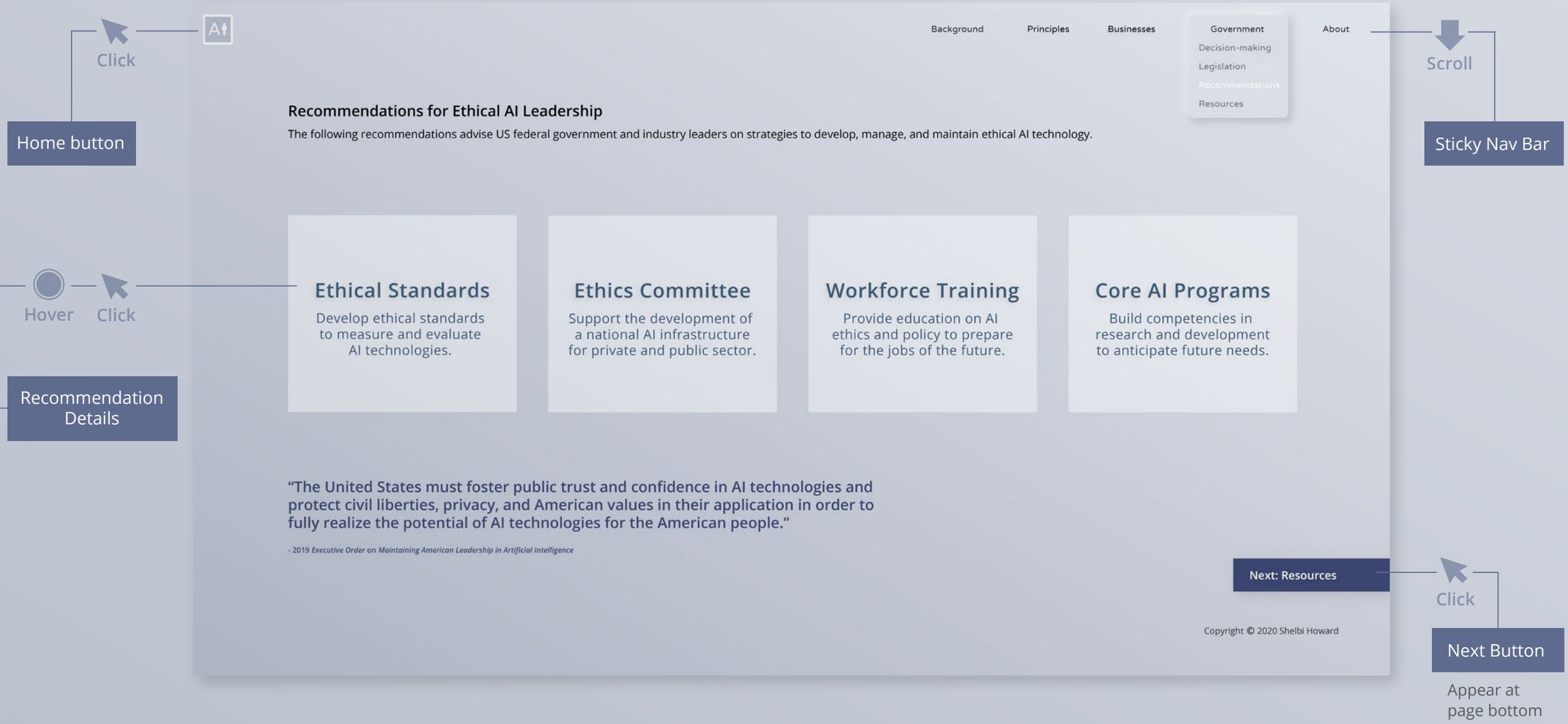
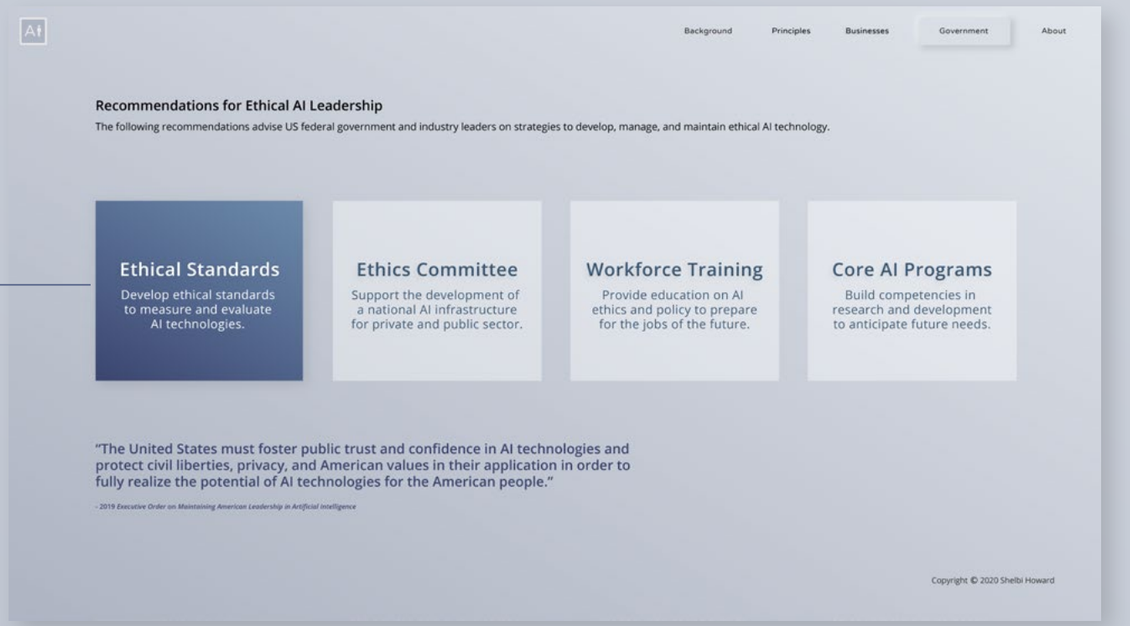
Wireframes show the **AI Legislation** experience for governments.

Legislative **recommendations** aggregate executive decisions and current AI trajectories to provide a future action plan for US policy-makers.





Wireframes show the **recommendations** experience for governments.



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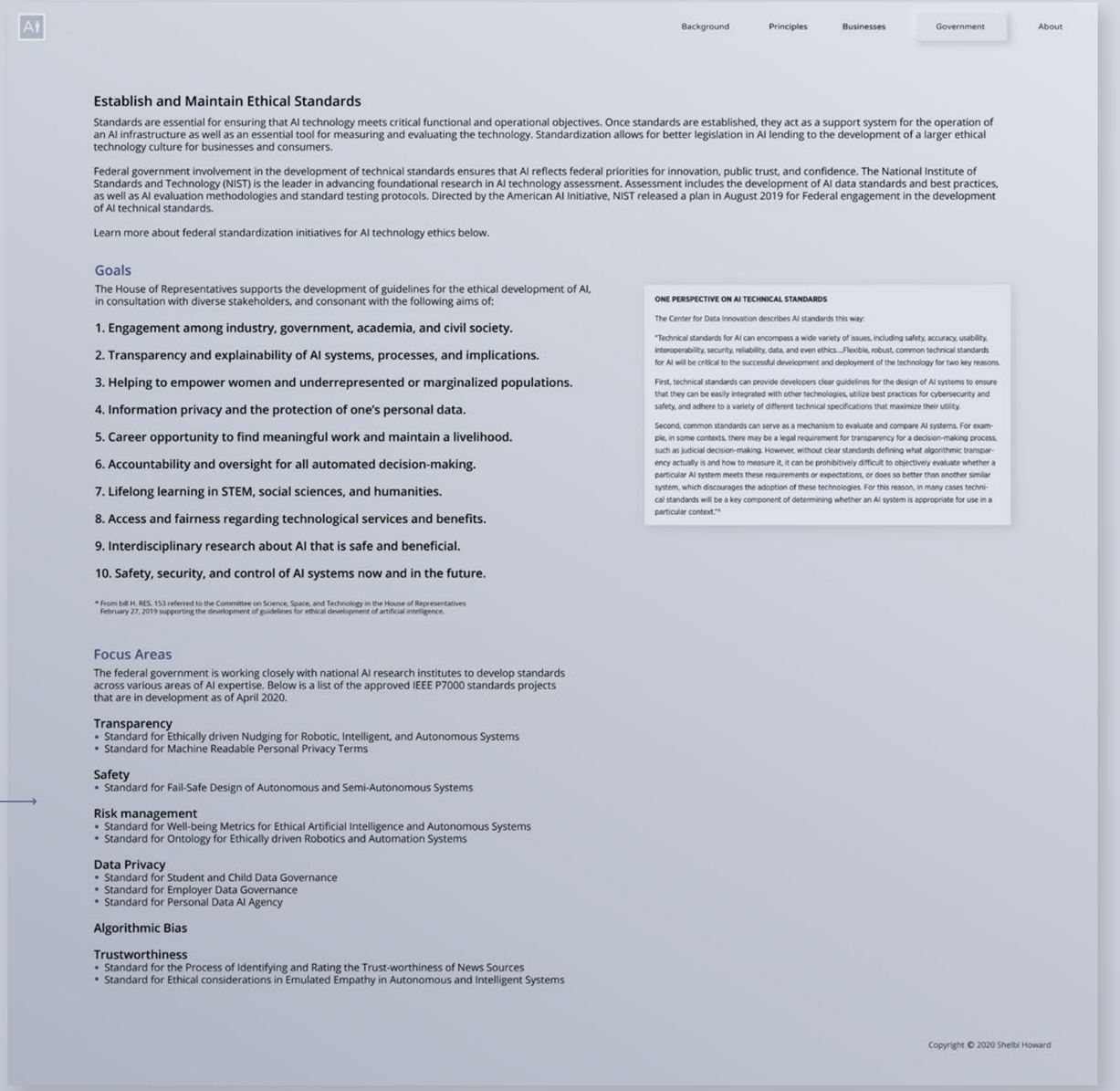

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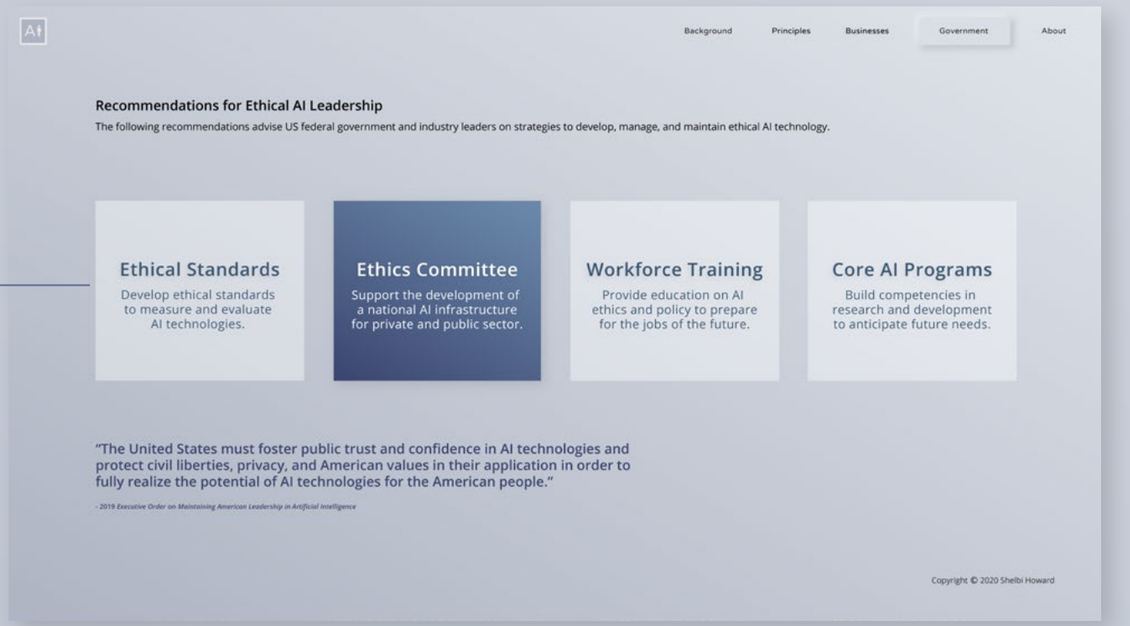

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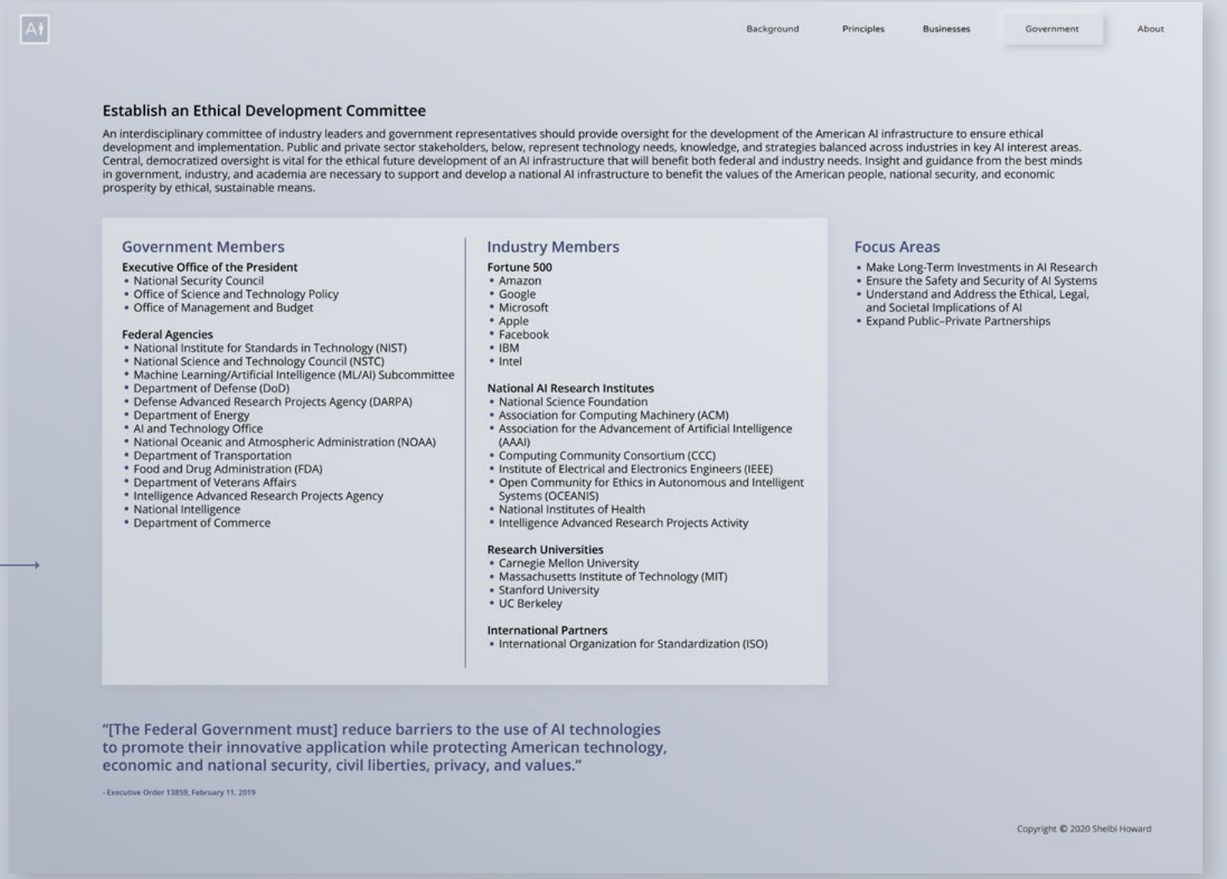

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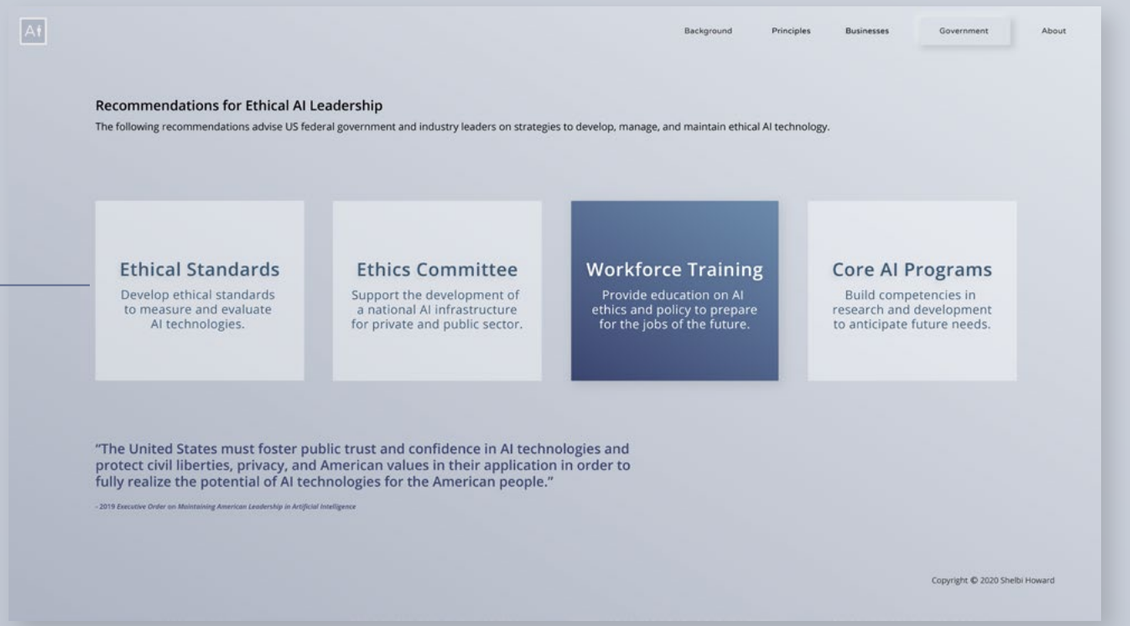

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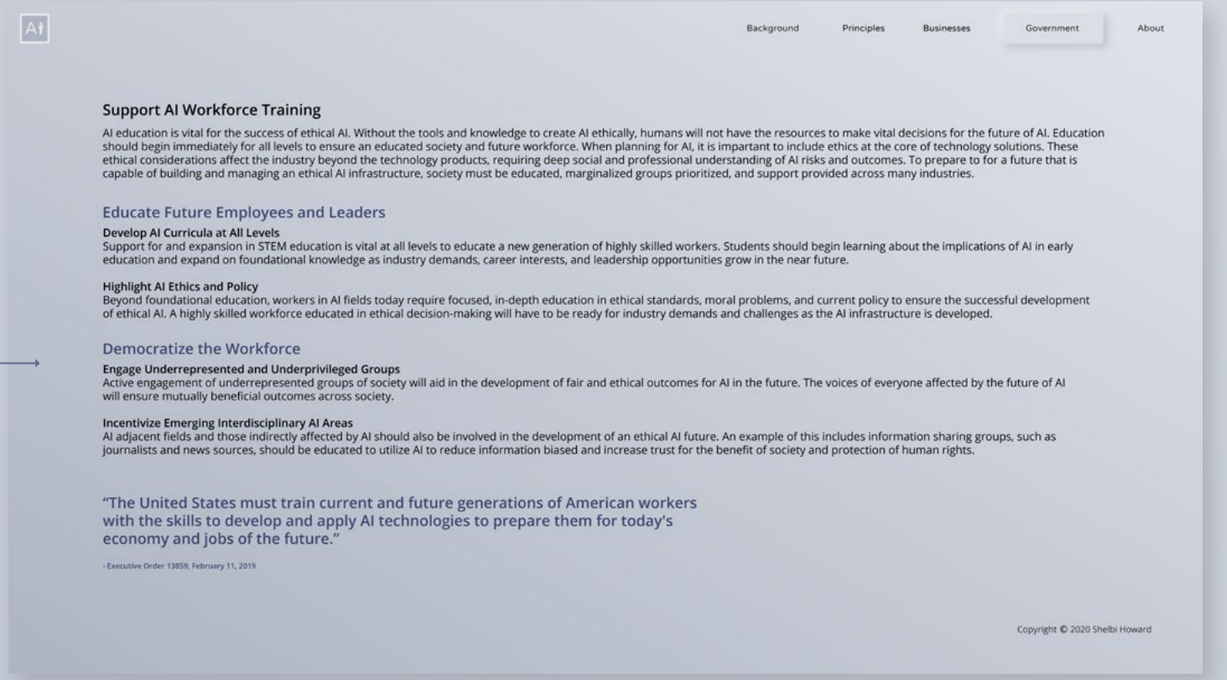

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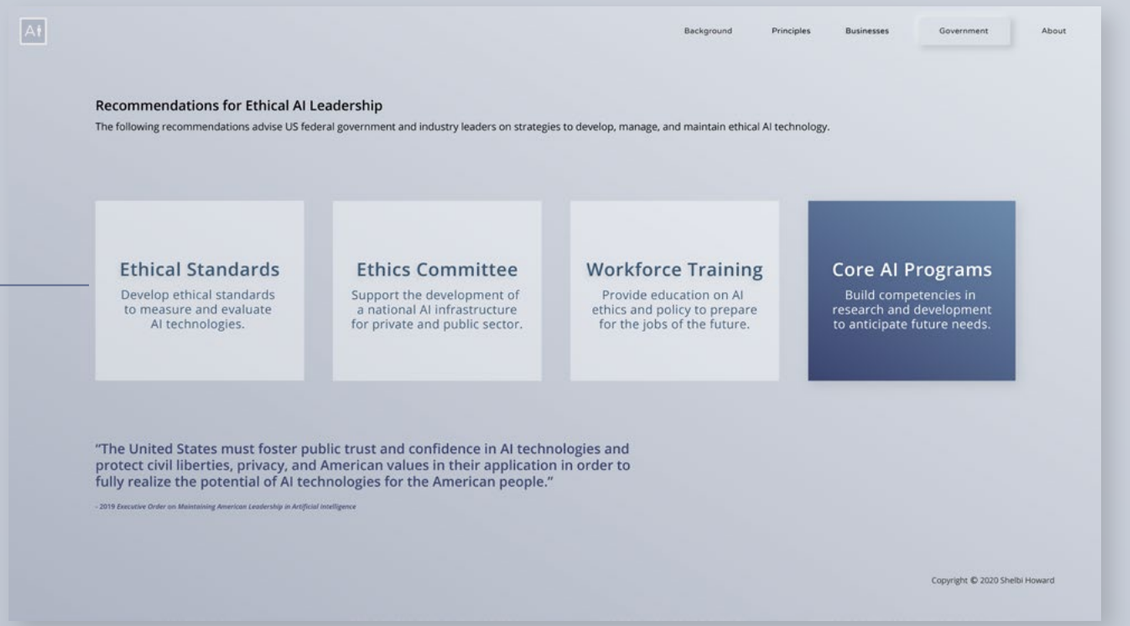

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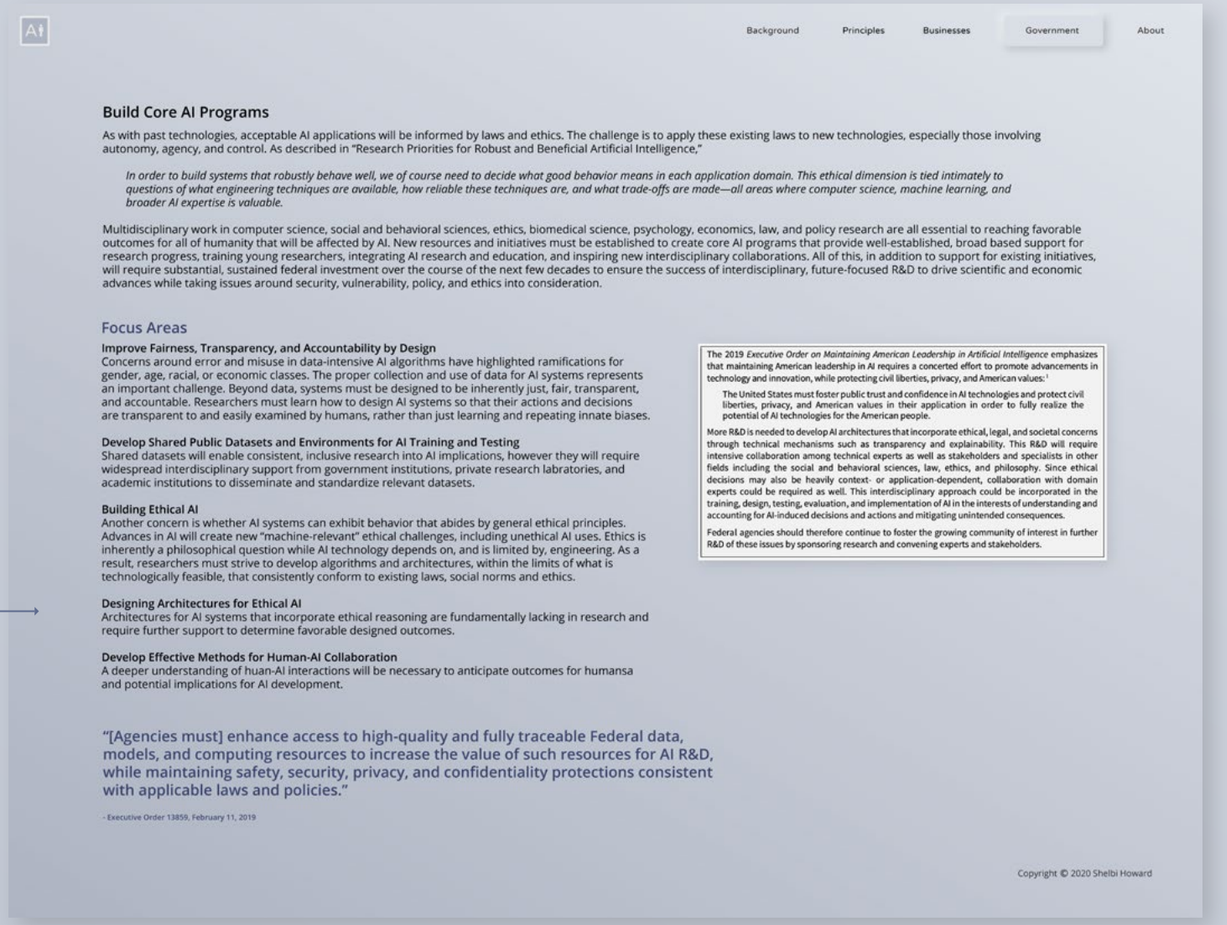

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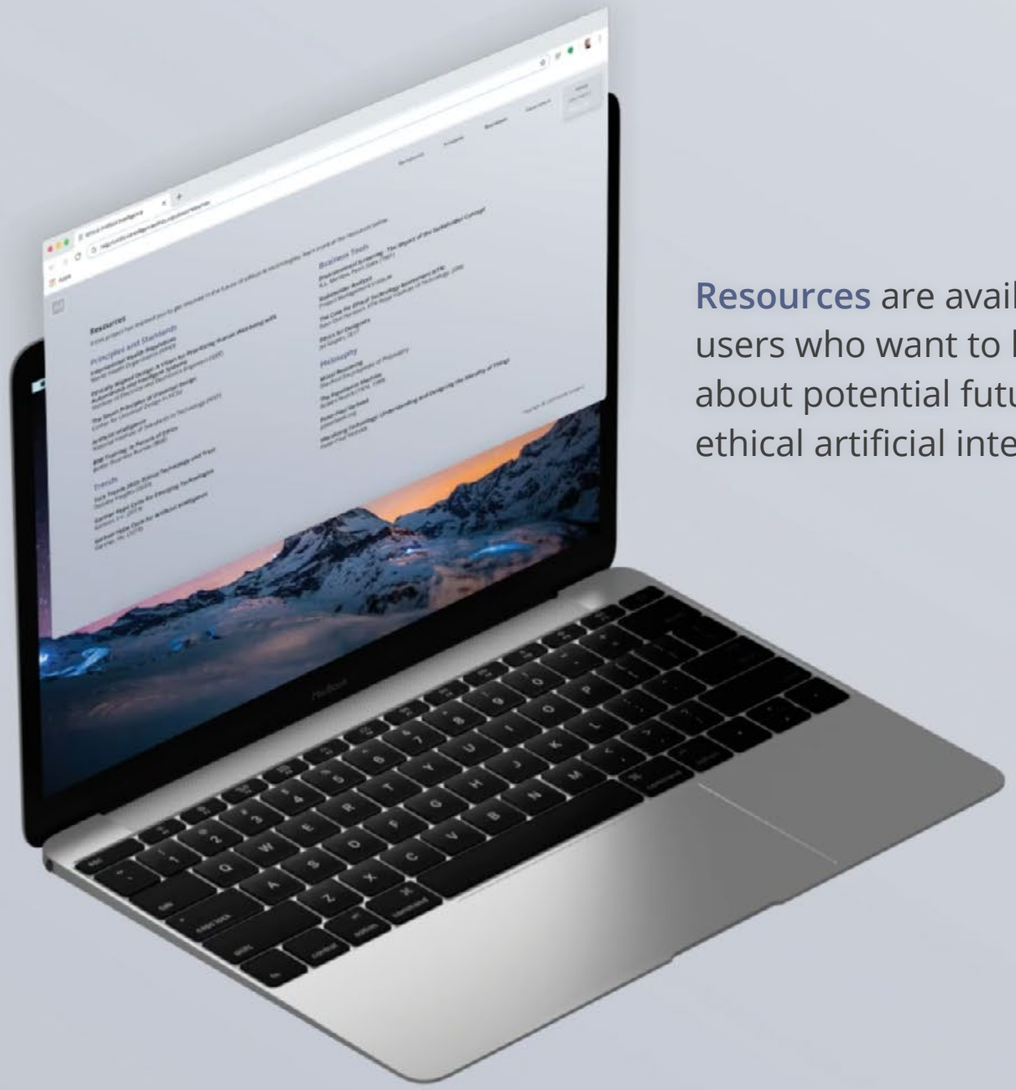
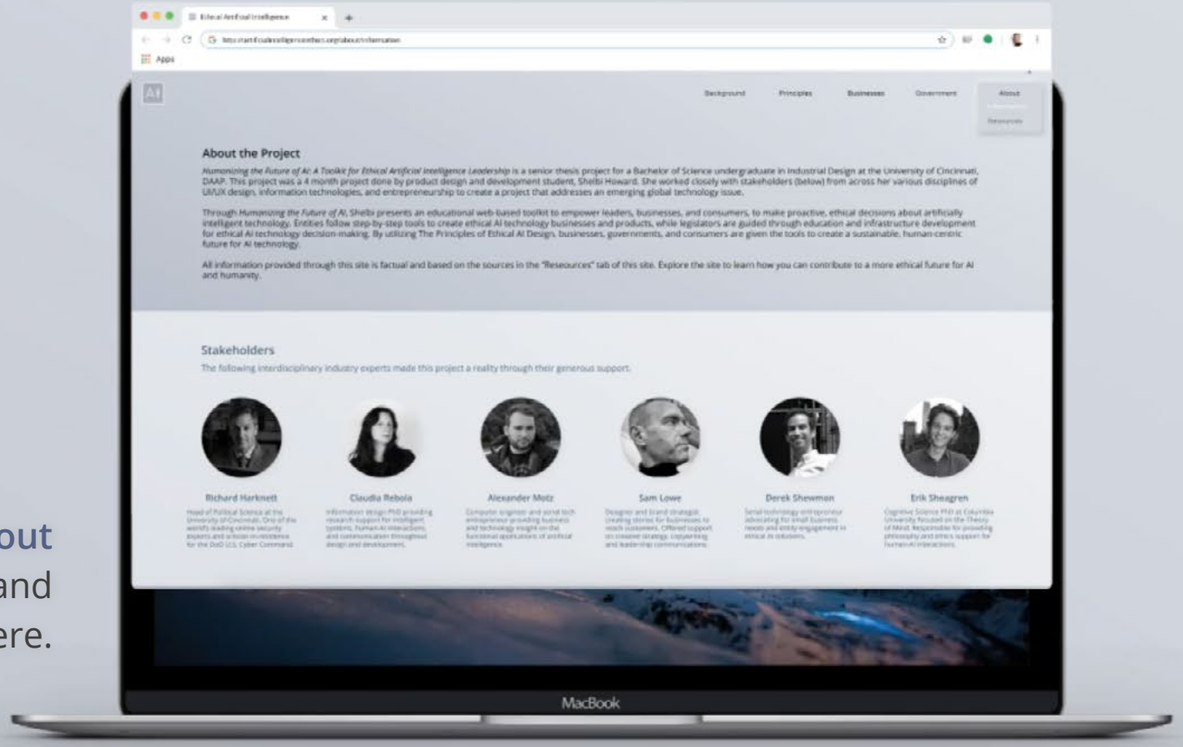


Resources are available for users who want to learn more about potential futures for ethical artificial intelligence.

Users access information **about** the project, stakeholders, and future considerations here.



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Microanimation 1

Animate

Microanimation 2

Animate

Wireframe shows **information** about the project.

Wireframe shows resources about the project.

“AI is a fundamental risk to the existence of human civilization.”

- Elon Musk

Impact

Design is responsible for providing human advocacy.

Technology will progress regardless of design decisions.

Humans have to choose a proactive or reactive relationship.

“AI will be the best or worst thing ever for humanity”

- Elon Musk

Future Considerations

Build an Ethical Culture

This website is only the beginning of creating a successful solution. As technologies and their entities are pressured to meet governance guidelines, consumer cultures will form in response to the shift.

It will be essential to the ethical development of technologies to recognize the consumer's opinions, responses, and ultimately culture as an active driver in the future of AI technologies' success. Let's build a culture that encourages ethical behavior and holds one another accountable for our actions with and through AI technologies.

Future Considerations

Automate Ethical AI Guidance

This website has been envisioned as a three-phase tool to continue providing guidance for these stakeholders in the future.

1. The current solution serves as a minimum viable product, acting as a catalyst for change in ethical AI education and conversation.

2. A web-based business application would provide a place to submit technology information to governance groups for approval and Ethical Certification. The process for review and acceptance would be managed by a governing party, similar to patent applications today.

3. The application process would be automated with AI to provide immediate results to entities about how to make technologies more ethical and if their technologies qualify for an Ethical AI Certification.

To the experts, advocates, and leaders:

Thank you for your endless support that made this project a reality. Without your passion and intelligence I could not have explored AI solutions with the voracity and depth I hoped for. Your enthusiasm for learning and many hours of feedback have been invaluable to the success of this capstone.

Advisors

Richard Harknett

Head of Political Science at the University of Cincinnati. One of the world's leading online security experts and scholar-in-residence for the DoD U.S. Cyber Command.

Claudia Rebola

Information design PhD providing research support for intelligent systems, human-AI interactions, and communication throughout design and development.

Alexander Motz

Computer engineer and serial tech entrepreneur providing business and technology insight on the functional applications of artificial intelligence.

Sam Lowe

Designer and brand strategist creating stories for businesses to reach customers. Offered support on creative strategy, copywriting, and leadership communications.

Derek Shewmon

Serial technology entrepreneur advocating for small business needs and entity engagement in ethical AI solutions.

Erik Sheagren

Cognitive Science PhD at Columbia University focused on the Theory of Mind. Responsible for providing philosophy and ethics support for human-AI interactions.

Let’s chat

Curious about technology and its implications?

Looking for a passionate UX designer?

Let me help you design a better future.

Shelbi Howard

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Project Resources

Business

Principles and Standards

International Health Regulations
World Health Organization (WHO)

Ethically Aligned Design: A Vision for Prioritizing Human Well-being with Autonomous and Intelligent Systems
Institute of Electrical and Electronics Engineers (IEEE)

The Seven Principles of Universal Design
Center for Universal Design in NCSU

Artificial Intelligence
National Institute of Standards in Technology (NIST)

BBB Training: In Pursuit of Ethics
Better Business Bureau (BBB)

Trends

Tech Trends 2020: Ethical Technology and Trust
Deliotte Insights (2020)

Gartner Hype Cycle for Emerging Technologies
Gartner, Inc. (2019)

Gartner Hype Cycle for Artificial Intelligence
Gartner, Inc. (2019)

Business Tools

Environmental Screening - The Impact of the Stakeholder Concept
A.L. Menlow, Penn State (1981)

Stakeholder Analysis
Project Management Institute

The Case for Ethical Technology Assessment (eTA)
Sven Ove Hanssen, KTH Royal Institute of Technology, 2006

Ethics for Designers
Jet Gispen, 2017

Philosophy

Moral Reasoning
Stanford Encyclopedia of Philosophy

The Experience Machine
Robert Nozick (1974, 1989)

Peter-Paul Verbeek
ppverbeek.org

Moralizing Technology: Understanding and Designing the Morality of Things
Peter-Paul Verbeek

Government

Federal Documentation

Preparing for the Future of IA Report, 2016
Executive Office of the President of the United States

The National Artificial Intelligence Research and Development Strategic Plan, 201
Executive Office of the President of the United States

Charter of the National Science and Technology Council Select Committee on Art
Executive Office of the President of the United States

The National Artificial Intelligence Research and Development Strategic Plan: 201
Executive Office of the President of the United States

American Artificial Intelligence Initiative: Year One Annual Report, 2020
Executive Office of the President of the United States

Executive Order on AI, 2020
Executive Office of the President of the United States

Industry Documentation

The NIST Machine Learning & AI Initiative, 2016
National Institution of Standards and Technology

U.S. Leadership in AI: A Plan for Federal Engagement in Developing Technical Sta
National Institution of Standards and Technology

A 20 Year Community Roadmap for Artificial Intelligence Research, 2019
Computing Community Consortium
Association for the Advancement of Artificial Intelligence

Open Community for Ethics in Autonomous and Intelligent Systems (OCEANIS), 2
IEEE Ethics Standards Organization

Information Tools

United States AI Legislation Tracker, 2020
Center for Data Innovation