

# Humanizing the Future of Artificial Intelligence

A Toolkit for Ethical Artificial Intelligence Leadership

**Shelbi Howard** | Senior Thesis | April 29, 2020



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# 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*.

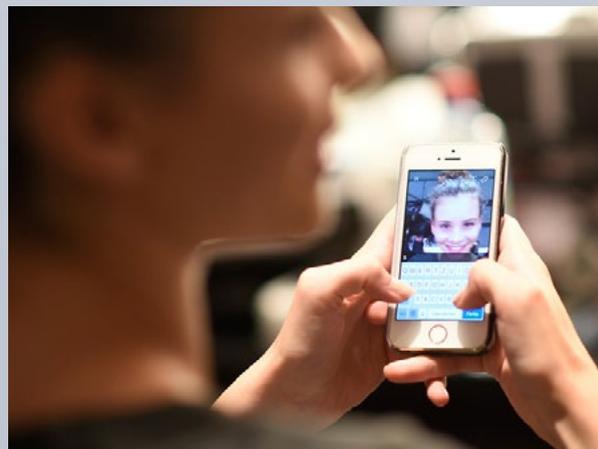
## Humanity is being affected by unethical technology outcomes.

# 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.



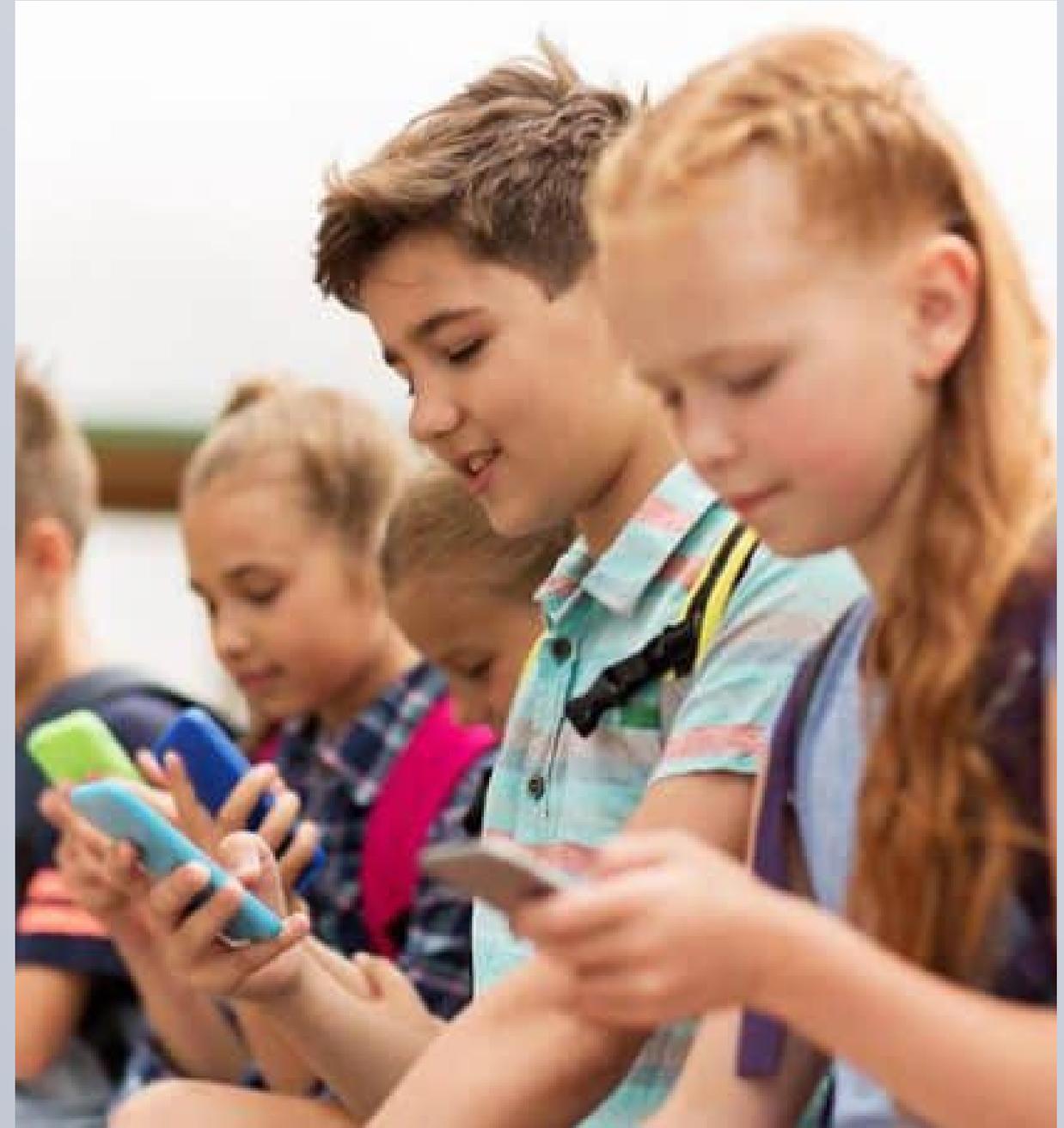
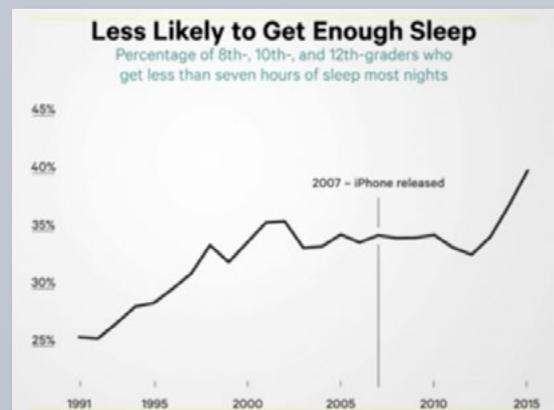
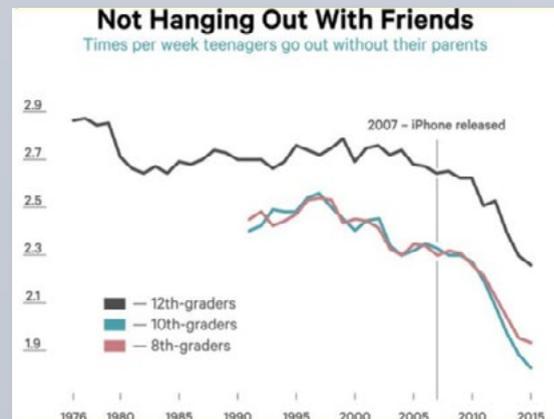
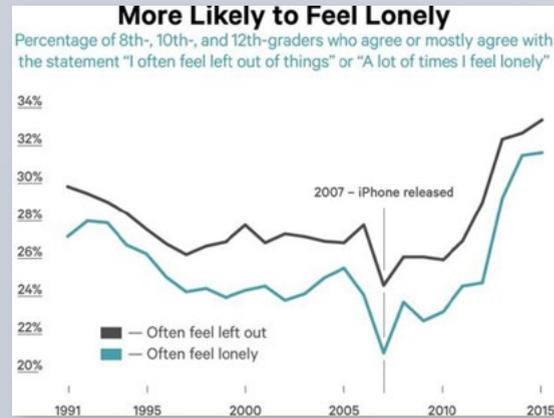
Attention has become an important human resource. At any given time today, one person has their attention split an average of 5 ways. This is affecting how we learn, sleep, feel, and behave.



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 loneliness from 2007 to present. In 2011-2012, those having iPhones were 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.

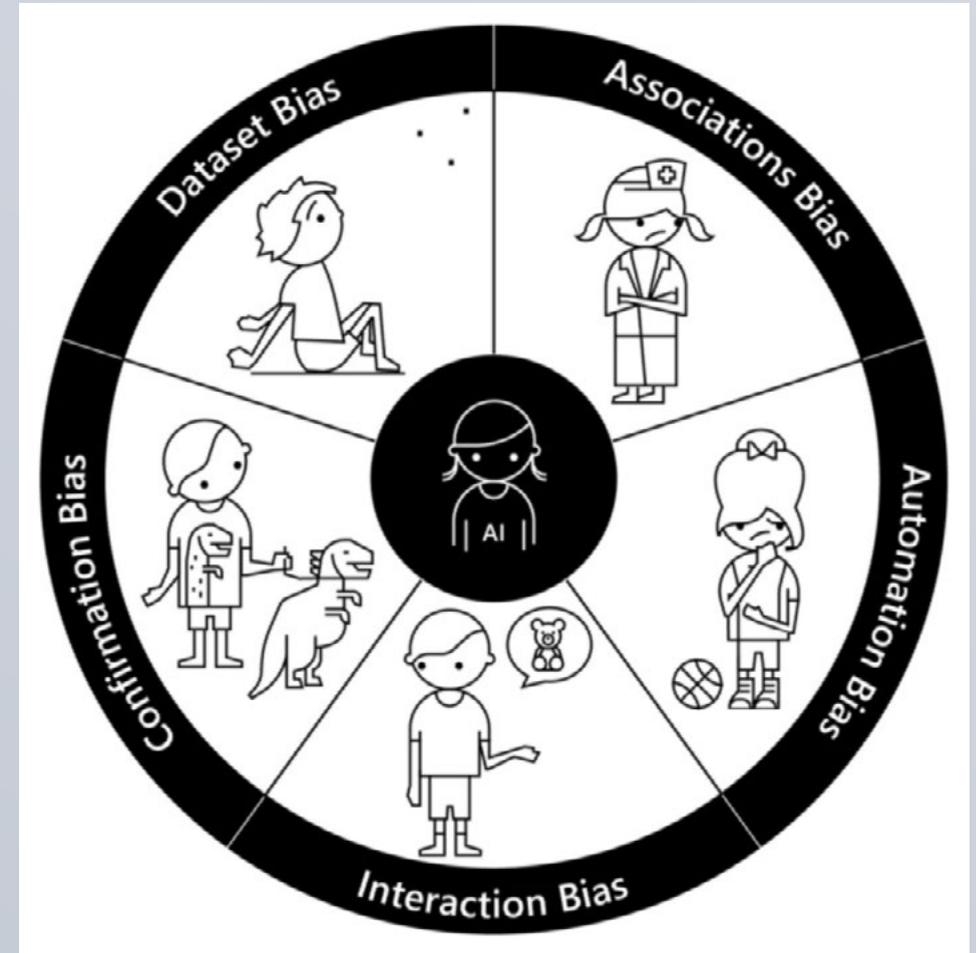


Current relationships between AI and customers will need to be re-evaluated as devices become more autonomous. Current technology relationships are beginning to reinforce slave-master dynamics with subservient identities, lack of boundaries, and limitless options. This is problematic as voice interactions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

i keep saying Alexa when I mean to say Siri and i just cant believe i live in a time where i am gettin my servant robots names mixed up

11:19 AM · 1/9/19 · [Twitter Web Client](#)

121 Retweets 970 Likes



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

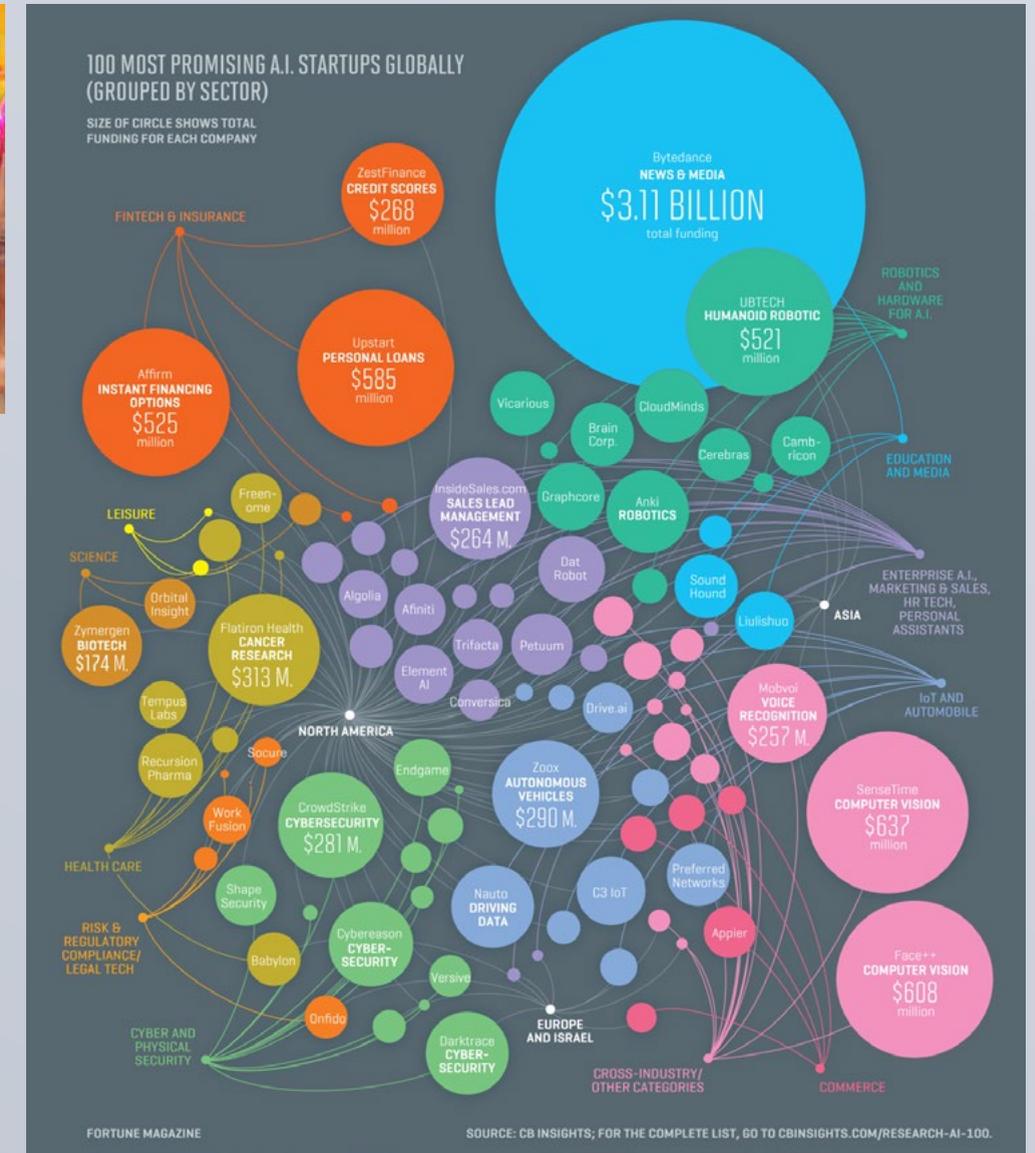
Consumer device AI is learning fast but lacks the context it needs for widespread acceptance of the technology. Industry decisions now will determine the success or failure of consumer AI in the future.



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

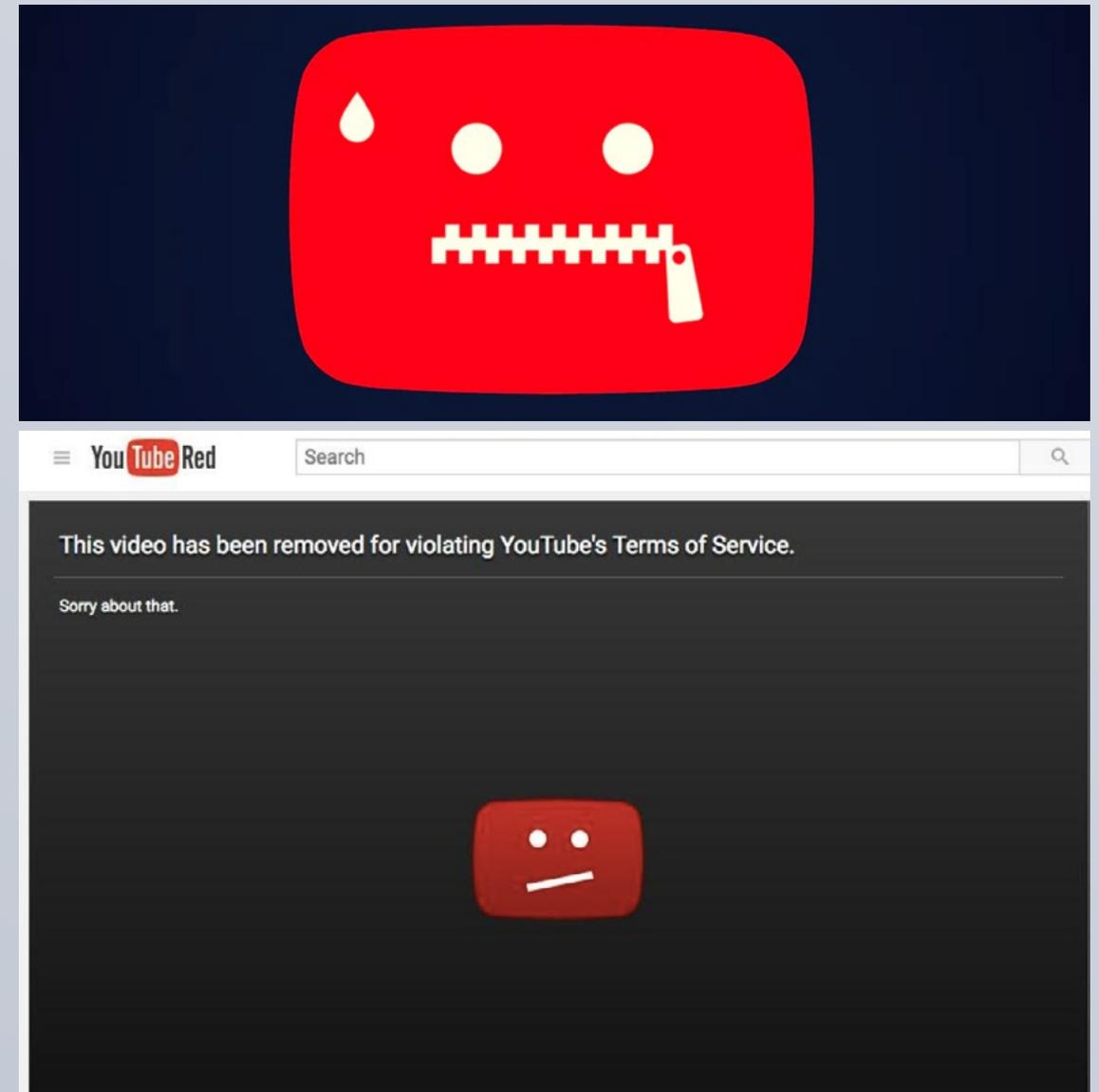
Companies are beginning to prioritize ethical AI decision-making in technology design but still struggling. Building implicit morality into a product is inherently an ethical issue in itself. To avoid technocracy, these teams should be diverse and democratic.



Google 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.

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.

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



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

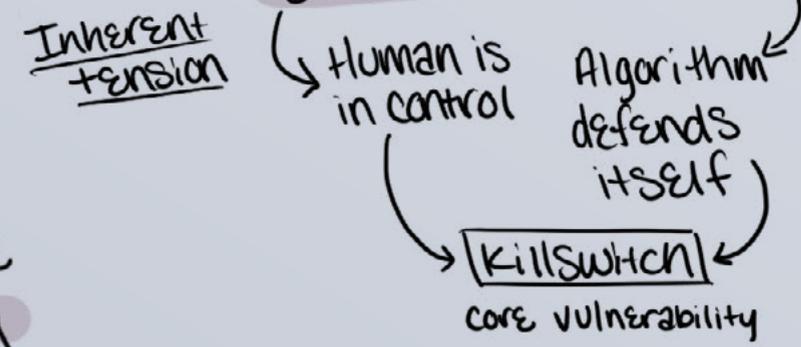
AI Technology Users

**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

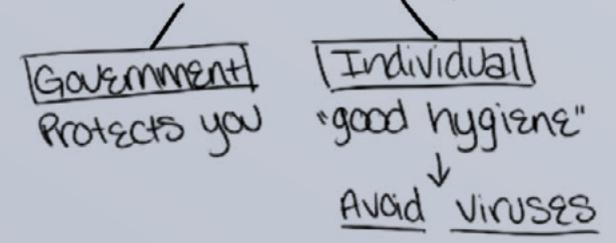
**2017** Worked w/ AI @ Oxford  
↳ Safe vs. Secure



**NIST** Natl. Inst. Standards in Tech.  
↳ Framework - Standards certifications

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

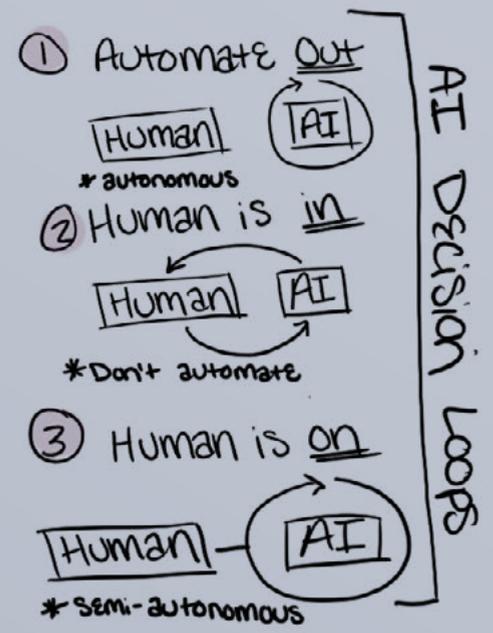
\* HIPAA - effective state intervention for privacy



"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



**OODA** Traditional decision loop  
• observe  
• orient  
• decide  
• Act

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

Ethics: Communal public good

**AI actors**  
• China - lead by 203  
• Alphabet (Google)  
• US / Israel  
\* Need legally enforceable ethical development laws



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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.

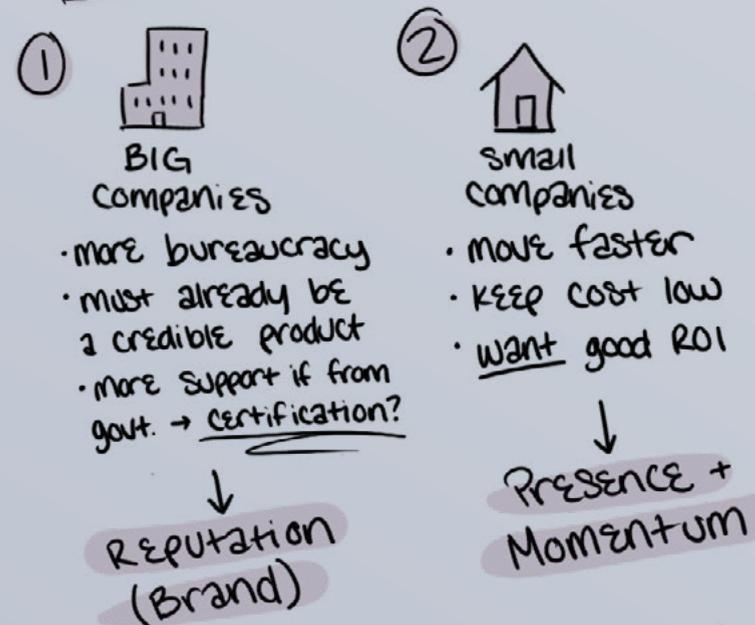
Develop responsible, sustainable solutions for the **good of humanity**.



## Technology Consumers

AI Technology Users

# Business Customers



# Employee Support

For employee cert., edu., + training...  
 • consider minimum # of employees that need  
 ↳ ethical threshold

Don't set the bar too high



\* Sell the EXEC that the employees are sold\*  
 ↳ people want it

# Industry



# 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.

# Solution

Are you selling this?

# Big Questions

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

# SaaS Packages

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

\* Pick your size focus \*



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

Government, Public and Private Organizations, Research Institutions



## 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

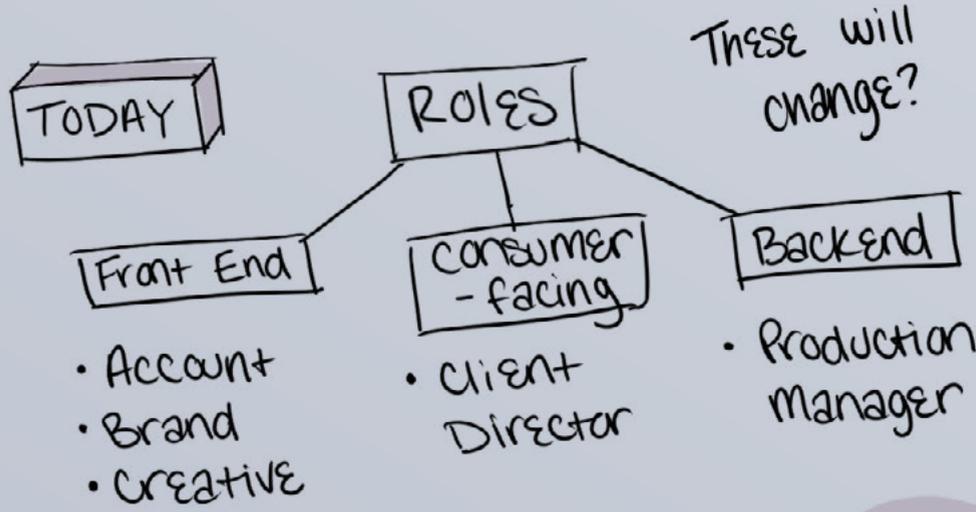
### Opportunities

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.



What problem is this solving / why should I care?

- Grow market
- ↑ consumer advocacy



How do you avoid business resentment?

CREATE TRUST WITH CONSUMERS

① **DRIVERS**

Today

- Capitalism → Profit

Tomorrow

- New methodology ← Solution

Fact-Check Products

- For new + existing
- Apply new standards

**Market to consumers**

- Influence the Industry
- ↳ Podcast?

**Website**

- Educate businesses
- certify here

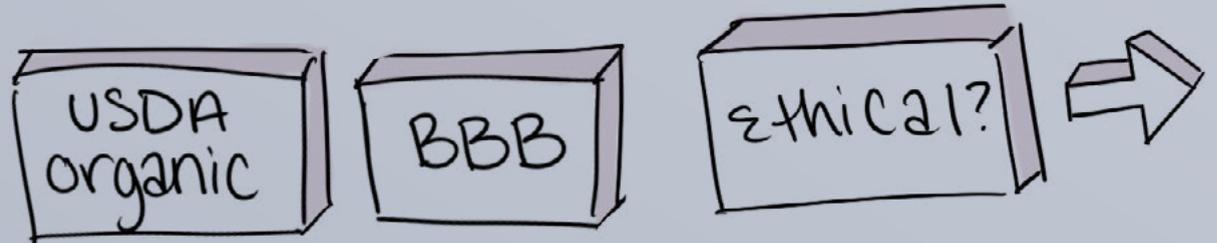
② **Opportunity**

- Prove the Process
- \* Industry agnostic

\* Educate businesses AND consumers \*

③ **Solution**

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



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**



Wicked problems require collaborative solutions.

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

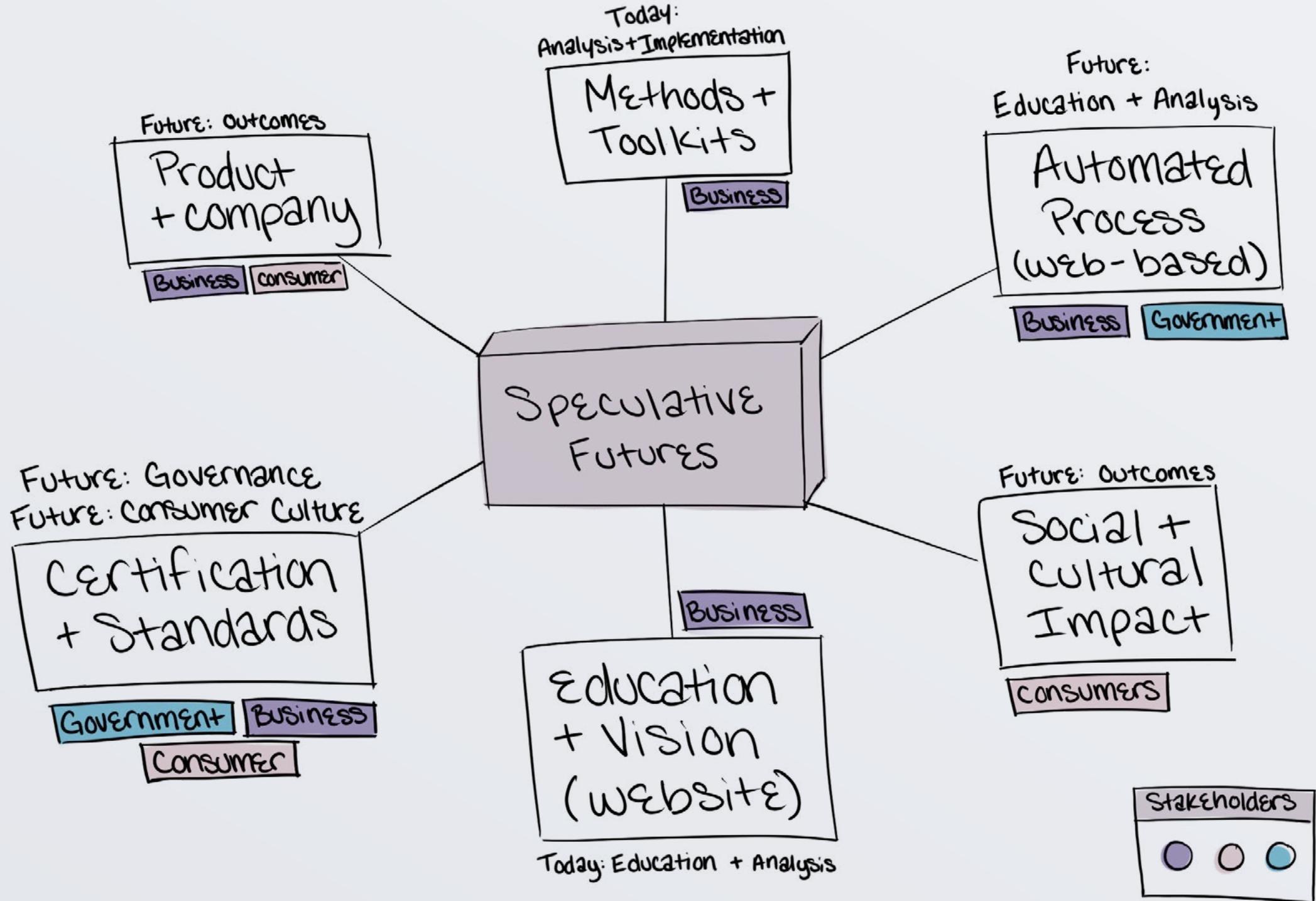
Information was designed by utilizing a **research through design methodology** to research, prototype, validate, and iterate solutions based on expert feedback.

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.**



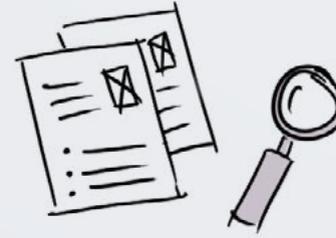
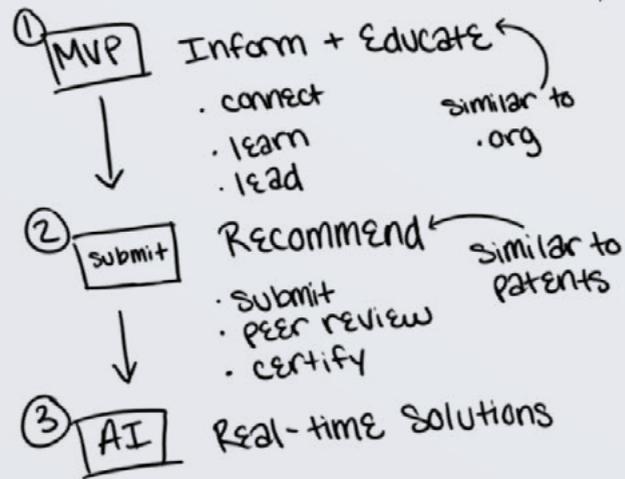
A select **few concepts** were explored further to discover the best solution.



### ① WEBSITE

- \* Purpose: Catalyst for change
- Best solution for adoption
- Simple + Accessible

#### Next Steps:

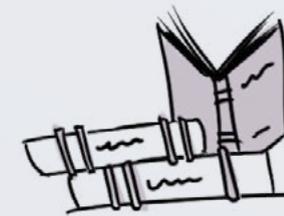
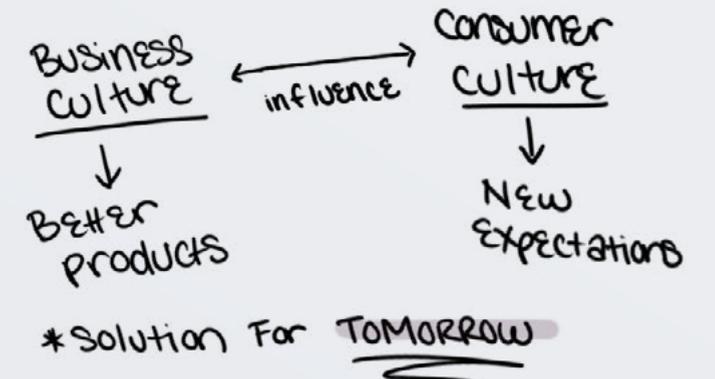


### ② Guide + Toolkit

- Micro vs Macro
- Employee tasks + education
- Business strategy changes
- Resources For TODAY



### ③ Certification



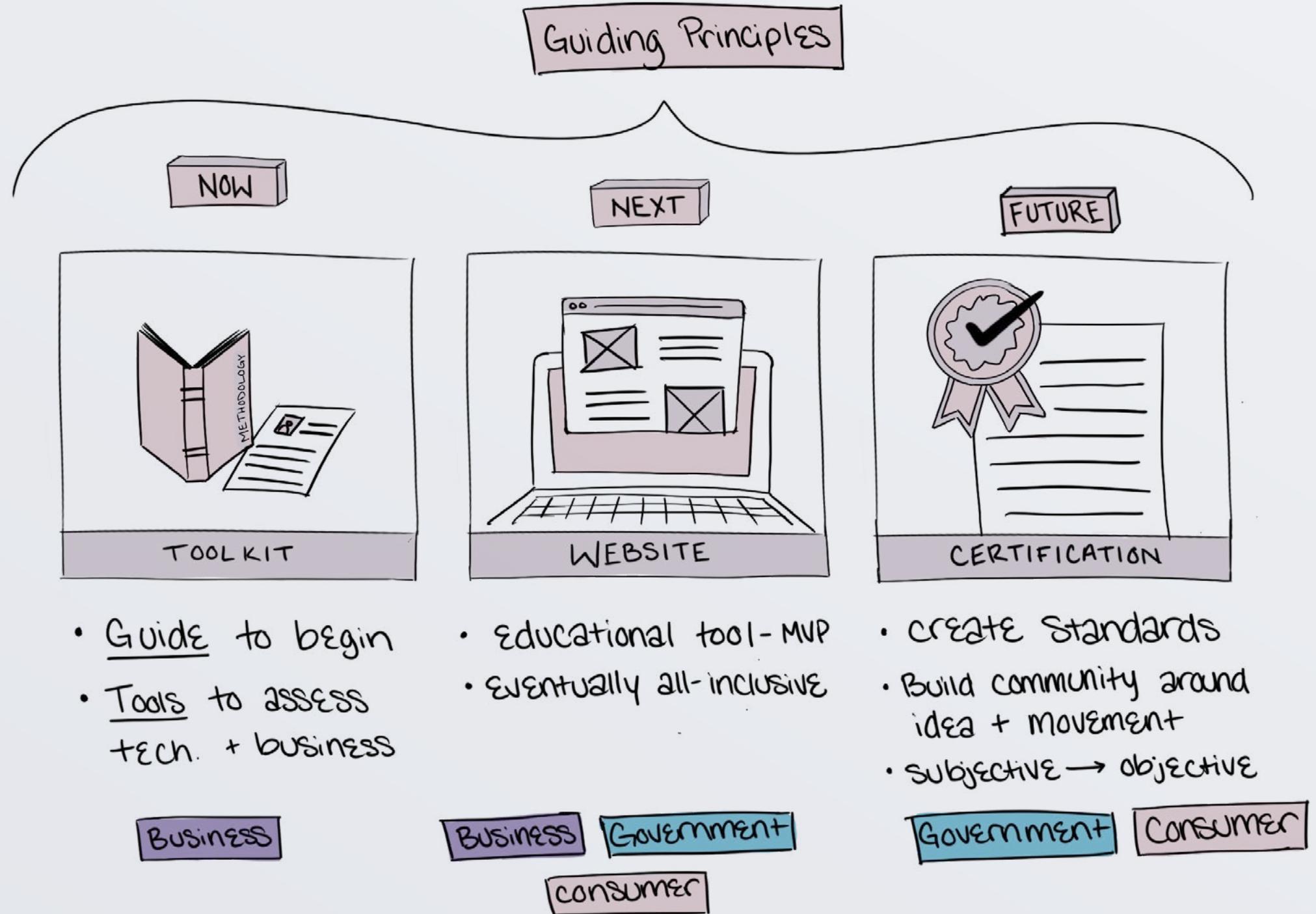
### ④ Methodology

Book of Process + instruction

\* Guide For TODAY → TOMORROW

- For Producers in BUSINESSES
- ↳ Employees, managers, C-Suite

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

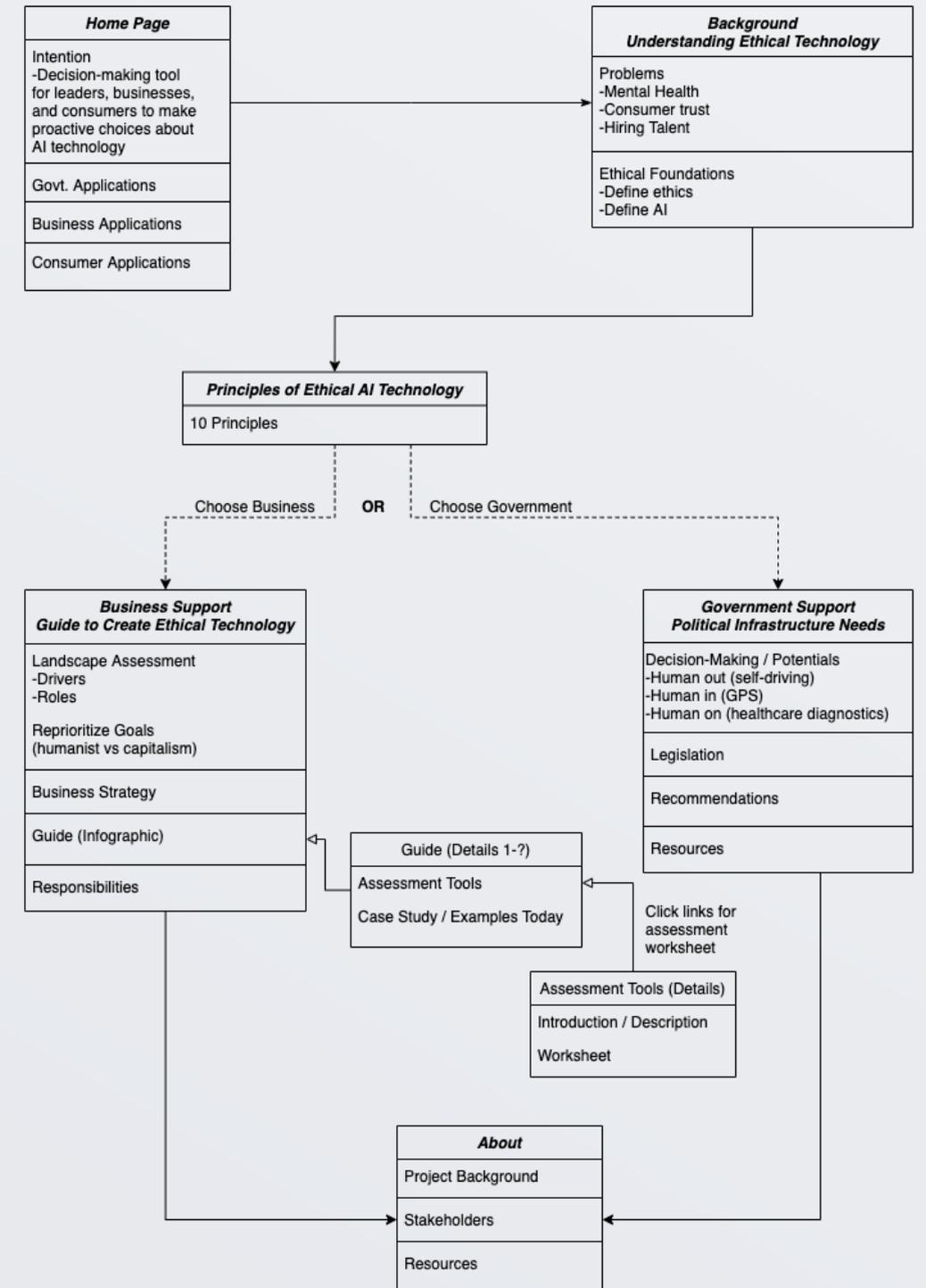


Tabs communicate **guiding principles and relevant tools** for users and stakeholders in industry and government.

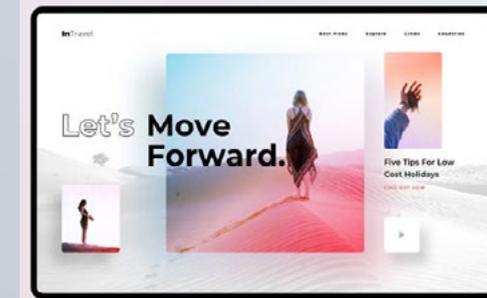
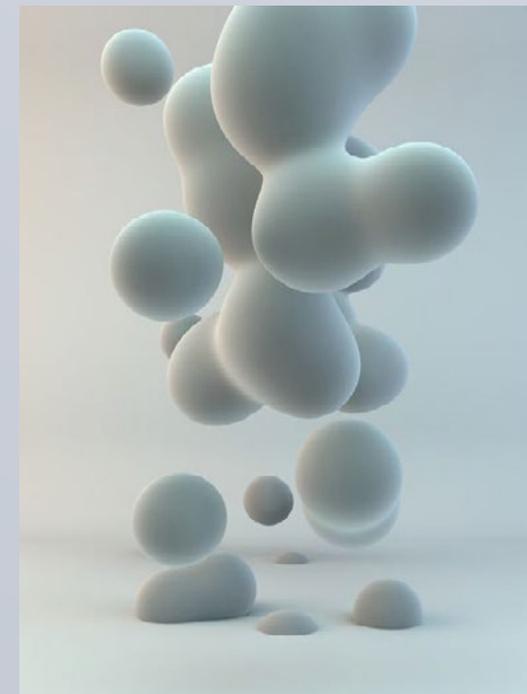


This educational **website** is the most simple, accessible solution to ensure the most visibility for all user groups.

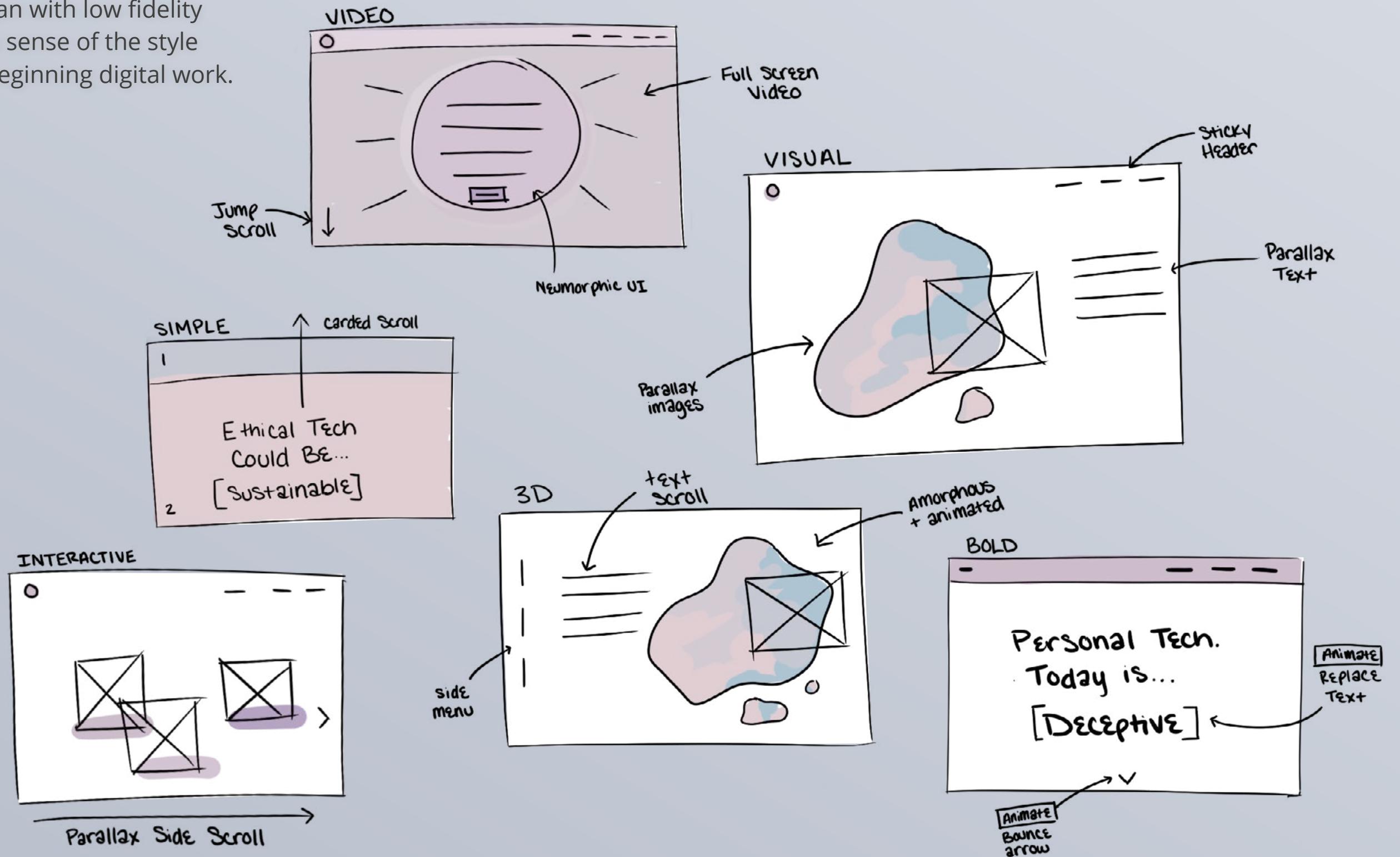
The **website architecture** is optimized for the three user groups: government, business, and consumer.



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

**Header 2**

Open Sans Semibold 24pt #000000

**Subheader 1**

Open Sans Semibold 24pt #3b456f

**SUBHEADER 2**

Open Sans Semibold 16pt #ffffff

**Body**

Open Sans Regular 18pt #000000

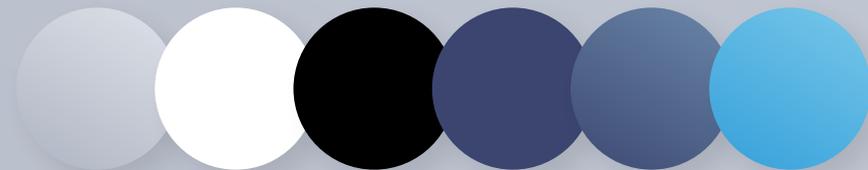
**Links**

Open Sans Bold 21pt #3b456f

Button 1

Button 2

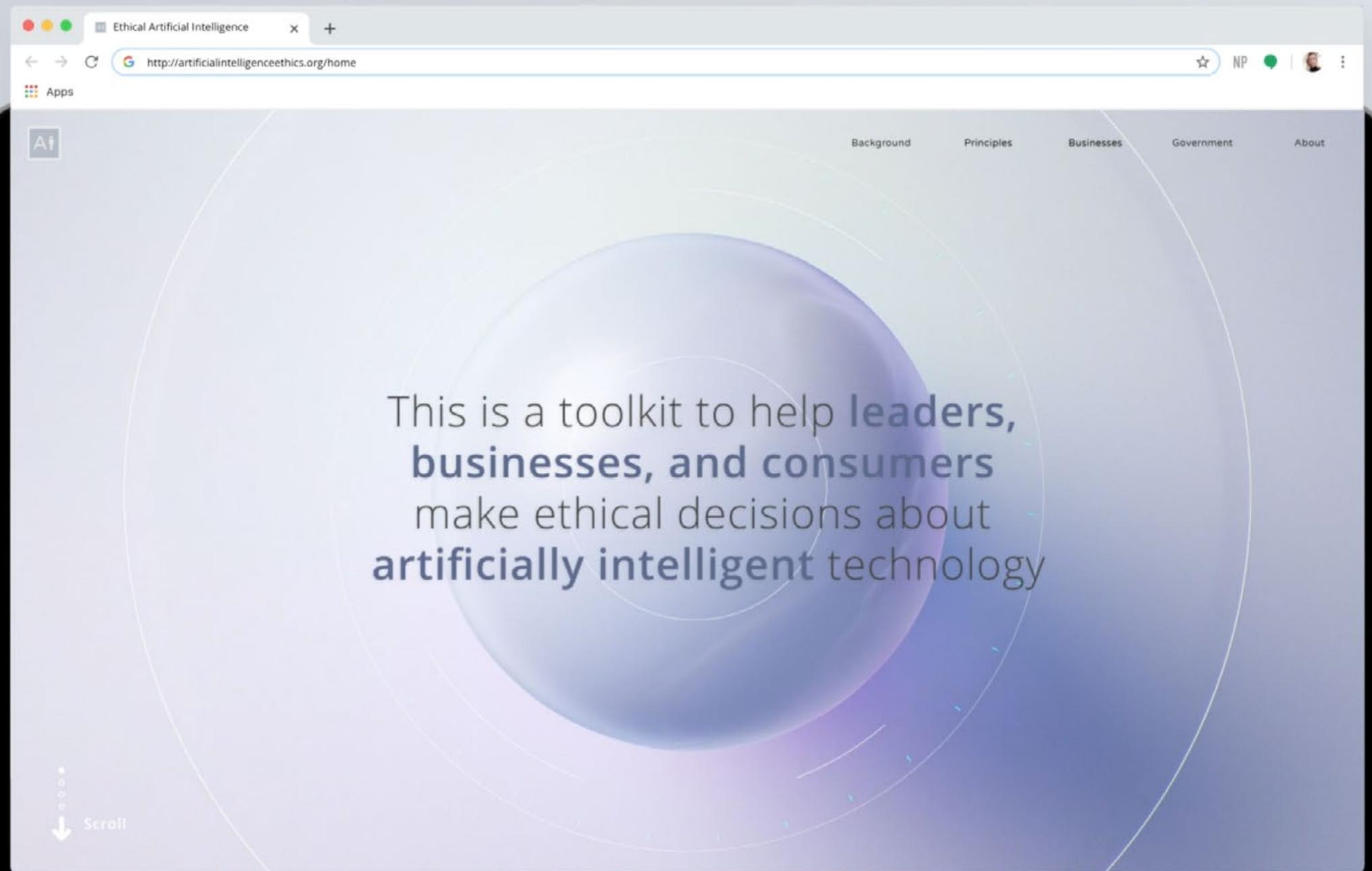
Link >



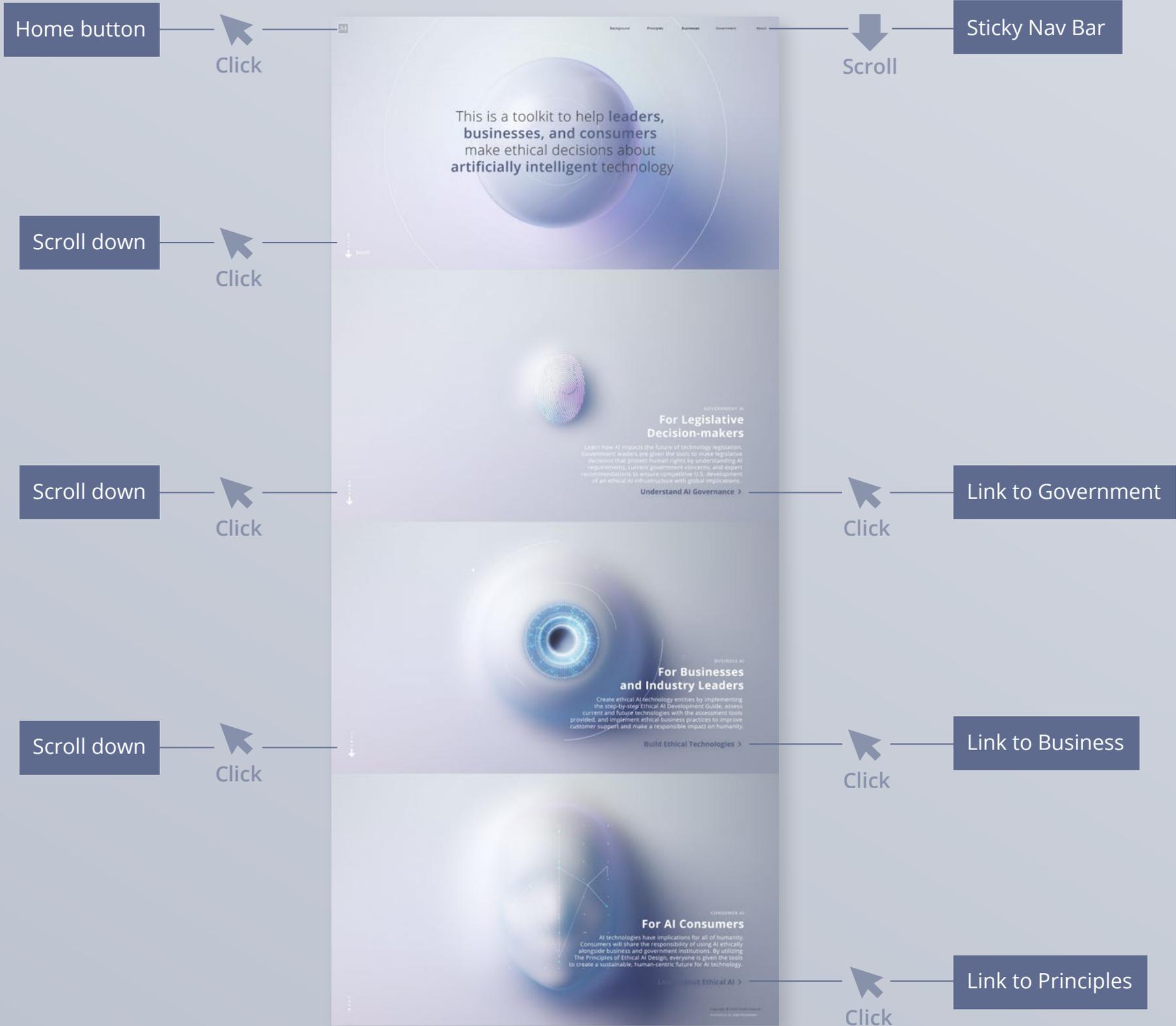
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#dee2e9 60% opacity #6a87a9 #78c7e9



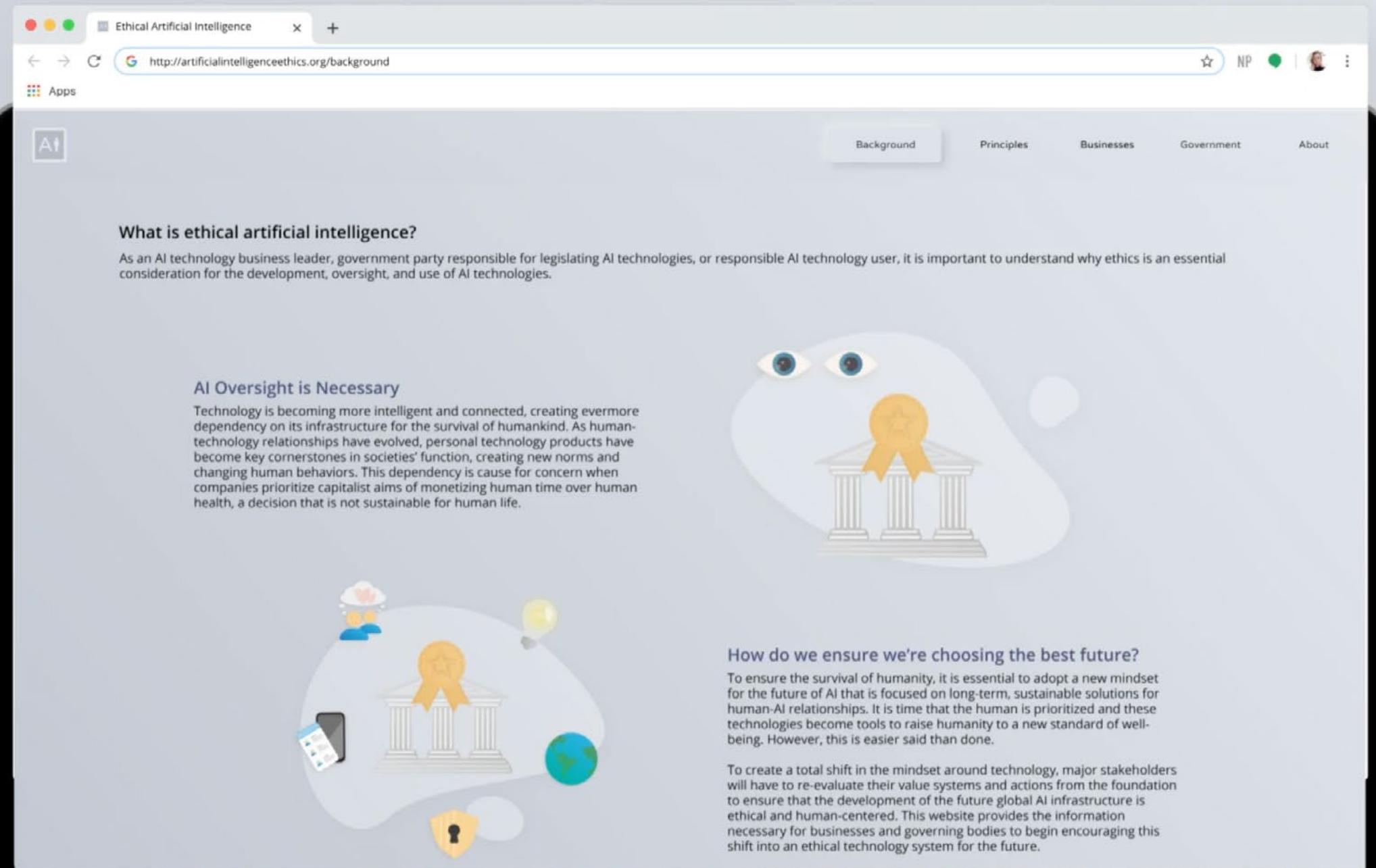




The **home** page guides users through the purpose of the website and how to get the most out of it based on who they are.



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



Scroll

Sticky Nav Bar

### 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, resilient, 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 Danko, 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

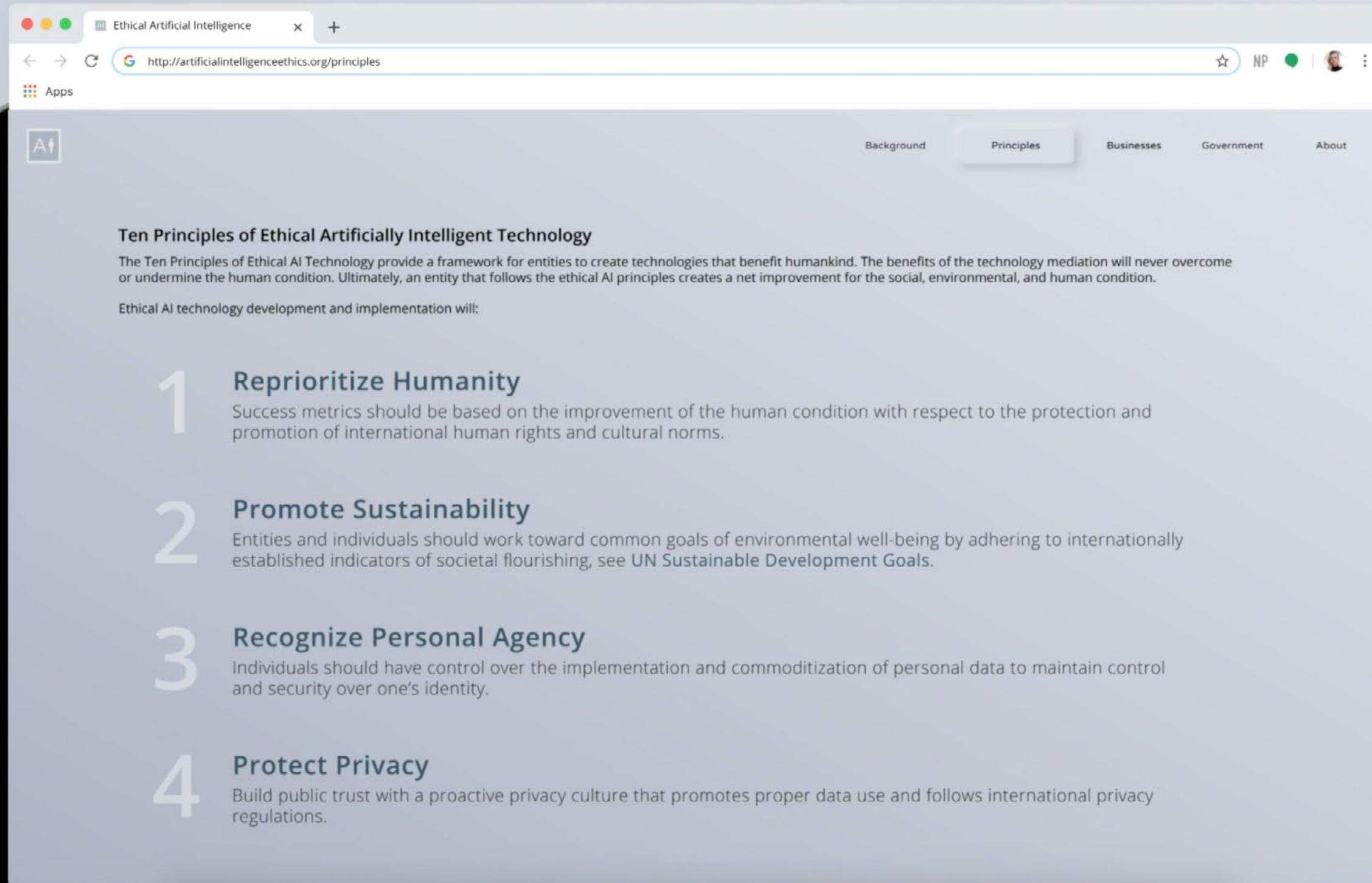
To determine ethical AI applications, a Utilitarian consequentialist framework has been applied to the decision-making process of AI technology development at the business entity level. To successfully apply a consequentialist theory to artificial intelligence (AI), one must assume the AI in question 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.



The screenshot shows a web browser window with the URL <http://artificialintelligenceethics.org/principles>. The page features a navigation menu with links for Background, Principles (selected), Businesses, Government, and About. The main content area is titled "Ten Principles of Ethical Artificially Intelligent Technology" and includes an introductory paragraph and a list of the first four principles.

**Ten Principles of Ethical Artificially Intelligent Technology**

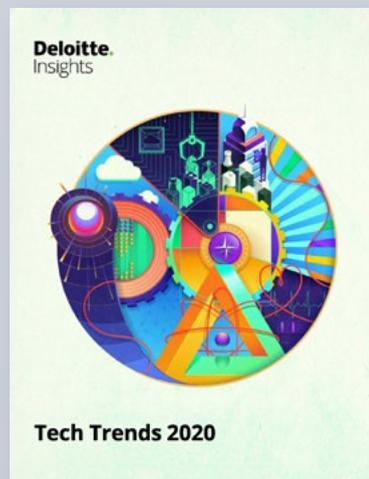
The Ten Principles of Ethical AI Technology provide a framework for entities to create technologies that benefit humankind. The benefits of the technology mediation will never overcome or undermine the human condition. Ultimately, an entity that follows the ethical AI principles creates a net improvement for the social, environmental, and human condition.

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.
- 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.

# Ten Principles of Ethical AI Development

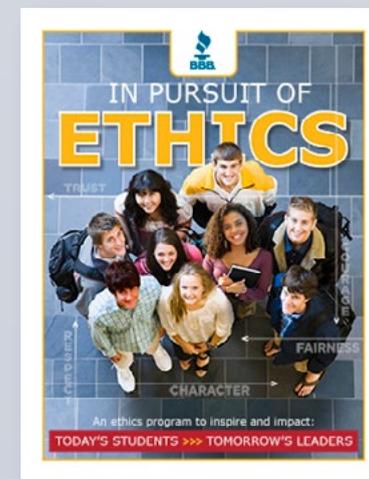
1	<b>Reprioritize Humanity</b> Success metrics should be based on the improvement of the human condition with respect to the protection and promotion of international human rights and cultural norms.
2	<b>Promote Sustainability</b> Entities and individuals should work toward common goals of environmental well-being by adhering to internationally established indicators of societal flourishing, see <a href="#">UN Sustainable Development Goals</a> .
3	<b>Recognize Personal Agency</b> Individuals should have control over the implementation and commoditization of personal data to maintain control and security over one's identity.
4	<b>Protect Privacy</b> Build public trust with a proactive privacy culture that promotes proper data use and follows international privacy regulations.
5	<b>Provide Security</b> 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	<b>Ensure Transparency</b> 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	<b>Embrace Accountability</b> Entities responsible for technology should share the responsibility of the technology mediations, implementation, and effects with individuals involved in the technology's use.
8	<b>Equitable Opportunity</b> Technology solutions should be useful and marketable to people with diverse abilities throughout its lifespan and applications, see <a href="#">Universal Design Principles</a> . Entities are responsible for educating employees and building inclusive teams to ensure equitably mediated technology outcomes.
9	<b>Democratize Decisions</b> 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	<b>Demonstrate Competence</b> 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.



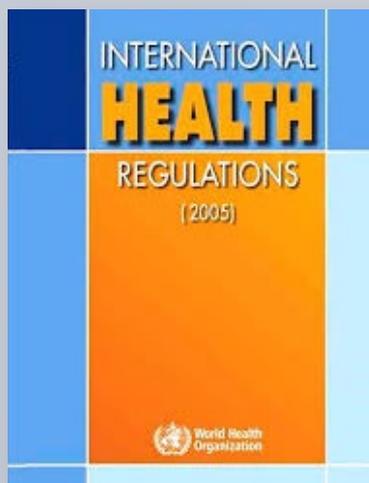
Tech Trends 2020  
Deloitte Insights



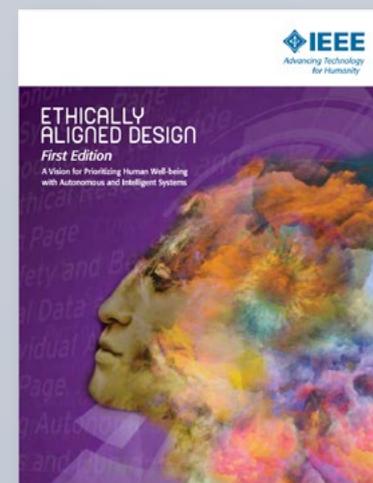
7 Universal Design Principles  
Center for Universal Design,  
North Carolina State University



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

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

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Link to Business

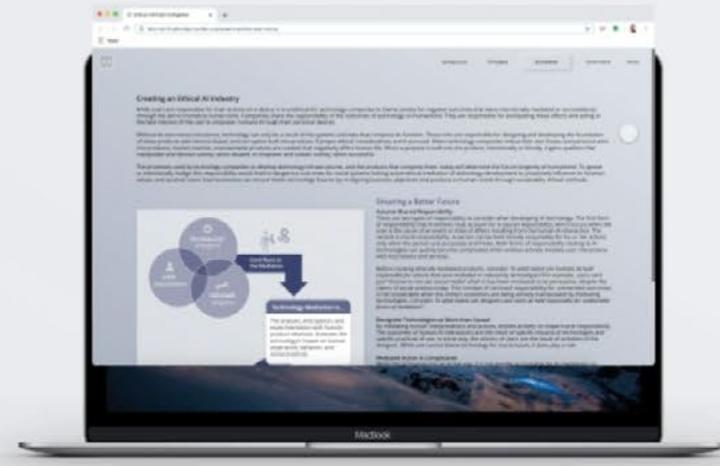


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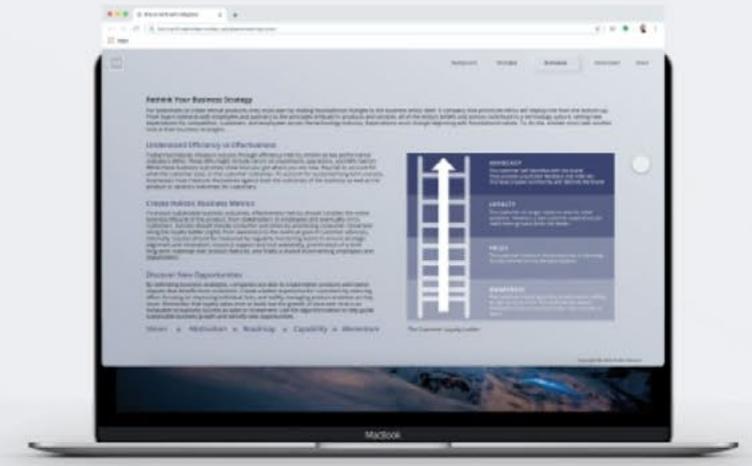


Wireframes show the Principles page experience.

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



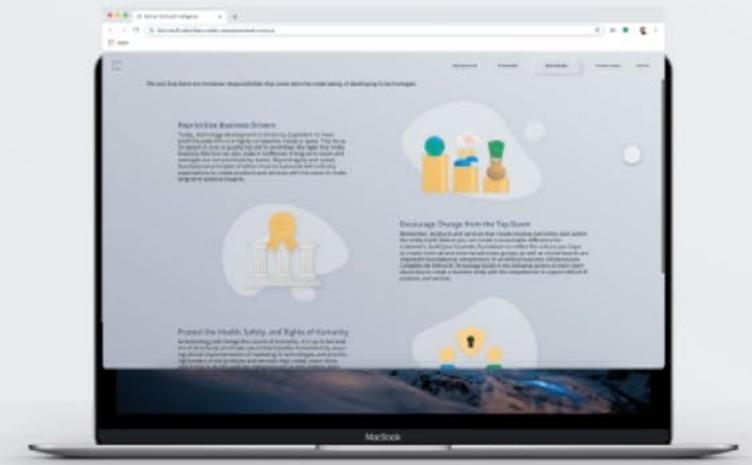
Mediating Technology



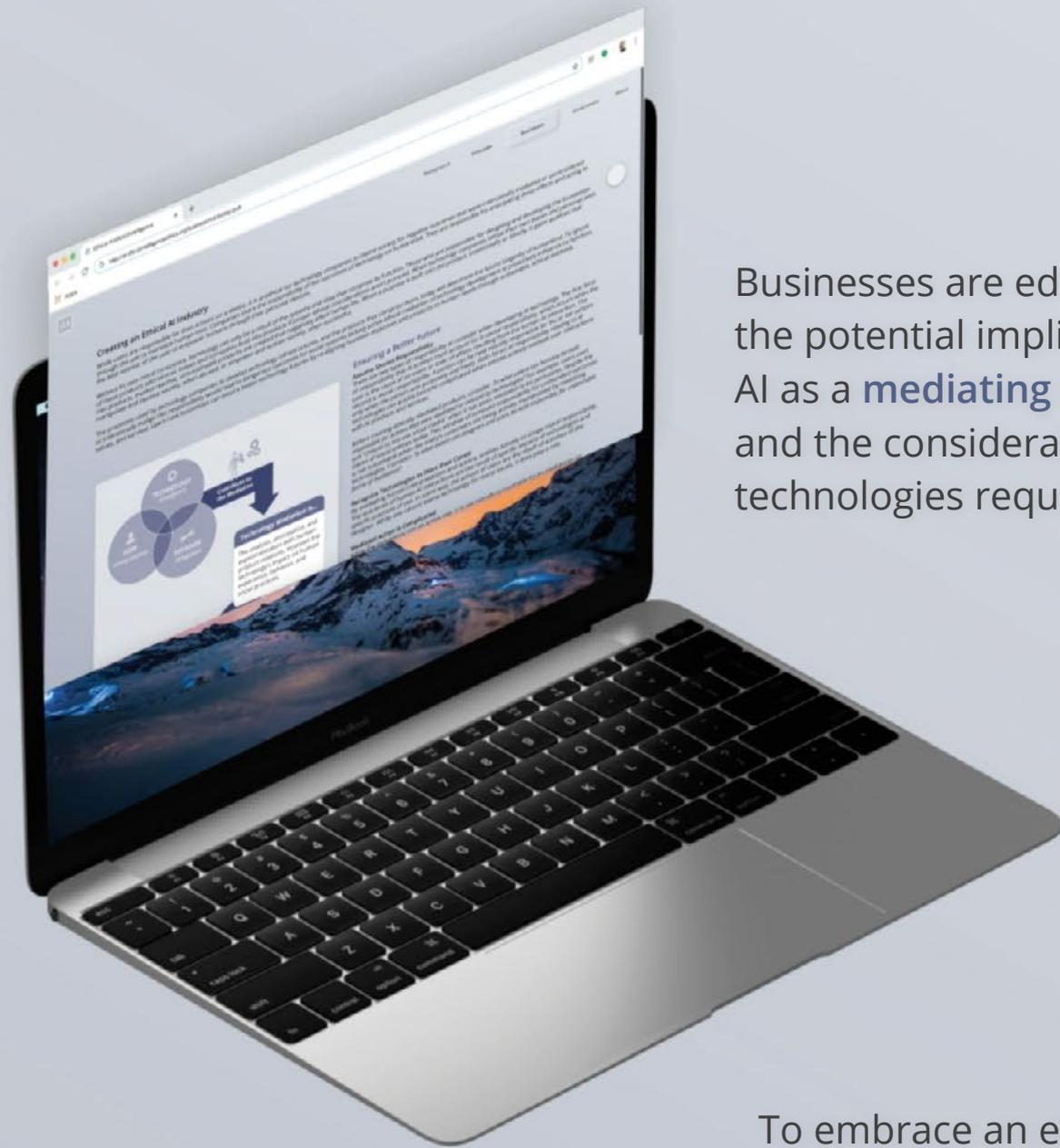
Business Strategy



Ethical AI Guide



Responsibilities

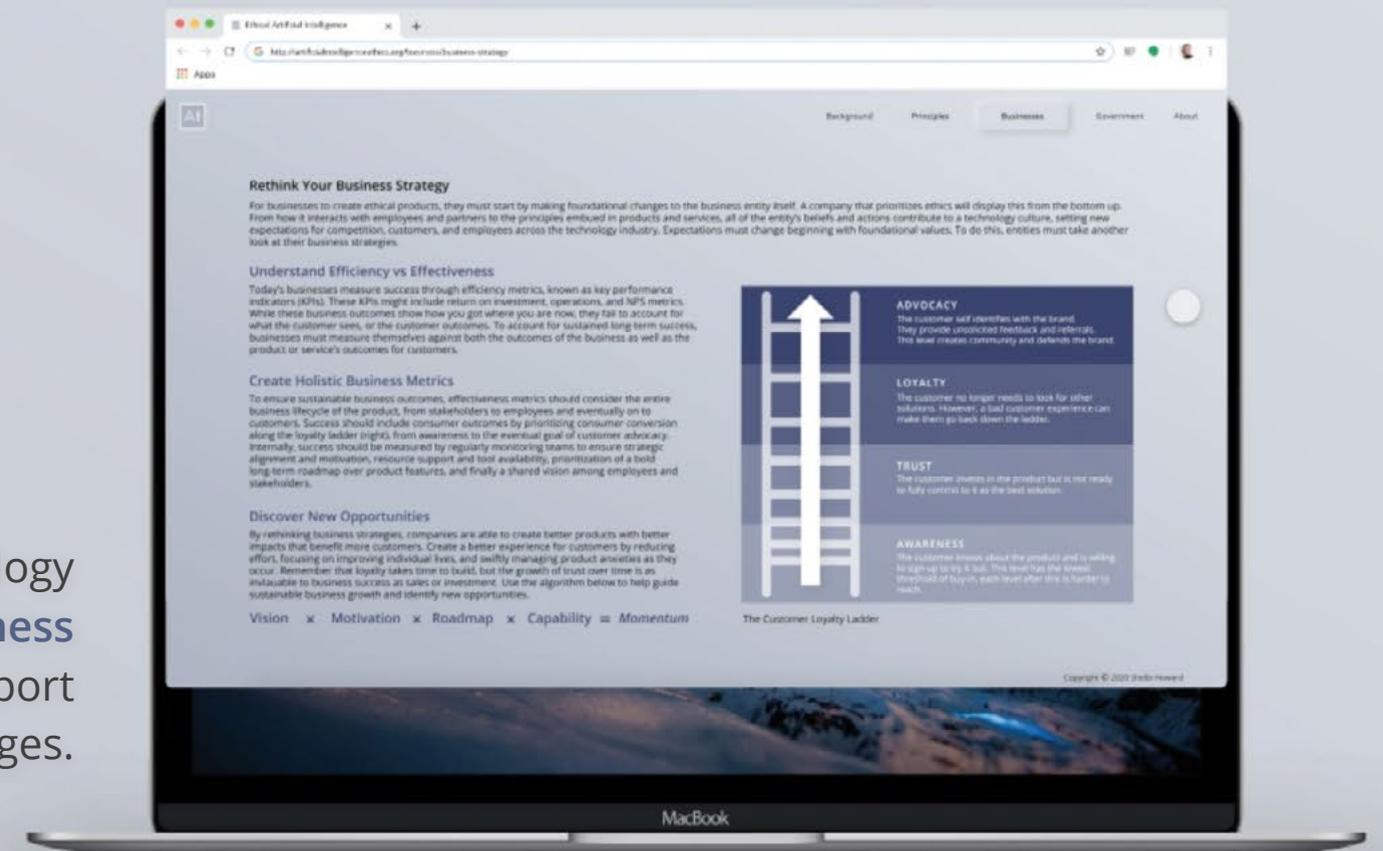


Businesses are educated on the potential implications of AI as a **mediating technology** and the considerations these technologies require.

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

“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



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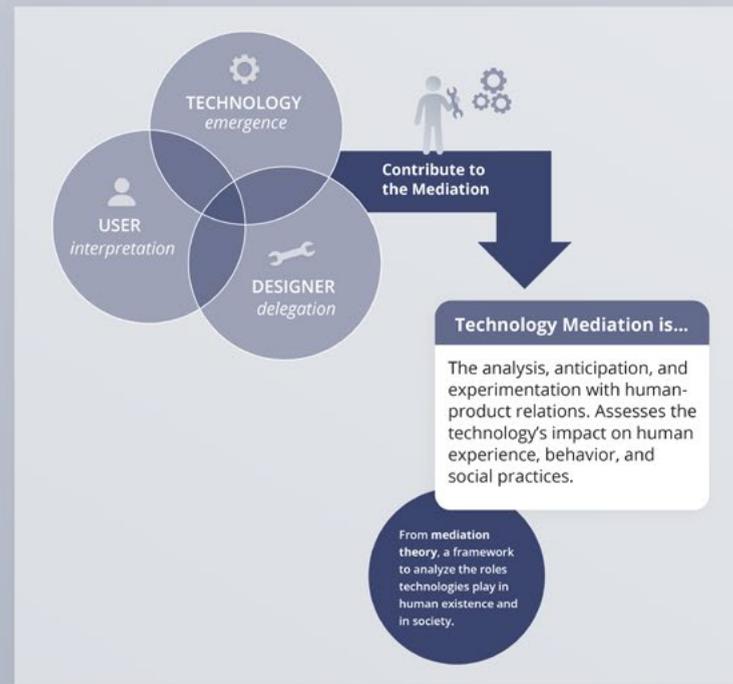
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### Creating an Ethical AI Industry

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.

Background Principles **Businesses** Government About

- Mediating Tech
- Business Strategy
- Ethical AI Guide
- Responsibilities

## 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

<b>ADVOCACY</b> The customer self identifies with the brand. They provide unsolicited feedback and referrals. This level creates community and defends the brand.
<b>LOYALTY</b> The customer no longer needs to look for other solutions. However, a bad customer experience can make them go back down the ladder.
<b>TRUST</b> The customer invests in the product but is not ready to fully commit to it as the best solution.
<b>AWARENESS</b> The customer knows about the product and is willing to sign up to try it out. This level has the lowest threshold of buy-in, each level after this is harder to reach.

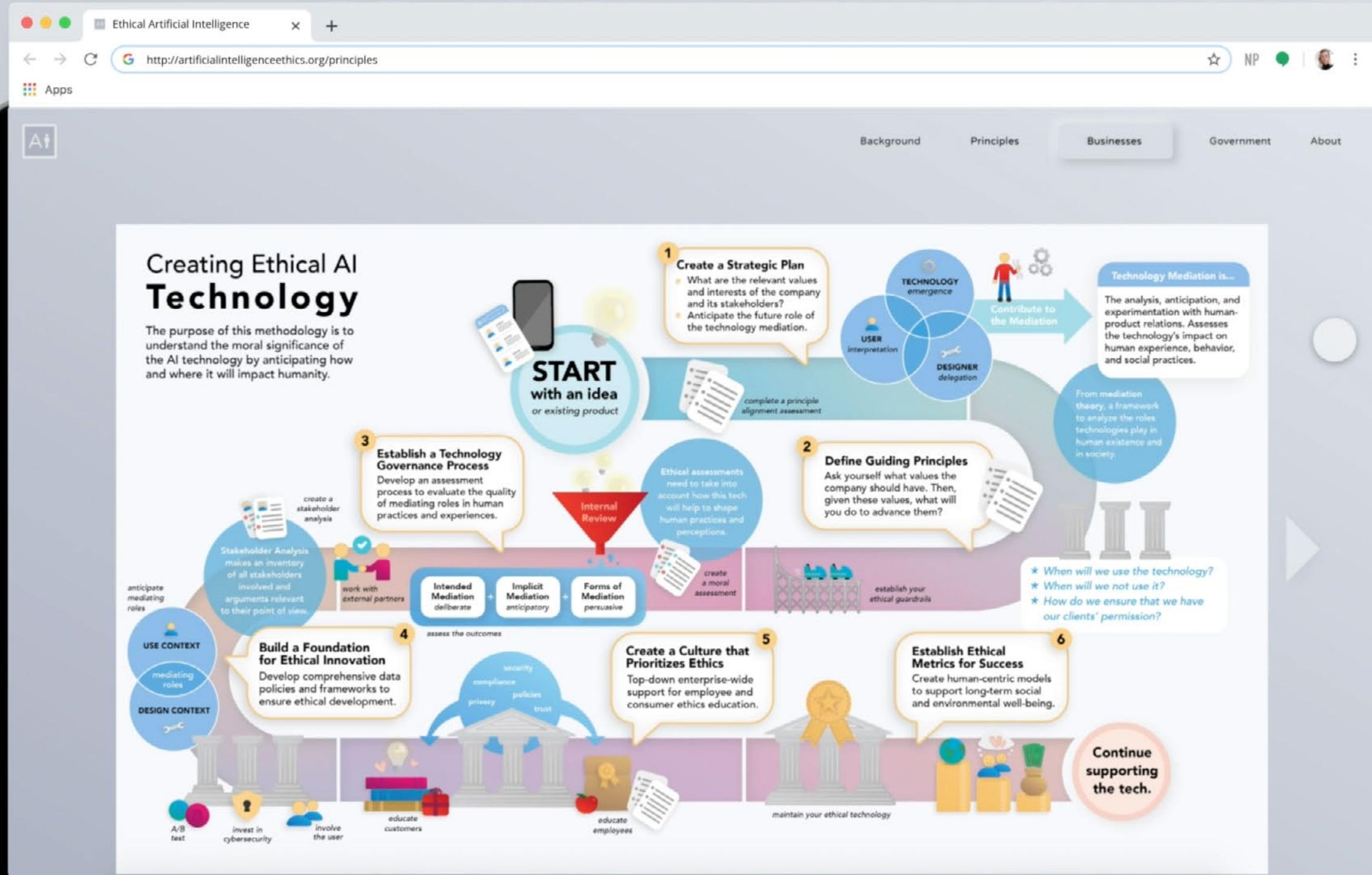
Next: Guide to Make Ethical AI

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

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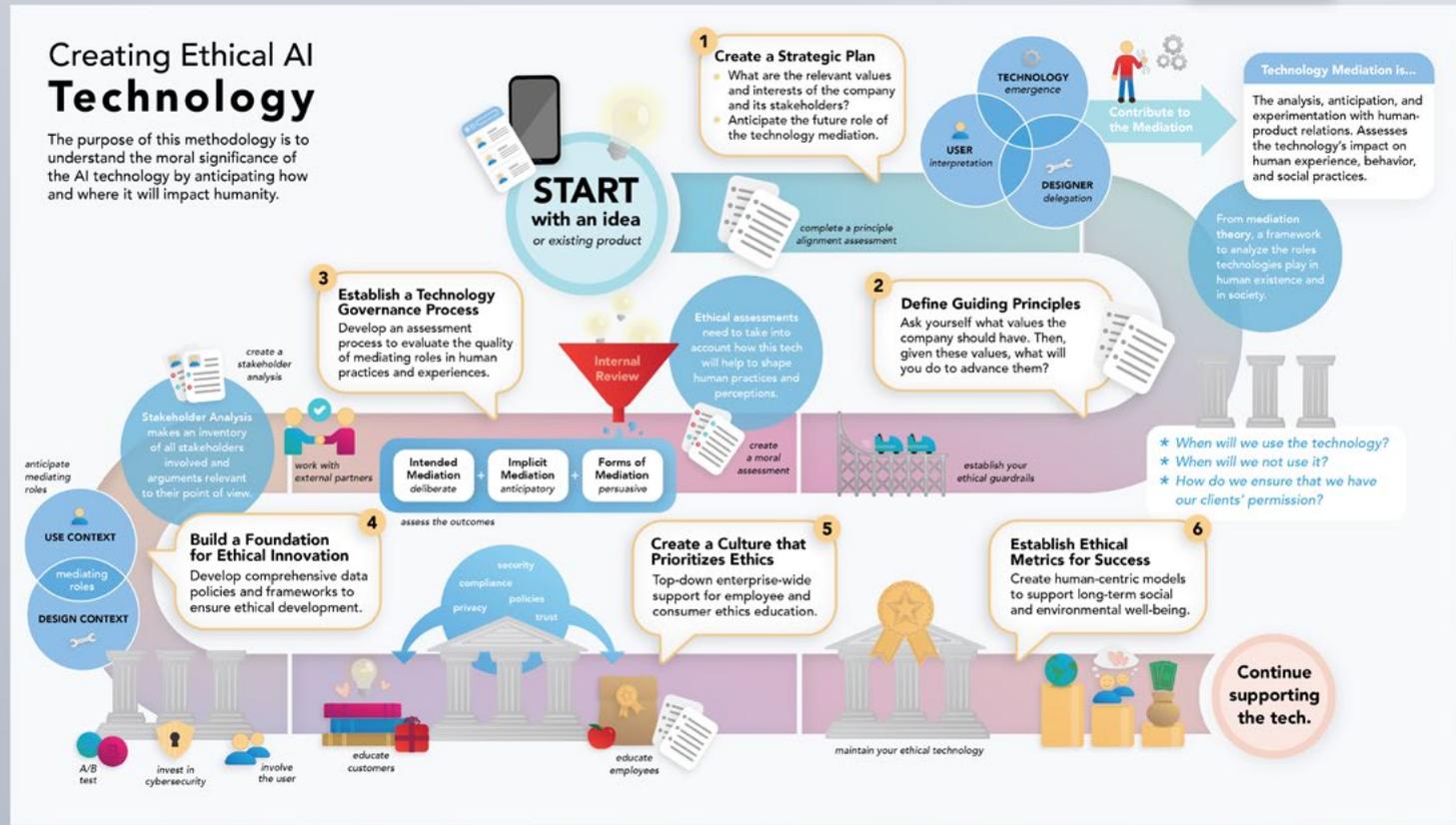
The Ethical AI Development Guide provides step-by-step guidance with tools to businesses.



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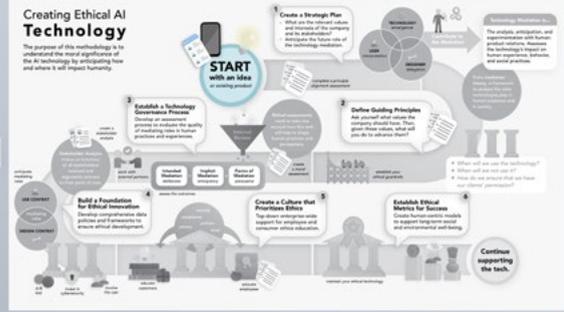
Guide to Create an Ethical AI Business

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.

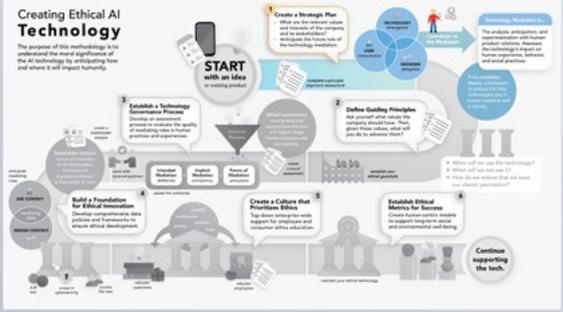
The aim of this approach is a two-fold focus on the entity and its technology. First, a framework for entities to ensure ethical development through their guiding principles, culture, and employee structure. Secondly, the tools provided with this approach assist entities in understanding the moral significance 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.

Wireframes show the Ethical AI Development Guide experience for businesses.



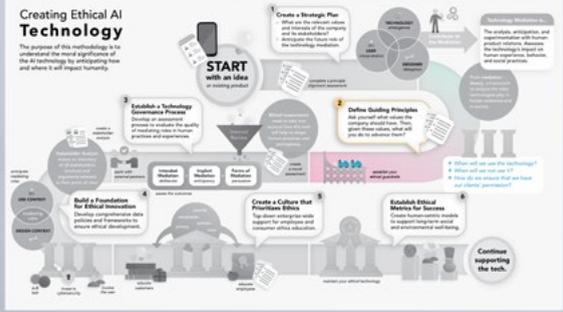
**Start with an idea or Existing Product**  
For existing products, this approach can be applied retrospectively to your existing AI technology. However, it is important to apply this as a top-down, enterprise-wide approach. Without focusing on the ethical capabilities of the entity first, the technology will not have the necessary support to succeed as an ethical product. Similarly, for entities developing a new product, this approach is best suited for creating a top-down solution that not only ensures the ethical development of the technology, but the entity-wide support required to develop and maintain the AI technology ethically long-term.

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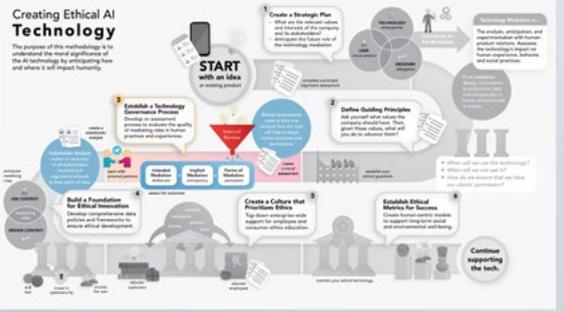
**Create a Strategic Plan**  
The purpose of this strategic plan is to state the primary purpose of the technology mediation and how it will impact stakeholders. To do this, you must balance the relevant values and interests of both the company and its stakeholders. Consider: What are the things that matter to customers, users, employees, and shareholders? This supports a wider discussion around how the technology could advance, protect, or impact stakeholders.

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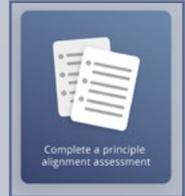
**Define Guiding Principles**  
After identifying the relevant values of the stakeholders, you must develop a plan for how the entity will create products that support those values. Consider: What values should we have? Then, given those values, what are we to do to advance them? The entity's guiding principles should answer questions like: When will we use the technology? When will we not use it? How do we ensure that we have our clients' permission? These principles communicate the importance of trust to the entity's mission and establish clear ethical guardrails.

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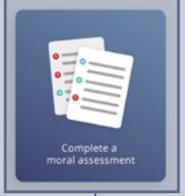
**Establish a Technology Governance Process**  
After creating the framework for the entity's ethical underpinnings, you must establish a process by which technology decisions are deemed ethical, or unethical. In an ethical entity, decisions are governed both internally and externally by separate groups of reviewers. Establishing a network of governance is important because "waterfalls of morality" can be left to individual designers, where their actions and decisions of designers have immediate public consequences, their work should be subject to public decision-making.

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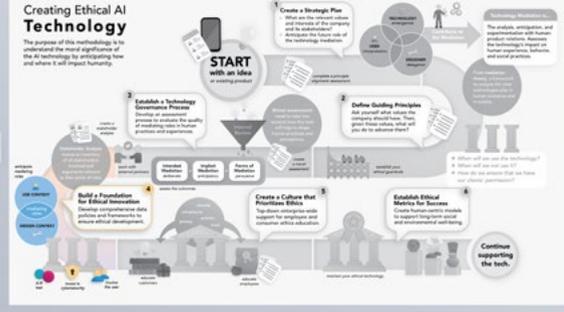
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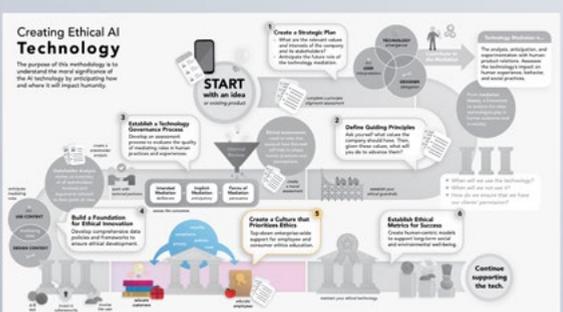
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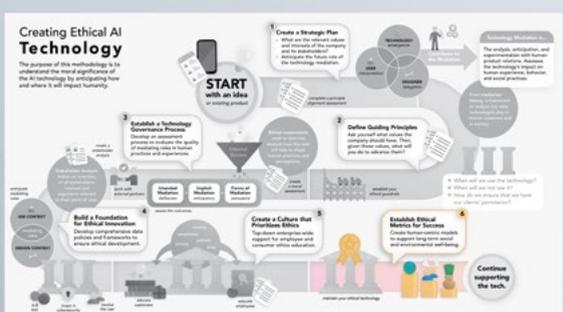
**Build a Foundation for Ethical Innovation**  
To develop an ethical technology, the technology must be created ethically from its foundation. Building ethical data frameworks is the first step in building the technology product. To do this, the entity must develop comprehensive data protection policies. In a case study, Abbott demonstrated excellence in this through the development of advanced analytics techniques to help generate its use of data—for instance, ensuring client data in a way that cannot reverse-engineered to identify an individual. Abbott's analytics team also devised a way to assign a data velocity score—based on data quality and integrity, consistency, and relevance—to each piece of information that could be used by an algorithm. The algorithmic models are designed to recognize and treat the data with only appropriate, supporting more results, transparency, and engaging employees. In addition to data frameworks, appropriate investment in opportunity capabilities and controls embedded into product designs to address key foundational components of creating an ethical technology.

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**Create a Culture that Prioritizes Ethics**  
To ensure a culture that prioritizes ethics entity-wide, develop enterprise-wide policies, procedures, and annual employee training and certification programs. These should cover important topics, such as data handling and protection and compliance with national and global regulatory requirements.

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**Establish Ethical Metrics for Success**  
Recognize the opportunities beyond the product. By re-orienting metrics for success around human-centric, humanitarian and sustainable development issues are addressed through the prioritization of environmental wellbeing and individuals throughout society. Instead of focusing on indicators of efficiency, the ROI and customer growth, focus on indicators of effectiveness. One way to begin doing this is to measure each new digital initiative against alignment to organizational values and impact on stakeholder trust. Use established indicators of social wellbeing, such as the [Global Impact Sustainable Development Goals](#) to ensure that human wellbeing is the primary indicator of success. Be sure to focus these metrics in building user relationships to create a user positive human impact over time.

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**Continue Supporting the Technology**  
Continuation, like an iterative, continuous support and prioritization. Beyond these tasks and processes for each new initiative to maintain the ethical strategy and principles of the entity. Continual education initiatives for employees and users to give a more ethical community around your technology. Compare the entity's principles to the Principles of Ethical AI Technology regularly to ensure that the entity is always improving towards a more ethical future for humanity.

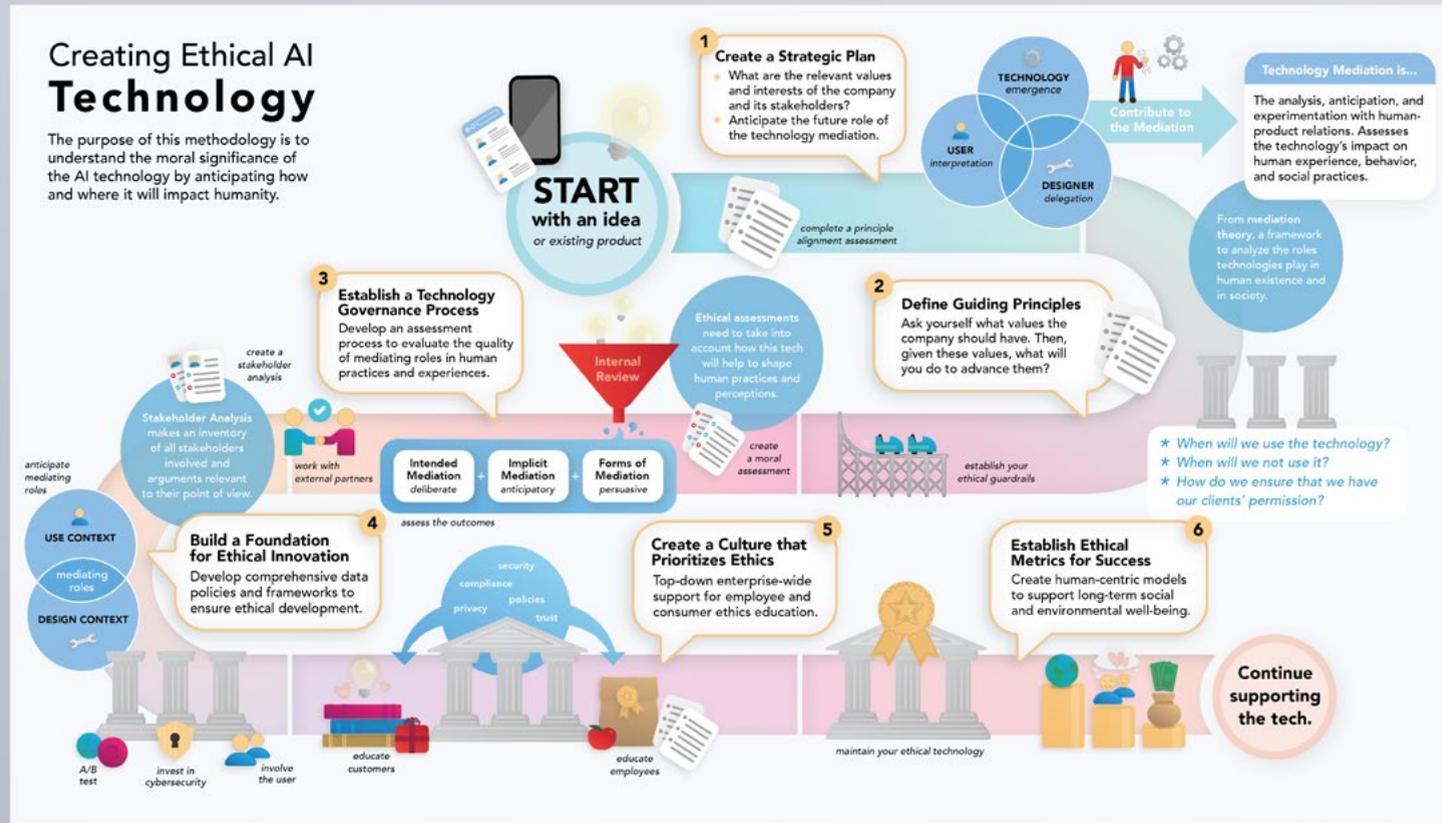
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Download and share this infographic to review later and support ethical technology.

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Next: Responsibilities



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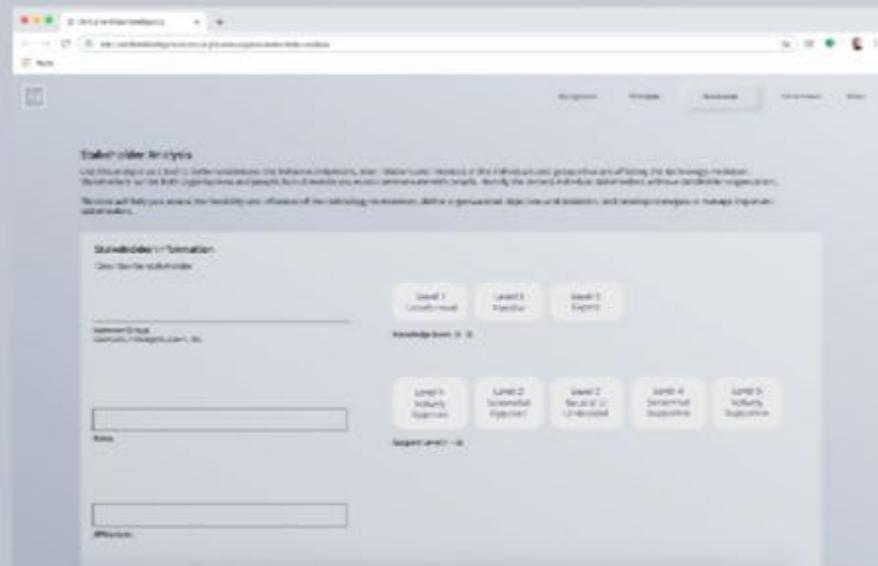
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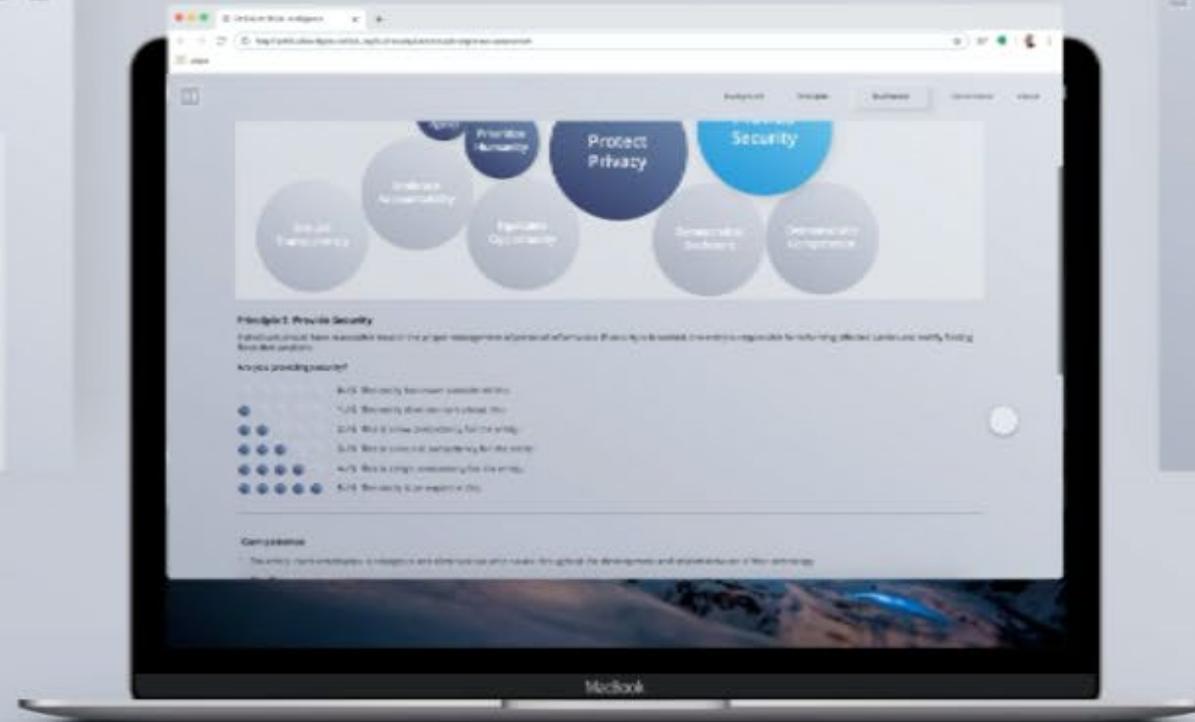
Wireframes show the Ethical AI Development Guide experience for businesses.

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



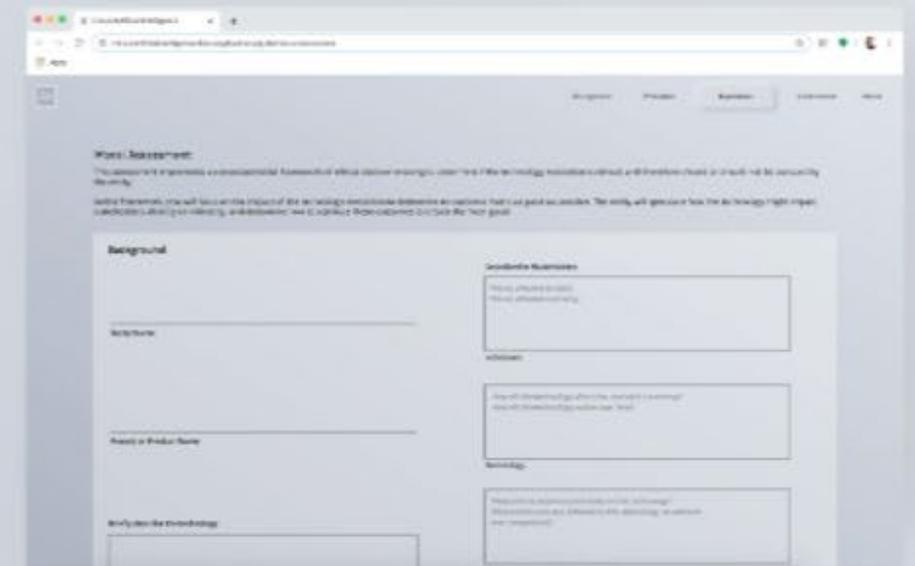
## Stakeholder Analysis

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**  
Describe the stakeholder

Name or Group: Fiona Renee Lewis

Role:  Project Management,  Environmental Protection Agency (EPA)

Affiliations: [Text Field]

Knowledge Level (1-3):  Level 1 Uninformed,  Level 2 Familiar,  Level 3 Expert

Support Level (1-5):  Level 1 Actively Opposed,  Level 2 Somewhat Opposed,  Level 3 Neutral or Undecided,  Level 4 Somewhat Supportive,  Level 5 Actively Supportive

1 of 3 [Cancel] [Next]

Stakeholder Information (1/3)

**Project Information**  
Describe the project the stakeholder is involved with

Title: [Text Field]

Name: [Text Field]

Responsible Party: [Text Field]

Project Expectations: [Text Field]

Milestones:

- Milestone One: Complete and launch phase 1 and finalize phase 2 from July. Begin phase 3 customer research. 9/1
- Milestone Two: Launch phase 2 and begin customer research on phase 3. 9/1
- Milestone Three: Begin phase 3 development. 10/1

End of 2021 Q1

2 of 3 [Back] [Next]

Project Information (2/3)

**Risks and Benefits**  
Analyze the potential risks and benefits this stakeholder creates

Motivations / Drivers: [Text Field]

Stakeholder Expectations: [Text Field]

Stakeholder Map: [Matrix]

3 of 3 [Back] [Finish]

Risks and Benefits (3/3)

**Stakeholder Analysis - Results**  
Congratulations, you have completed the Stakeholder Analysis for **Fiona Renee Lewis**. Download this information and use it as a resource in project reviews and decision-making meetings. This will help you better understand the behavior, intentions, inter-relations and interests of the individuals and groups that are affecting the project.

Now, you can exit or create another assessment.

**FIONA RENEE LEWIS**  
Iris Project Manager  
9/30/20

**PERSONAL INFORMATION**  
Affiliations: Environmental Protection Agency (EPA)  
Knowledge Level (1-3): Expert (3)  
Support Level (1-5): Somewhat Supportive (4)

**PROJECT INFORMATION**  
Involvement: Wednesday, weekly  
Responsible Party: Dev Ops, Quality Assurance  
Activities:  
-QA result review  
-Release confirmation for each phase  
Project Expectations:  
-OK the environmental QA results  
-Confirm release date and time to EU and Asia Pacific  
Date due: End of 2021 Q1

**RISKS AND BENEFITS**  
Motivations / Drivers: Environment, EU regulations  
Biases: Cognitive  
Anticipated Issues: Progressive, Political  
Stakeholder Expectations:  
-Support and follow EPA standards  
Stakeholder Map: Positive interest, High power  
Recommendation: Manage this stakeholder closely

[Create New Analysis] [Download] [Exit]

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Click

Results

Click

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.

**Principle Alignment Assessment**

This tool helps quantify the alignment of entities current technologies and practices to the [Ethical AI Technology Principles](#). After assessing the technology intervention using these statements, entities are better positioned to identify and address strengths and weaknesses in a technology's ethical competencies.

This assessment is best completed with a diverse team of stakeholders that represent the entity's varying interests and priorities.

**Principle 1: Prioritize 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?

0 / 5 The entity has never considered this.

1 / 5 The entity does not care about this.

2 / 5 This is a low competency for the entity.

3 / 5 This is a neutral competency for the entity.

4 / 5 This is a high competency for the entity.

5 / 5 The entity is an expert in this.

**Competence**

1. Success indicators and business goals address holistic long-term improvements. Ethical success indicators go beyond baseline efficiency indicators of gross domestic product, consumption, and safety to encompass efficacy indicators focused on the customer, environment, and society.

0 / 5

2. Unintended negative consequences are identified and accounted for in business goals and human-focused indicators.

0 / 5

**Impact**

1. The lifespan of the technology application is understood and considered.

0 / 5

2. The entity makes an effort to understand the experience of users and indirect users with the intention of increasing their quality of life.

0 / 5

3. Interactions with the technology intervention avoid harmful dampening or amplification of human emotional experiences.

0 / 5

**Culture**

1. The entity's approach to building trust prioritizes the interests, experiences, and professional standards of the culture.

0 / 5

2. The entity's approach to building trust prioritizes societal norms of the region.

0 / 5

**Regulation**

1. The entity is compliant with national laws and government controls where the technology exists.

0 / 5

Total: 0 / 40 1 of 10 Cancel Next

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Principle 1 Incomplete (1/10)

**Principle Alignment Assessment**

This tool helps quantify the alignment of entities current technologies and practices to the [Ethical AI Technology Principles](#). After assessing the technology intervention using these statements, entities are better positioned to identify and address strengths and weaknesses in a technology's ethical competencies.

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3 / 5

2. Unintended negative consequences are identified and accounted for in business goals and human-focused indicators.

2 / 5

**Impact**

1. The lifespan of the technology application is understood and considered.

1 / 5

2. The entity makes an effort to understand the experience of users and indirect users with the intention of increasing their quality of life.

3 / 5

3. Interactions with the technology intervention avoid harmful dampening or amplification of human emotional experiences.

2 / 5

**Culture**

1. The entity's approach to building trust prioritizes the interests, experiences, and professional standards of the culture.

0 / 5

2. The entity's approach to building trust prioritizes societal norms of the region.

1 / 5

**Regulation**

1. The entity is compliant with national laws and government controls where the technology exists.

4 / 5

Total: 16 / 40 1 of 10 Cancel Next

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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)

Principle 3 complete (3/10)

Principle 4 complete (4/10)

Principle 5 complete (5/10)

Principle 6 complete (6/10)

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Principle 7 incomplete (7/10)



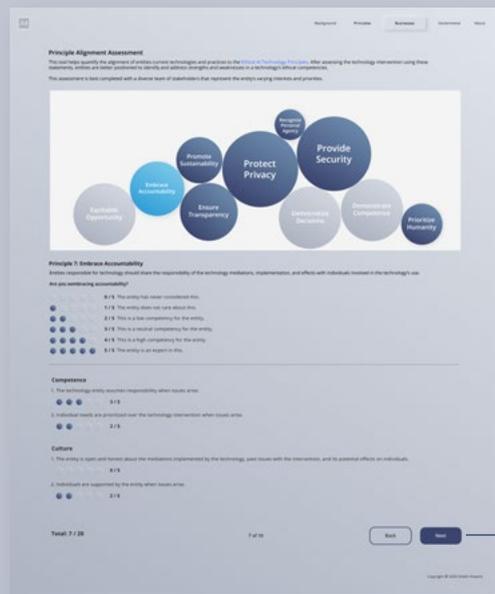
Principle 8 incomplete (8/10)



Principle 9 incomplete (9/10)



Principle 10 incomplete (10/10)



Principle 7 complete (7/10)

Next Page

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

**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.

combine →

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.

combine →

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, 1, 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 competent as a premiere organization with a much greater grasp on the subject matter.



**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.

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Rating: \_\_\_\_\_

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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?
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.

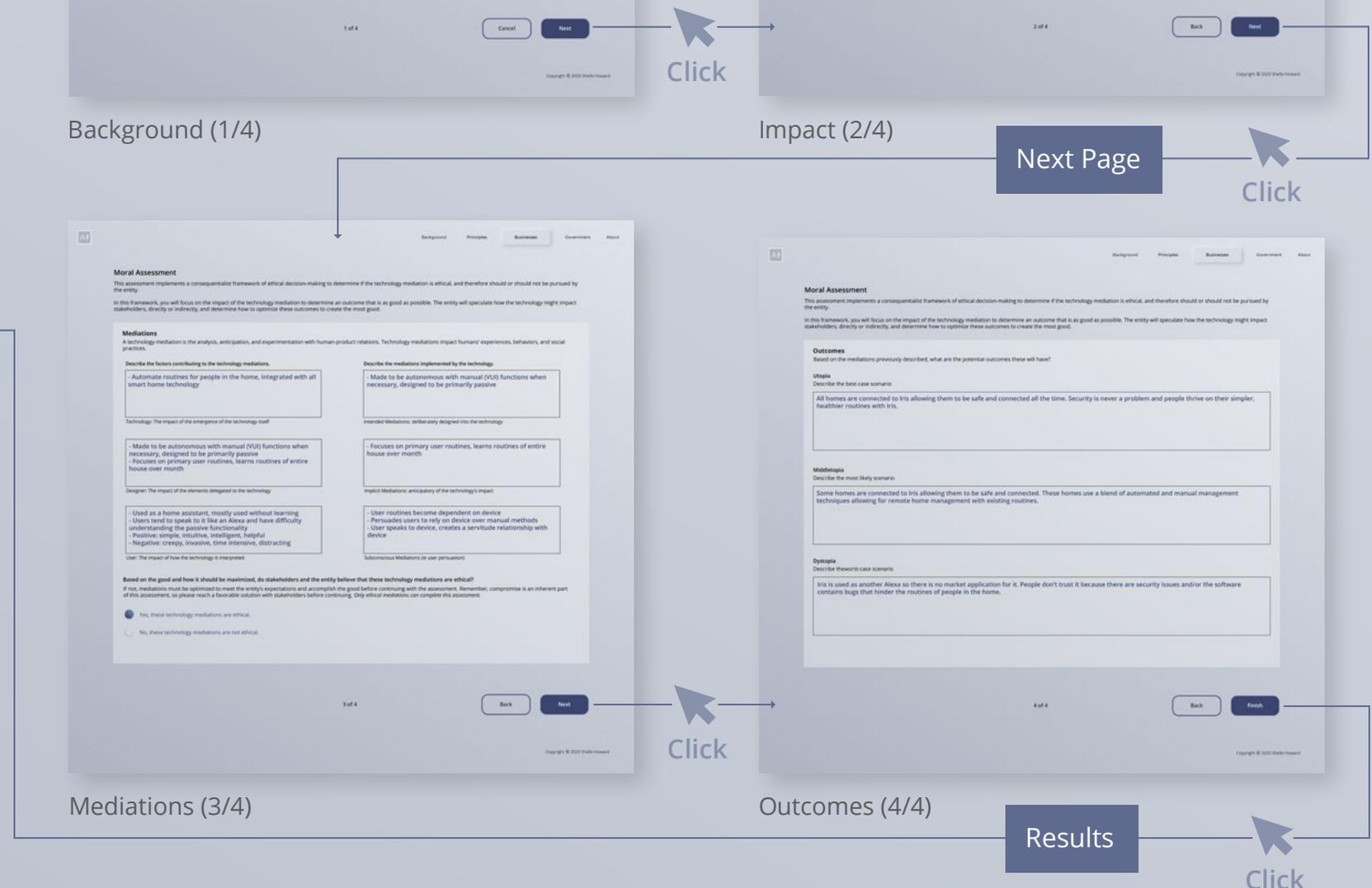
Results provide a vision for the technology's impact and a clear roadmap for the technology to meet entity goals.

Background (1/4)

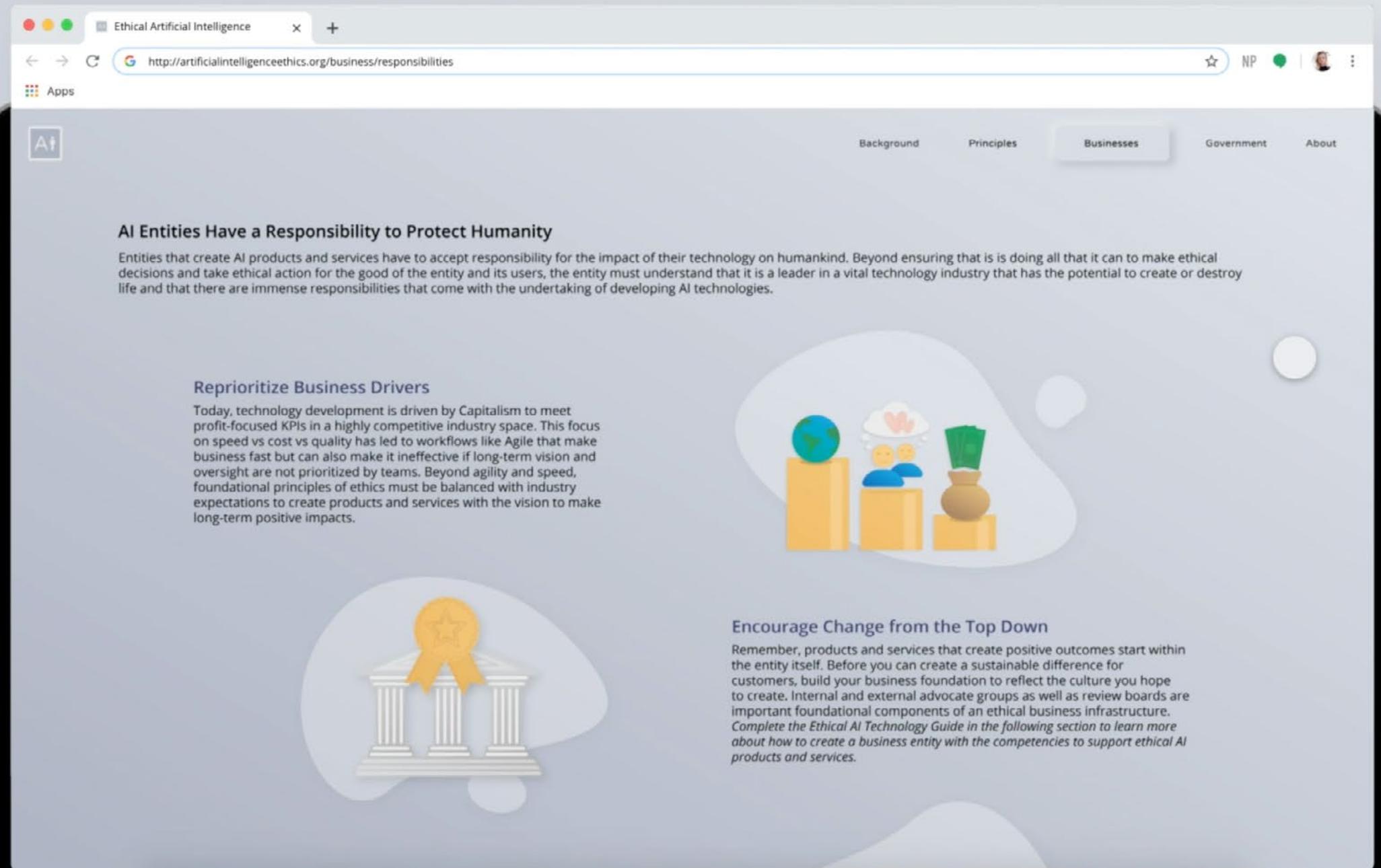
Impact (2/4)

Mediations (3/4)

Outcomes (4/4)



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



The screenshot shows a web browser window with the URL <http://artificialintelligenceethics.org/business/responsibilities>. The page features a navigation menu with 'Background', 'Principles', 'Businesses' (highlighted), 'Government', and 'About'. The main content is titled 'AI Entities Have a Responsibility to Protect Humanity' and includes a paragraph about the impact of AI technology. Below this, there are two sections: 'Reprioritize Business Drivers' with an illustration of business metrics, and 'Encourage Change from the Top Down' with an illustration of a classical building.

## 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 it 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.

### 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.*

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### AI Entities Have a Responsibility to Protect Humanity

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Microanimation 1  
Animate

Microanimation 2



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#### 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

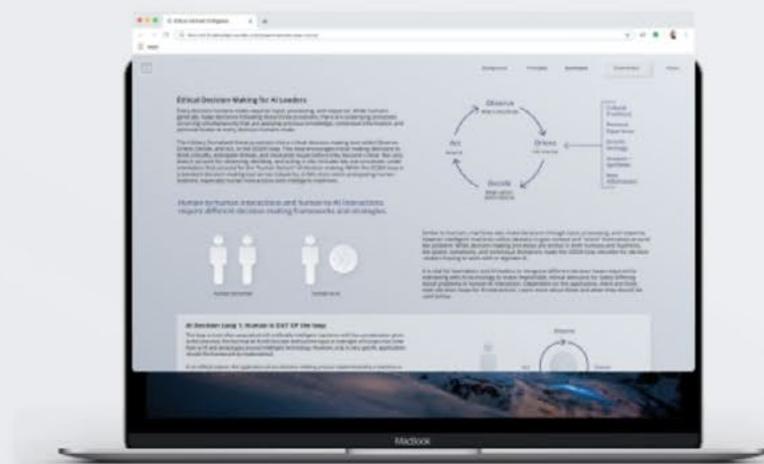
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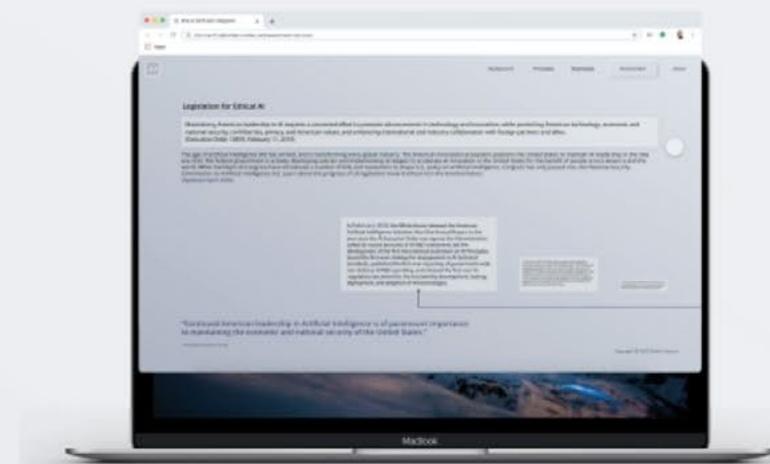
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Wireframes show the Responsibilities experience for businesses.

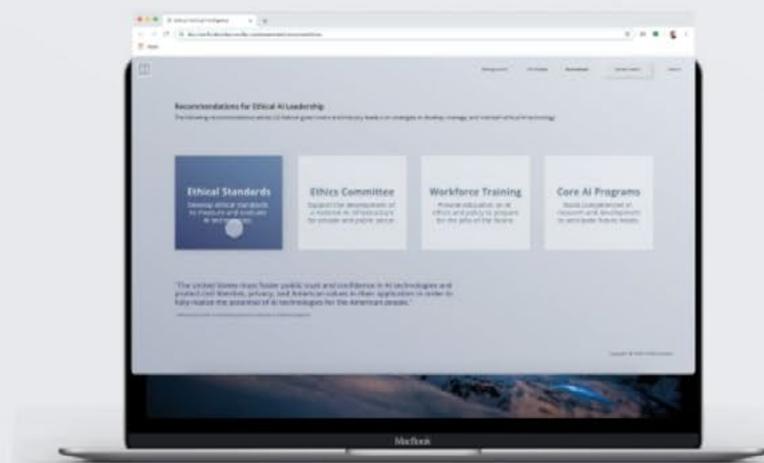
Governments are given the resources to make educated decisions for AI technology legislation.



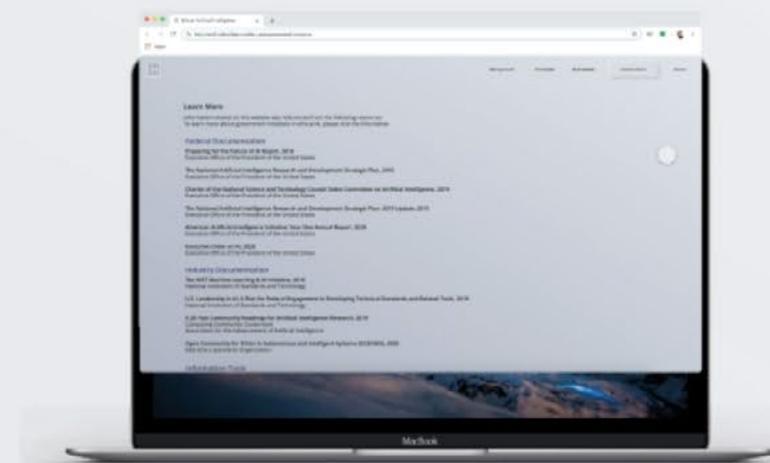
Decision-making



Legislation



Recommendations



Resources

Ethical Artificial Intelligence

http://artificialintelligenceethics.org/government/decision-making

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### Ethical Decision-Making for AI Leaders

Every decision humans make requires input, processing, and response. While humans generally make decisions following these three processes, there are underlying processes occurring simultaneously that are applying previous knowledge, contextual information, and personal biases to every decision humans make.

The military formalized these processes into a critical decision-making tool called Observe, Orient, Decide, and Act, or the OODA loop. This loop encourages those making decisions to think critically, anticipate threats, and neutralize issues before they become critical. Not only does it account for observing, deciding, and acting, it also includes key sub-processes under orientation that account for the "human factors" of decision-making. While the OODA loop is a standard decision-making tool across industries, it falls short when anticipating human-machine, especially human interactions with intelligent machines.

Human-to-human interactions and human-to-AI interactions require different decision-making frameworks and strategies.

Similar to humans, machines also make decisions through input, processing, and response, however intelligent machines utilize datasets to gain context and "orient" themselves around the problem. While decision-making processes are similar in both humans and machines, the speed, complexity, and contextual limitations make the OODA loop obsolete for decision-makers hoping to work with or legislate AI.

It is vital for lawmakers and AI leaders to recognize different decision loops required for interacting with AI technology to make responsible, ethical decisions for vastly differing moral problems in human-AI interaction. Dependent on the application, there are three main decision loops for AI interactions. Learn more about these and when they should be used below.

#### AI Decision Loop 1: Human is OUT OF the loop

This loop is most often associated with artificially intelligent machines with less consideration given to the next two. The fear that all AI will function without the input or oversight of humans has come from sci-fi and stereotypes around intelligent technology. However, only in very specific applications should this framework be implemented.

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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**Ethical Decision-Making for AI Leaders**

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In an ethical system, the application of any decision-making process implemented by a machine or the oversight of a machine must be for the good of the human. For an AI machine to perform without human involvement, a dual argument must be present to support the "automating out" of the human for the greater good of the human and environment.

An example of a situation where it is appropriate for the human to not be involved in machine activity is self-driving cars. Here, it is safer for the machine to use its faster processing and reaction time to keep the driver and pedestrians safer through autonomous transportation.

**AI Decision Loop 2: Human is IN the loop**

The second decision-making strategy for human-machine interactions forms a symbiotic relationship between human and machine, where the human responsible for making decisions and acting while advised by a machine. In this loop, the observation and orientation is accounted for by the machine while the human is still responsible for deciding and acting of their own volition. This is important in applications where a machine may not have enough information for appropriate real-time actions or is not able to account for the safety of humans at all times.

An example of this implementation is the use of mobile wayfinding (GPS) applications to travel from one destination to another that has been predetermined by the user. While the software is responsible for recommending the best route based on real-time global data, the human is in control of driving the route and able to avoid obstacles that the GPS may not have accounted for.

**AI Decision Loop 3: Human is ON the loop**

While the first two frameworks are best for technology that may be low risk, the third framework accounts for intelligent machines that have a high intelligence and impact on humans, requiring oversight of its processes. In this system, the technology is capable of performing all of its decision-making processes autonomously but requires a human to oversee its actions.

An example of this is a medical diagnostic software to aid physicians in patient care and treatment. While the physician is an expert in his/her field and knows what's best for the individual, the machine is able to process more knowledge than the physician can to accurately diagnose patient's symptoms. The machine and physician work together to improve the accuracy of one another. While the machine may be more capable of processing than the physician, the physician is able to oversee the well-being of the human and provide the best care for the individual.

**Results**

COVID-19	Positive
Hepatitis B	Negative
Influenza A	Negative
Influenza B	Negative
Streptococcus	Negative

**Treatment**

- Tylenol
- Vaccine

Reported to CDC 4/15/20

Decision Loop 1



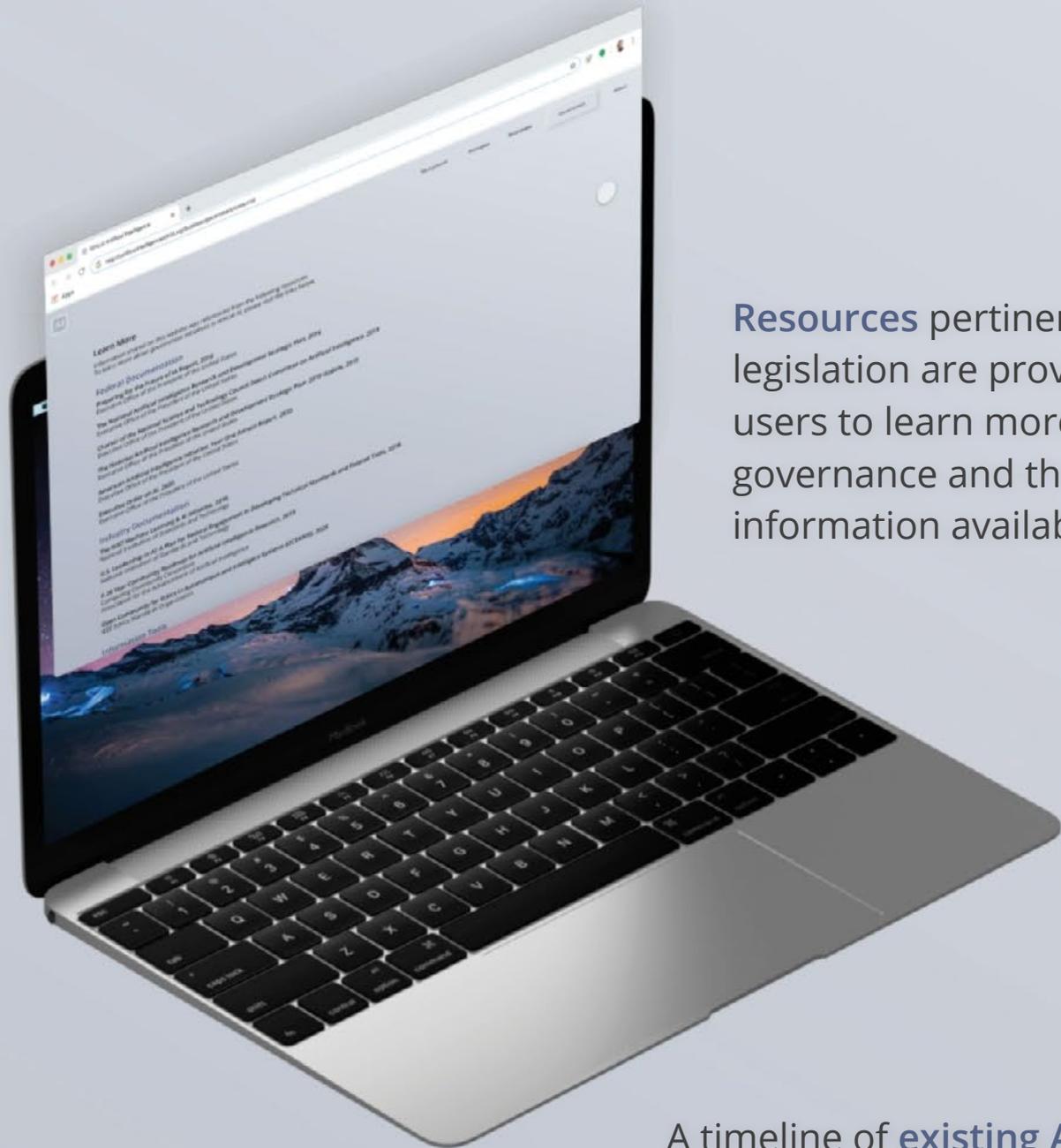
Decision Loop 2



Decision Loop 3



Wireframes show the decision-making experience for governments.

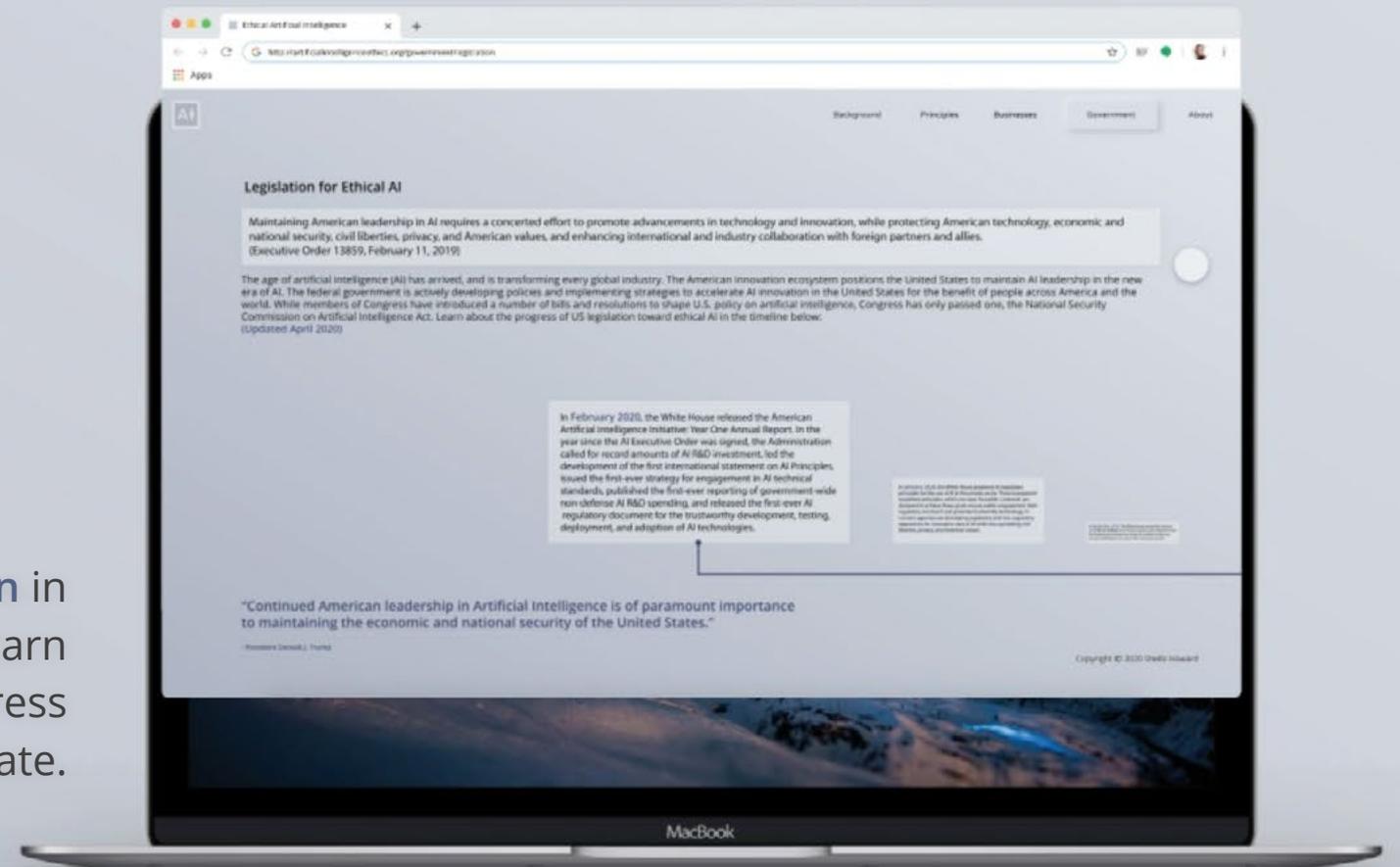


Resources pertinent to AI legislation are provided for users to learn more about AI governance and the origin of information available here.

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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- Resources



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### Learn More

Information shared on this website was referenced from the following resources. To learn more about government initiatives in ethical AI, please visit the links below.

#### 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, 2016**  
Executive Office of the President of the United States

**Charter of the National Science and Technology Council Select Committee on Artificial Intelligence, 2019**  
Executive Office of the President of the United States

**The National Artificial Intelligence Research and Development Strategic Plan: 2019 Update, 2019**  
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 Standards and Related Tools, 2019**  
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), 2020**  
IEEE Ethics Standards Organization

#### Information Tools

**United States AI Legislation Tracker, 2020**  
Center for Data Innovation

Next: About the Project



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

Background Principles Businesses Government About

## Legislation for Ethical AI

Maintaining American leadership in AI requires a concerted effort to promote advancements in technology and innovation, while protecting American technology, economic and national security, civil liberties, privacy, and American values, and enhancing international and industry collaboration with foreign partners and allies. (Executive Order 13859, February 11, 2019)

The age of artificial intelligence (AI) has arrived, and is transforming every global industry. The American innovation ecosystem positions the United States to maintain AI leadership in the new era of AI. The federal government is actively developing policies and implementing strategies to accelerate AI innovation in the United States for the benefit of people across America and the world. While members of Congress have introduced a number of bills and resolutions to shape U.S. policy on artificial intelligence, Congress has only passed one, the National Security Commission on Artificial Intelligence Act. Learn about the progress of US legislation toward ethical AI in the timeline below. (Updated April 2020)

In February 2020, the White House released the American Artificial Intelligence Initiative: Year One Annual Report. In the year since the AI Executive Order was signed, the Administration called for record amounts of AI R&D investment, led the development of the first international statement on AI Principles, issued the first-ever strategy for engagement in AI technical standards, published the first-ever reporting of government-wide non-defense AI R&D spending, and released the first-ever AI regulatory document for the trustworthy development, testing, deployment, and adoption of AI technologies.

In January 2020, the White House proposed AI regulatory principles for the use of AI in the private sector. These transparent regulatory principles, which are open for public comment, are designed to achieve three goals: ensure public engagement, level regulatory oversight and promote trustworthy technology. To connect agencies and developing regulatory and non-regulatory approaches for innovative uses of AI while also upholding civil liberties, privacy, and American values.

In September 2019, the White House issued the first-ever AI regulatory document for the trustworthy development, testing, deployment, and adoption of AI technologies.

"Continued American leadership in Artificial Intelligence is of paramount importance to maintaining the economic and national security of the United States."

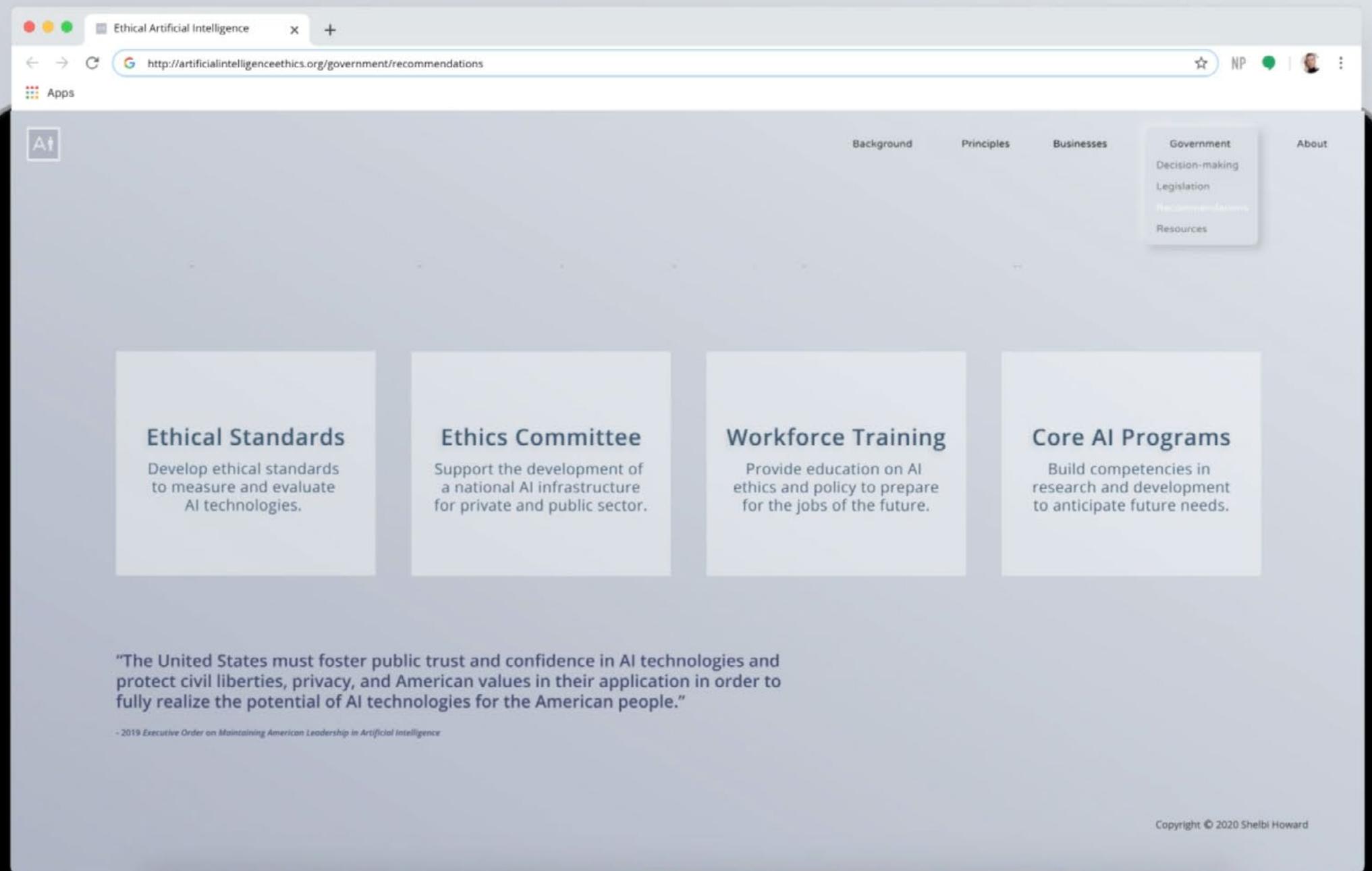
- President Donald J. Trump

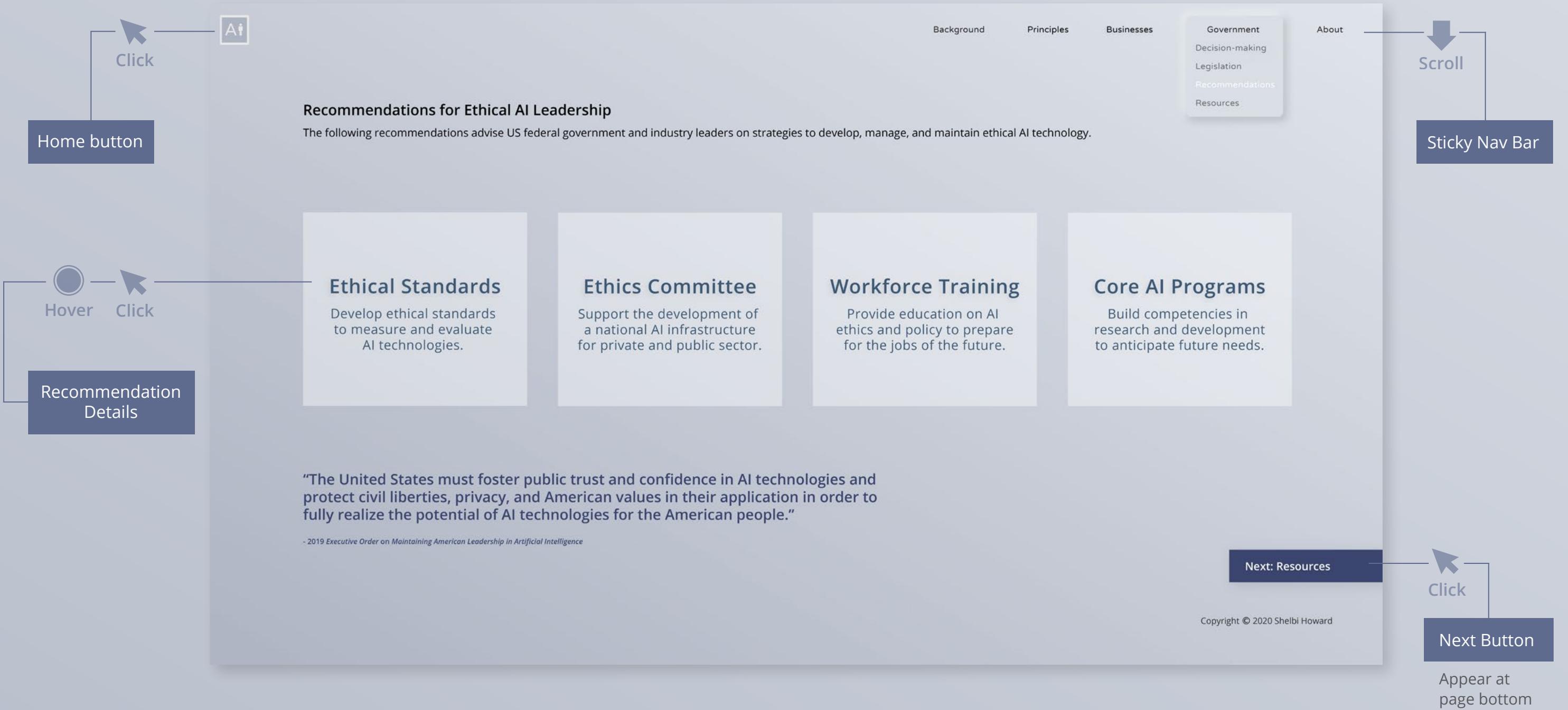
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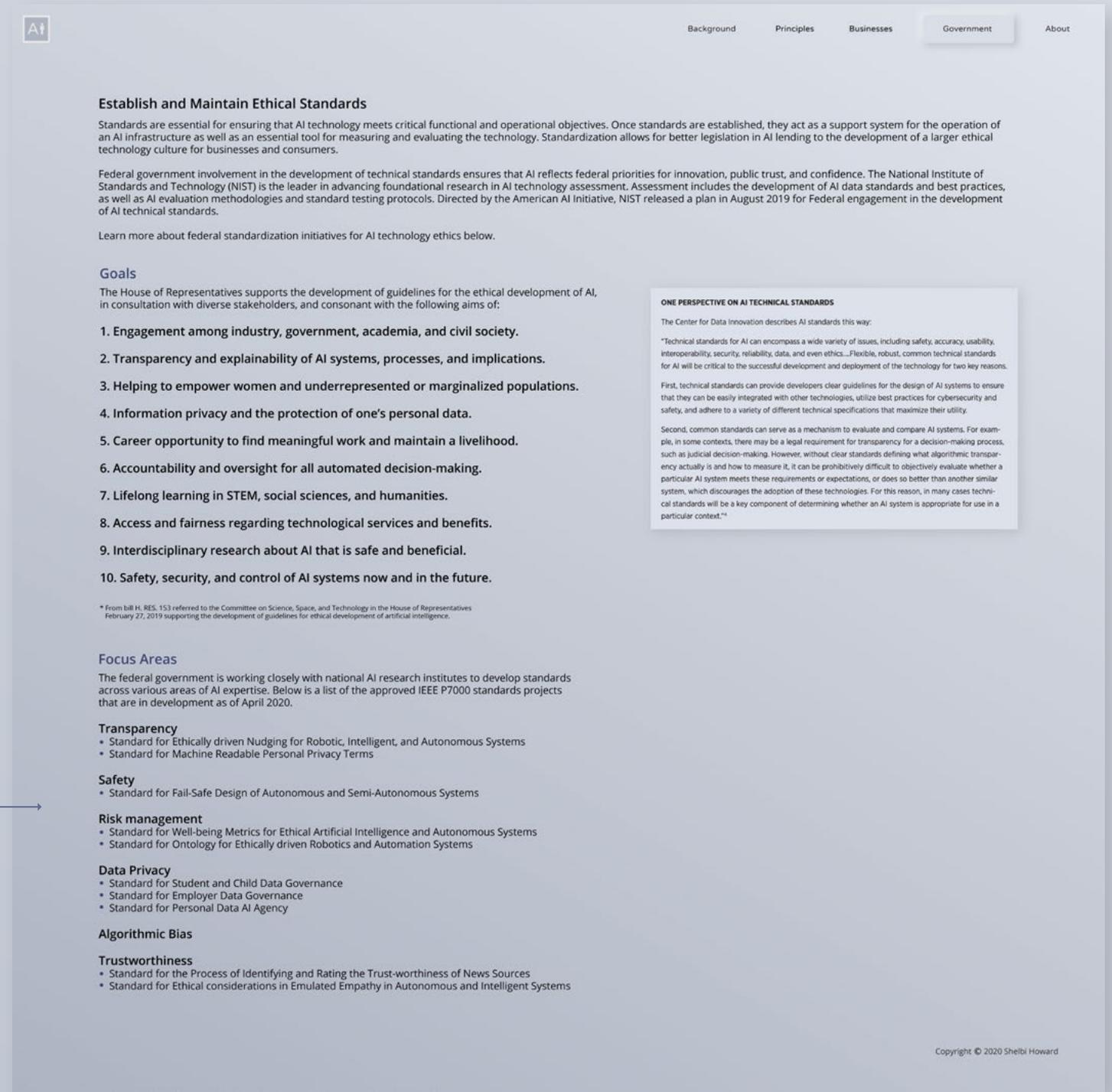
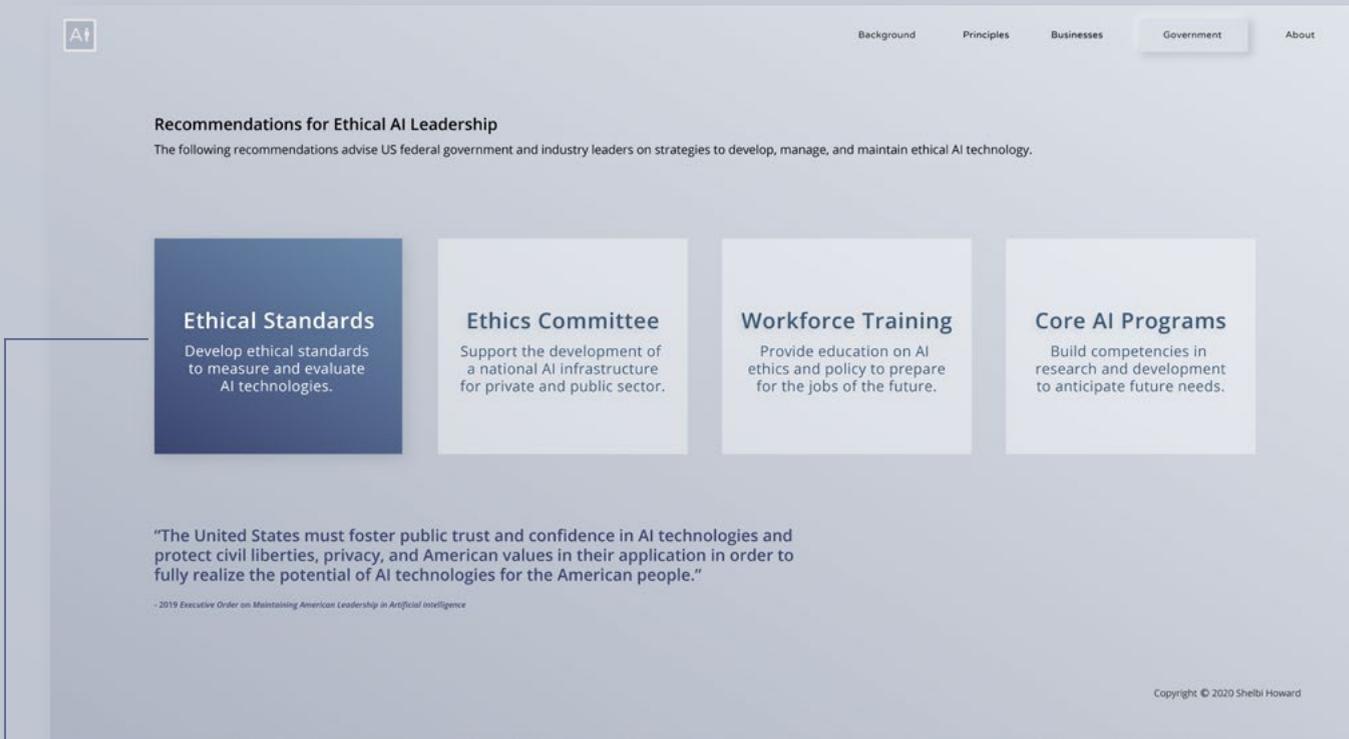
Wireframes show the AI Legislation experience for governments.

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

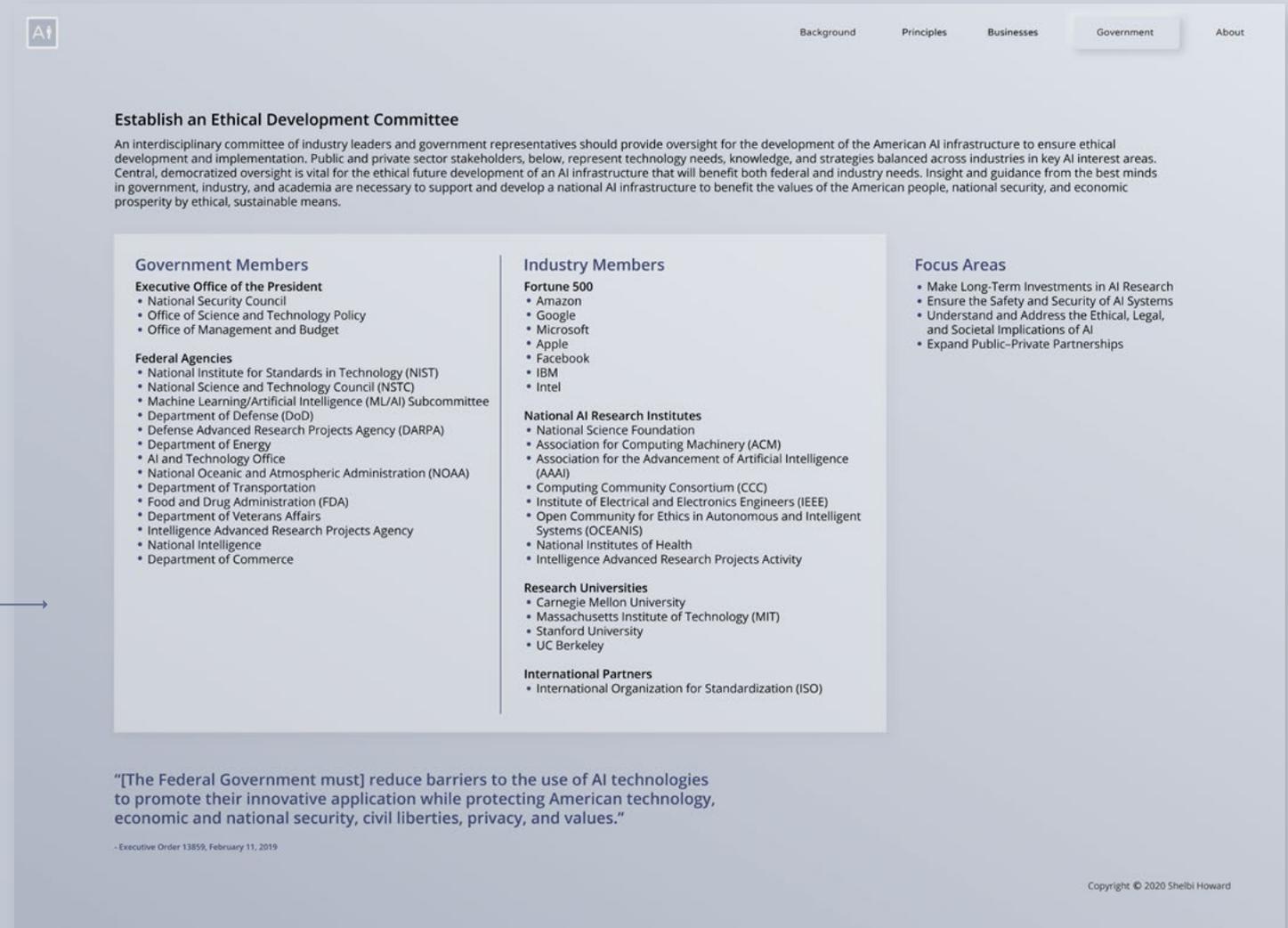
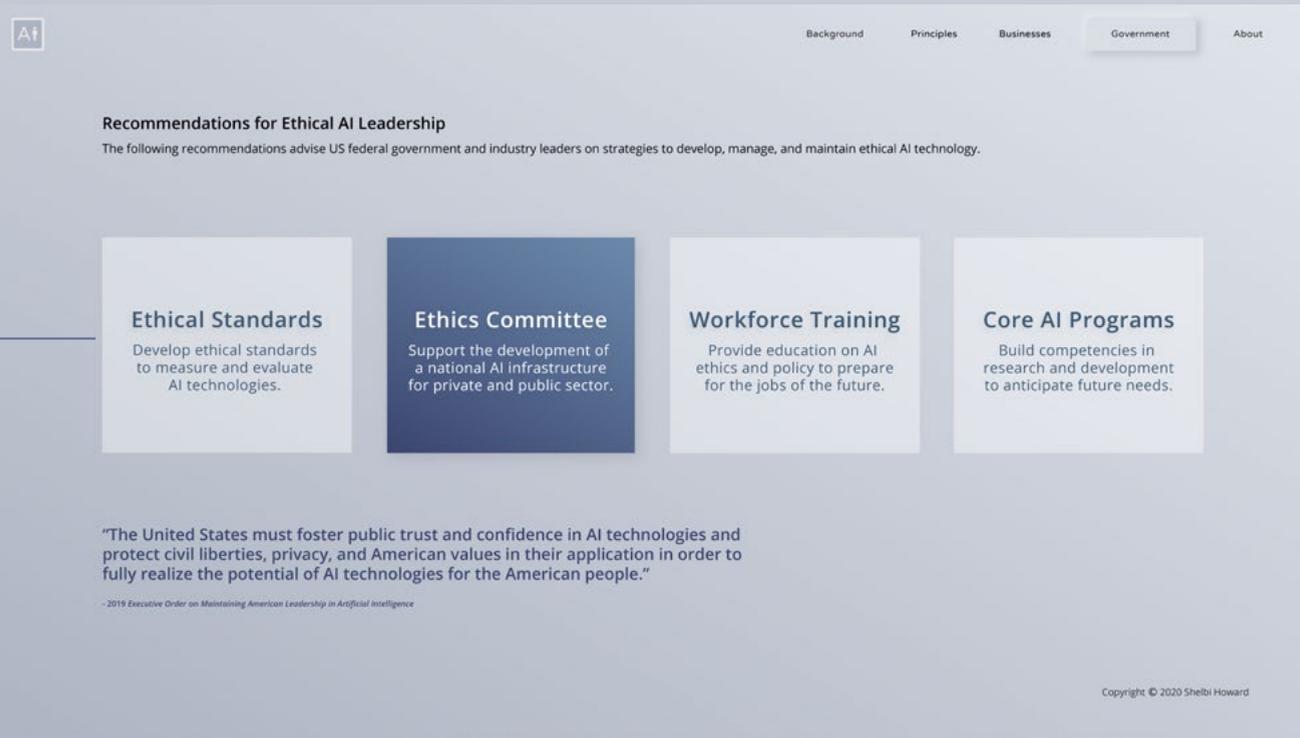




Wireframes show the **recommendations** experience for governments.



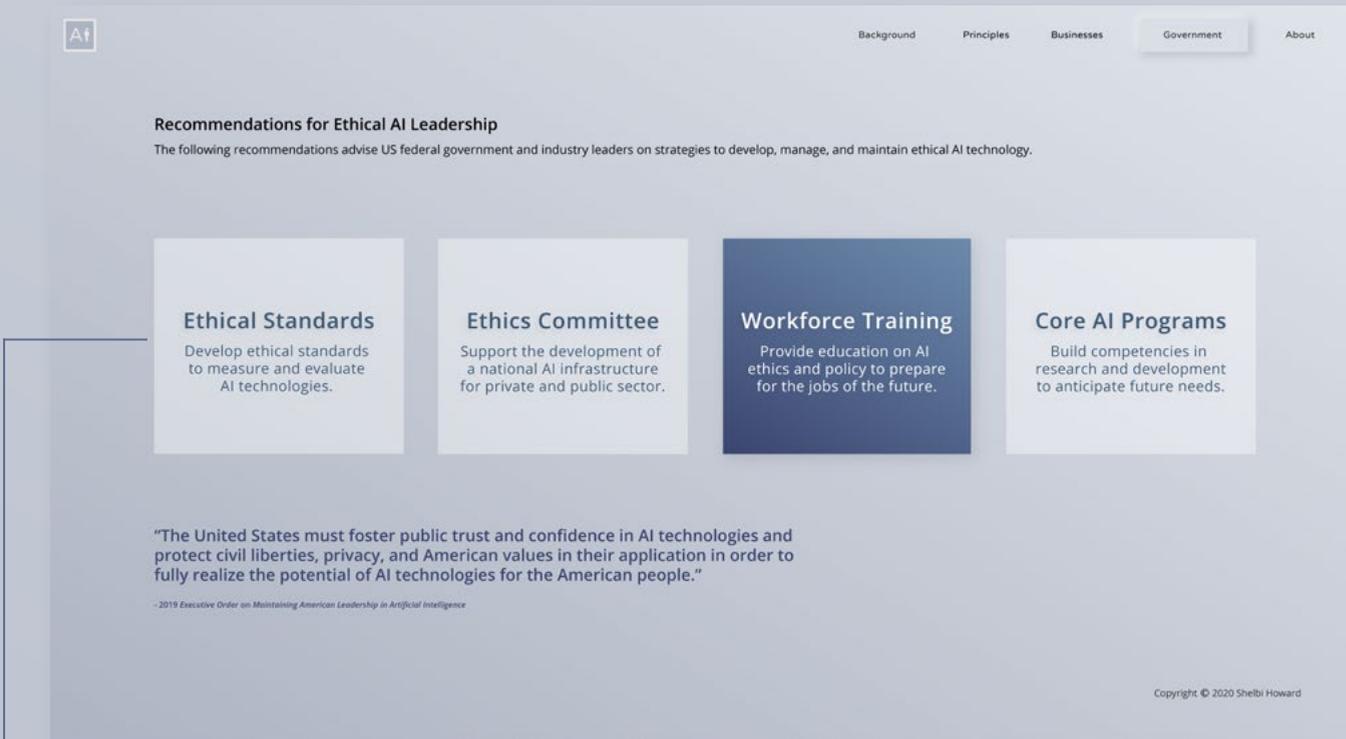
Wireframes show the recommendations experience for governments.



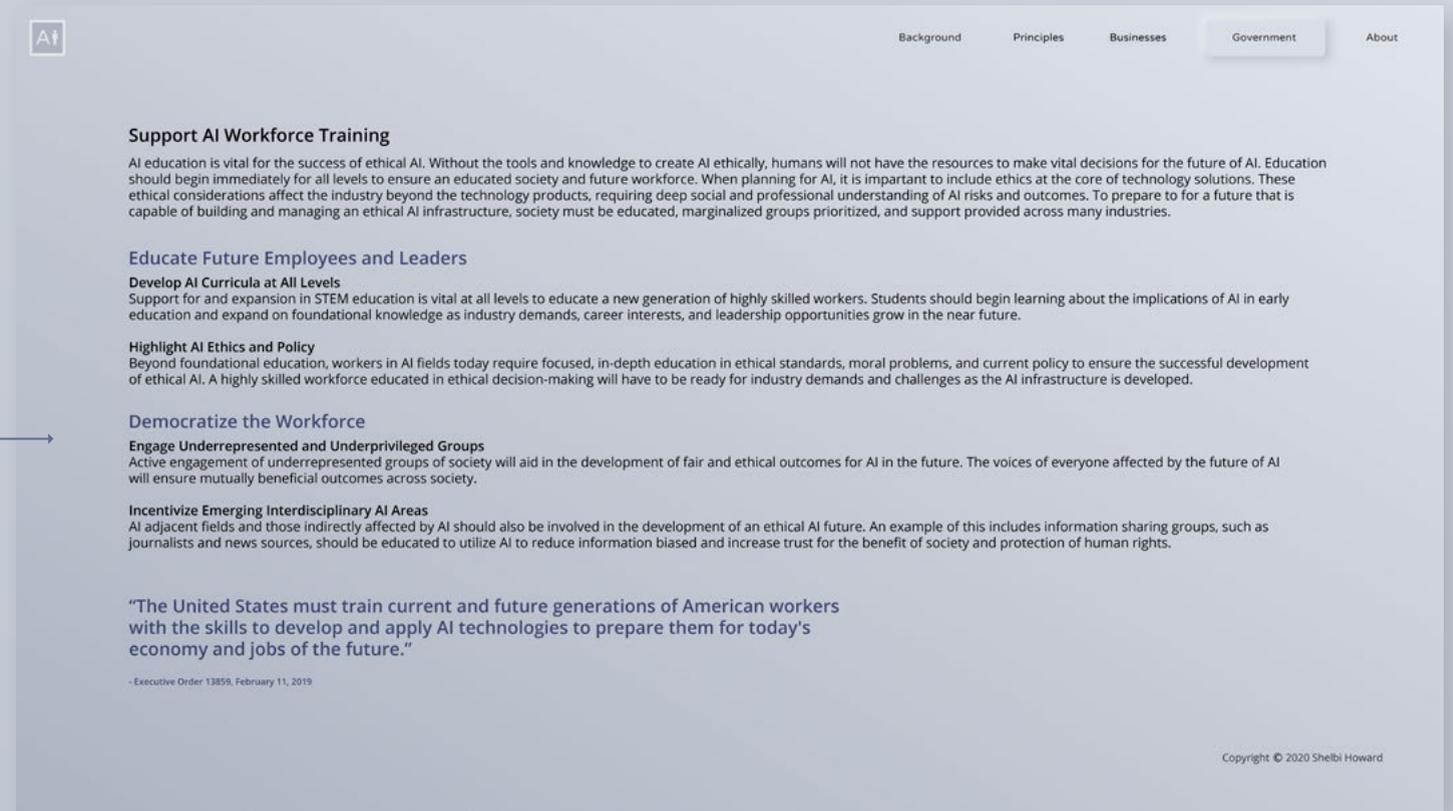
Link to Recommendation Details



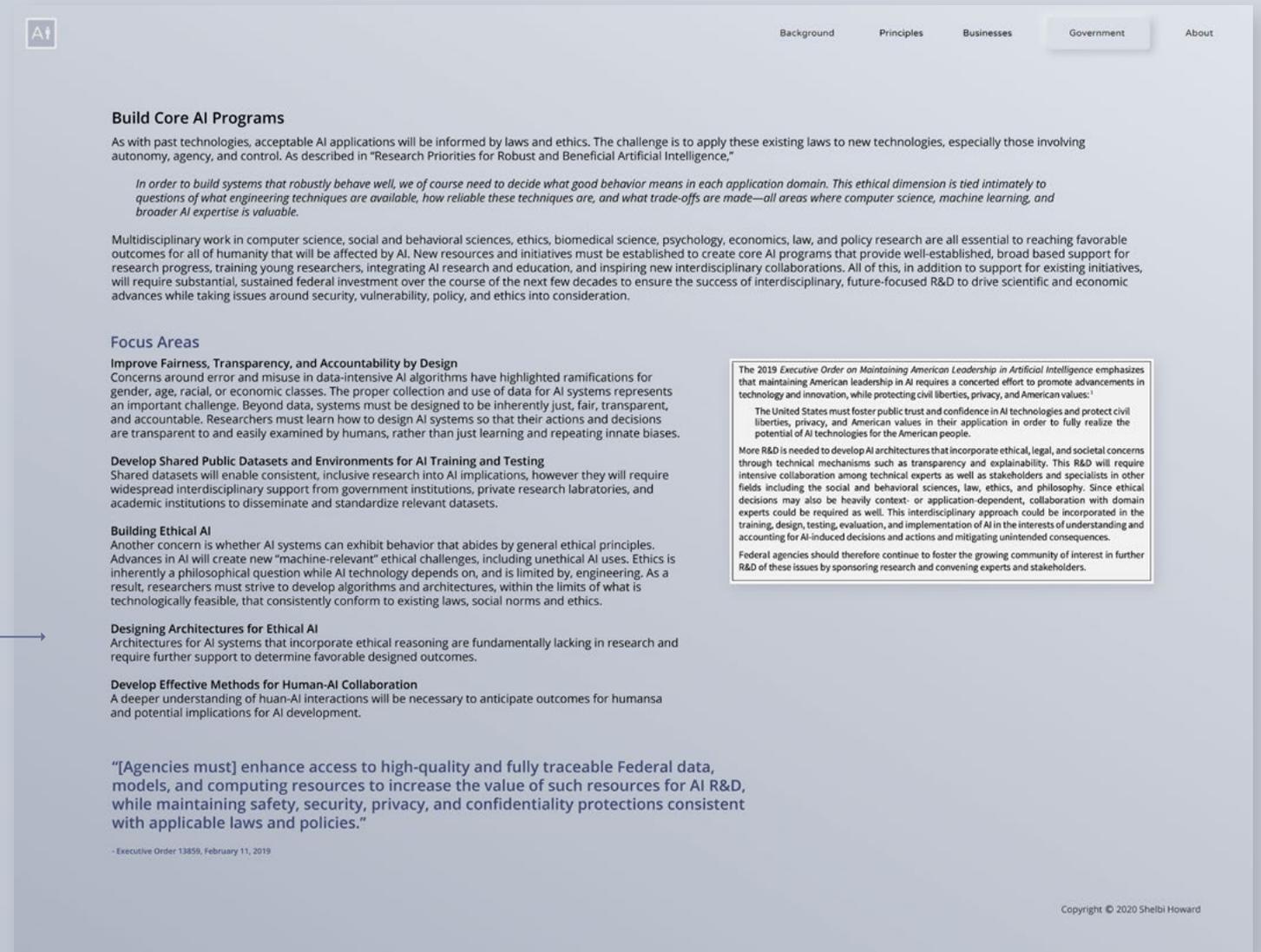
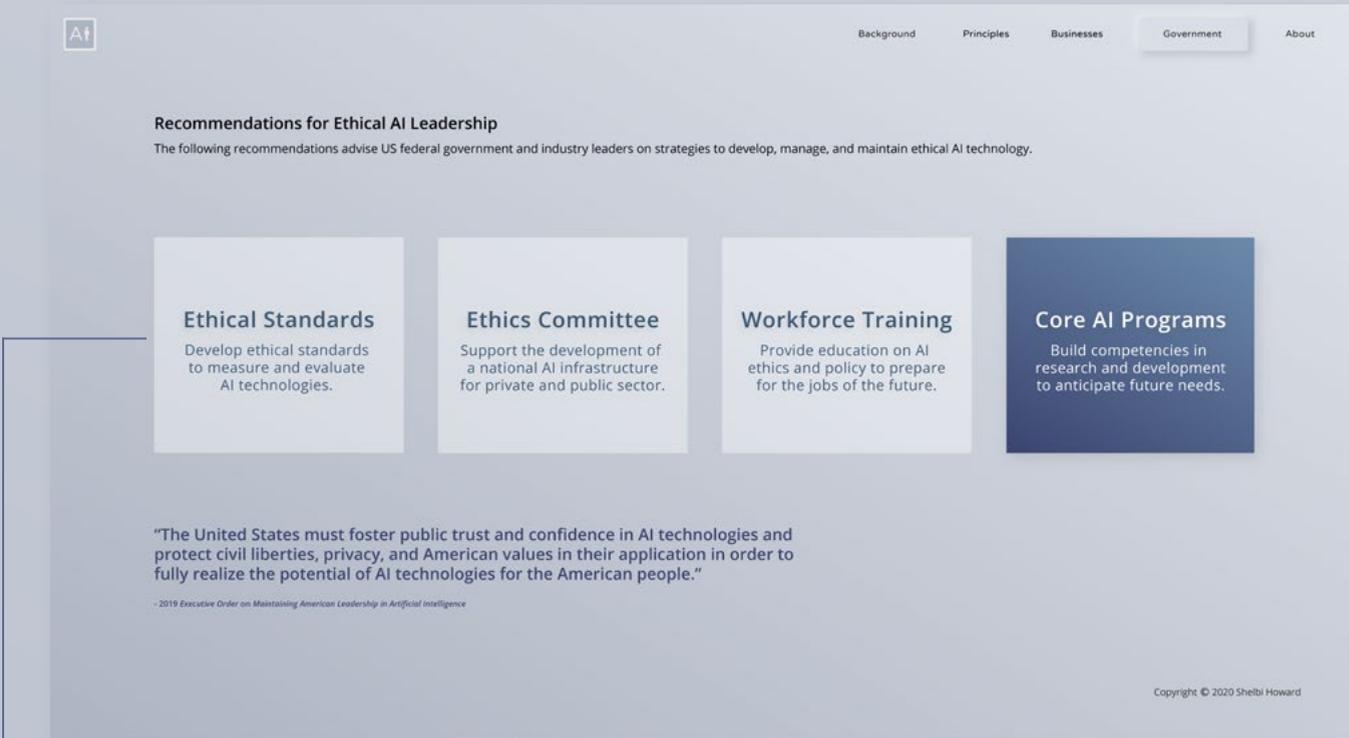
Wireframes show the recommendations experience for governments.



Link to Recommendation Details



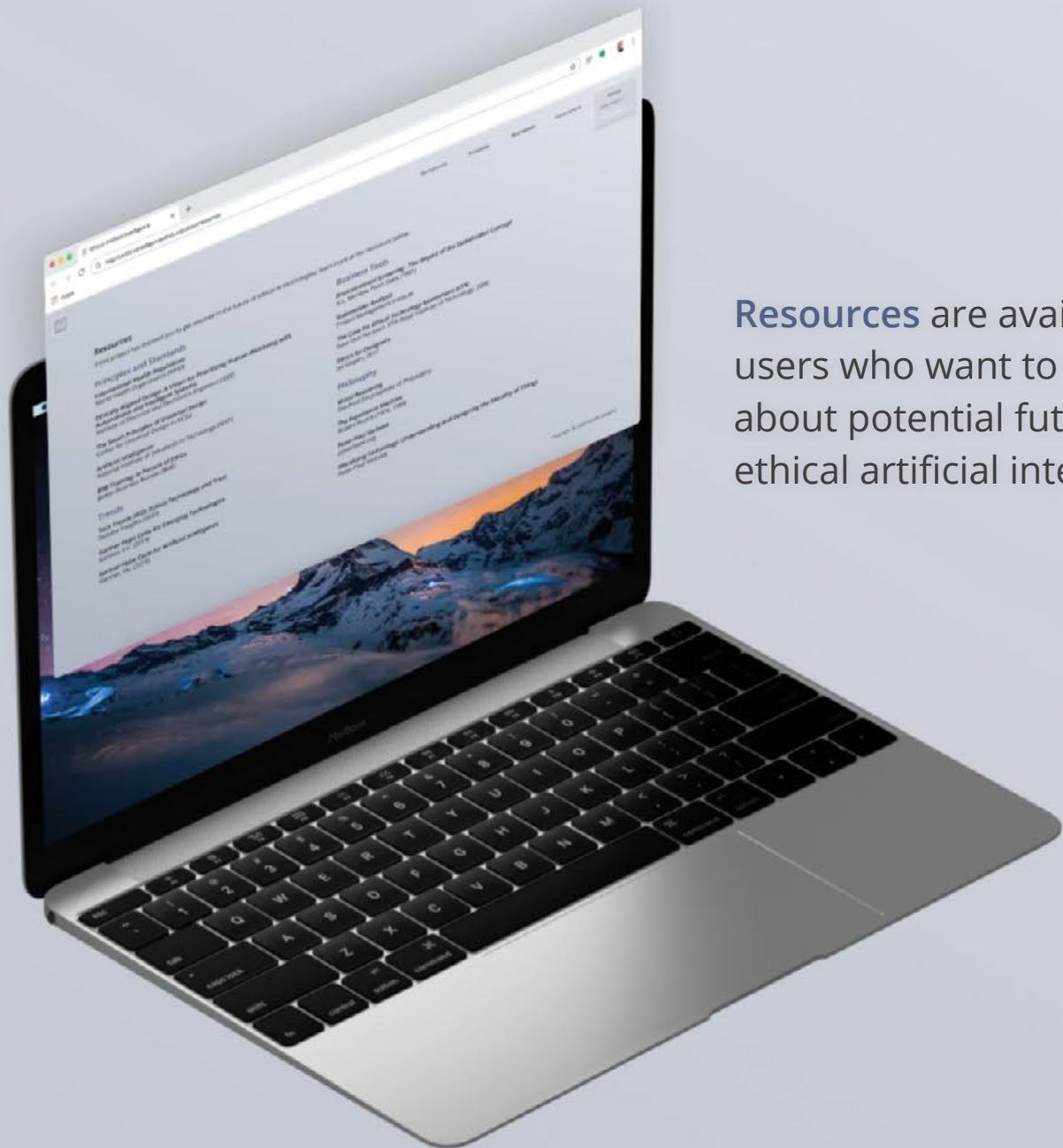
Wireframes show the **recommendations** experience for governments.



Link to Recommendation Details

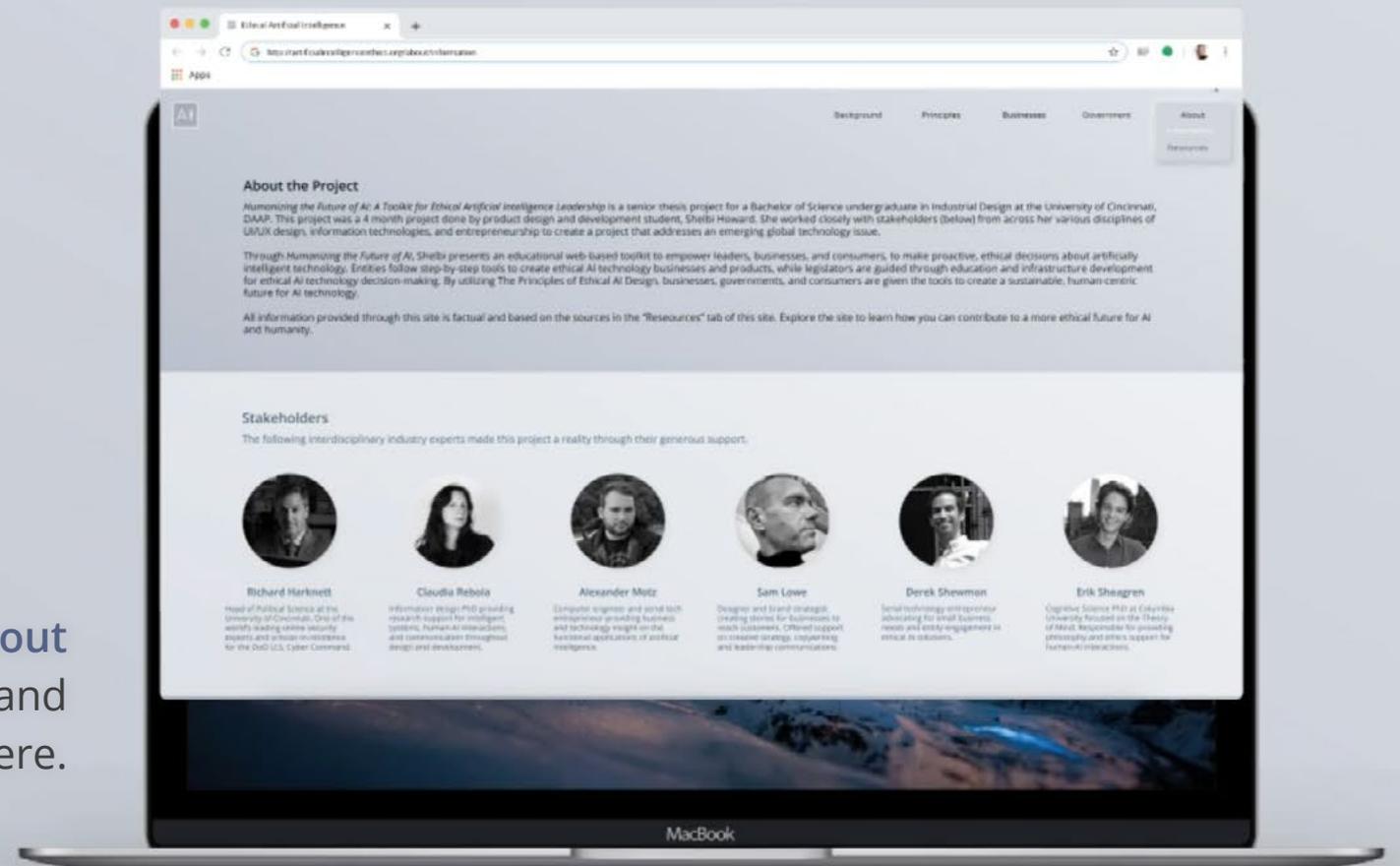


Wireframes show the recommendations experience for governments.



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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### About the Project

*Humanizing the Future of AI: A Toolkit for Ethical Artificial Intelligence Leadership* is a senior thesis project for a Bachelor of Science undergraduate in Industrial Design at the University of Cincinnati, DAAP. This project was a 4 month project done by product design and development student, Shelbi Howard. She worked closely with stakeholders (below) from across her various disciplines of UI/UX design, information technologies, and entrepreneurship to create a project that addresses an emerging global technology issue.

Through *Humanizing the Future of AI*, Shelbi presents an educational web-based toolkit to empower leaders, businesses, and consumers, to make proactive, ethical decisions about artificially intelligent technology. Entities follow step-by-step tools to create ethical AI technology businesses and products, while legislators are guided through education and infrastructure development for ethical AI technology decision-making. By utilizing The Principles of Ethical AI Design, businesses, governments, and consumers are given the tools to create a sustainable, human-centric future for AI technology.

All information provided through this site is factual and based on the sources in the "Resources" tab of this site. Explore the site to learn how you can contribute to a more ethical future for AI and humanity.

### Stakeholders

The following interdisciplinary industry experts made this project a reality through their generous support.



**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 Shevmon**  
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.

### Future Considerations

#### Build an Ethical Culture

The education provided through this website is only the beginning of creating a successful solution for ethical AI technology. As technologies and their entities are pressured to meet increasingly strict federal and international 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.



#### Automate Ethical AI Guidance

Beyond the initial purpose of this site to provide educational tools for businesses, government, and consumers, resources such as these could evolve into more prescriptive solutions as technologies become more intelligent. This website has been envisioned as a three-phase tool to continue providing guidance for these stakeholders in the future. First, the current solution, serves as a minimum viable product acting as a catalyst for change in ethical AI education and conversation.

Next, a web tool would be added to provide businesses with a place to submit business and technology information to governance groups for approval and Ethical AI Certification. This would help legitimize the Ethical AI effort by materializing the philosophical principles into solidified requirements. The process for review and acceptance would be managed by a governing party, similar to patent applications today.

Finally, as AI becomes more applicable, this application process would be automated to provide immediate results to entities about how to make technologies more ethical and if their technologies qualify for an Ethical AI Certification.

Microanimation 2



Microanimation 1



Wireframe shows information about the project.



**Shelbi Howard**  
User Advocate • Digital Designer • Web Developer

### About the Designer

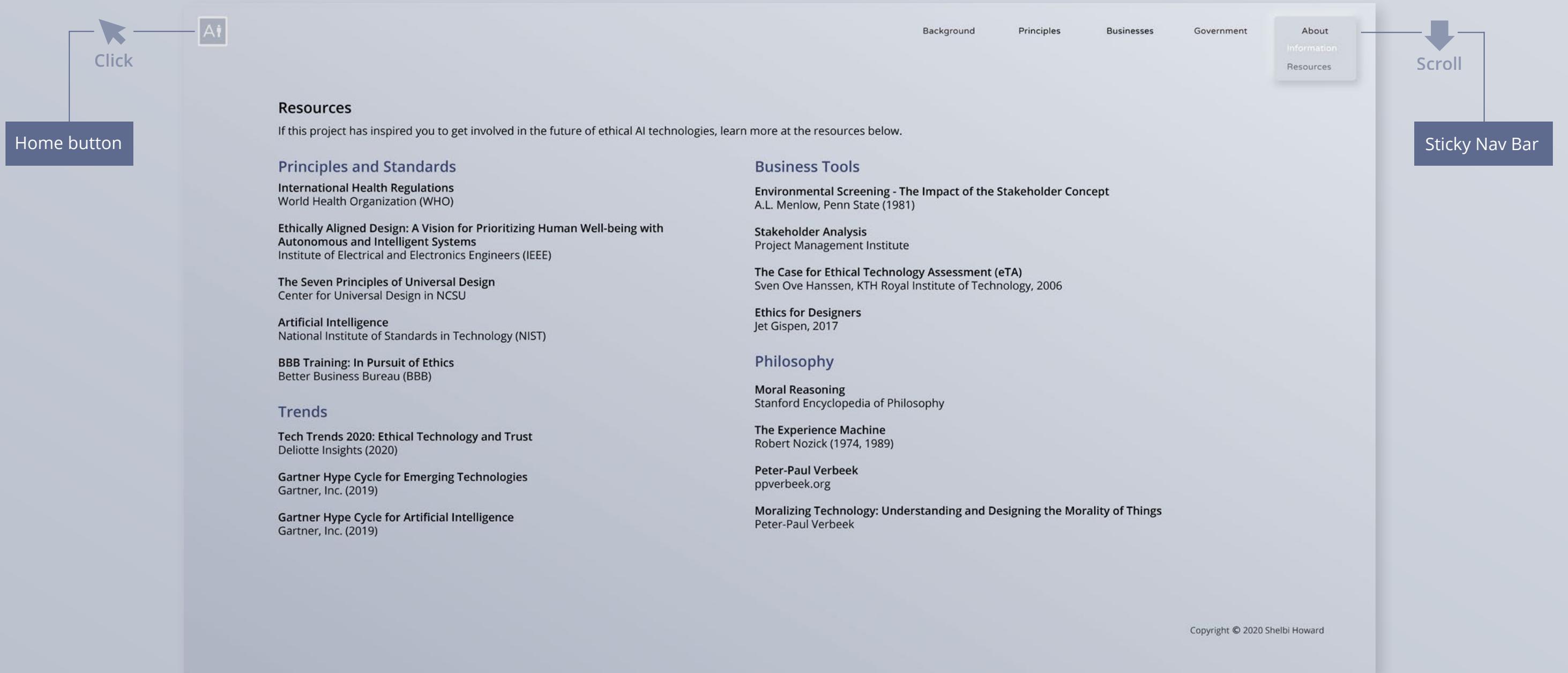
*The best solutions lie at the center of problem solving, technology innovation, and an entrepreneurial mindset.*

I am a user experience designer and developer with a passion for creating thoughtful solutions to complex problems. I use design to not only communicate problems, but also to better analyze and understand the importance of them. I will be graduating from the University of Cincinnati, DAAP in May 2020 and am currently seeking full-time employment.

In addition to design, I have minors in information technology, entrepreneurship, and fashion design. I hope to use my leadership, communication, and design thinking skills to help others analyze, communicate, and act on vital problems with immediate implications for humanity.

Love to talk about tech? Let's chat!





Wireframe shows **resources** about the project.



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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# 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**  
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**The Seven Principles of Universal Design**  
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