

An aerial photograph of a dense mangrove forest. A winding river or canal cuts through the thick green vegetation, creating a complex network of waterways. The lighting is bright, highlighting the vibrant green of the trees and the blue-green of the water.

CLIMATE-RESILIENT BUSINESS INNOVATION

LEVERAGING INDIGENOUS KNOWLEDGE & AI
TO DRIVE SUSTAINABLE SOLUTIONS

INDEX

- 3. A PATHWAY TO SUSTAINABLE INNOVATION
- 4. INDIGENOUS PEOPLES AND THE ENVIRONMENT
- 5. INDIGENOUS POPULATIONS IN SELECTED COUNTRIES & TERRITORIES
- 6. ECOSYSTEM SERVICES AS A FRAMEWORK
- 9. FROM HUMAN-CENTRED DESIGN TO CLIMATE-RESILIENCE
- 12. REGENERATIVE LEADERSHIP: A NECESSARY SHIFT
- 17. LEVERAGING AI AND INDIGENOUS KNOWLEDGE
- 22. FIGHT FIRE WITH GENERATIONAL KNOWLEDGE: A CASE STUDY
- 25. INDIGENOUS FIRE MANAGEMENT PRACTICES AND THEIR IMPACT
- 26. INDIGENOUS FIRE MANAGEMENT & AI (HYPOTHESIS)
- 28. THE PATH FORWARD
- 31. CONTACT

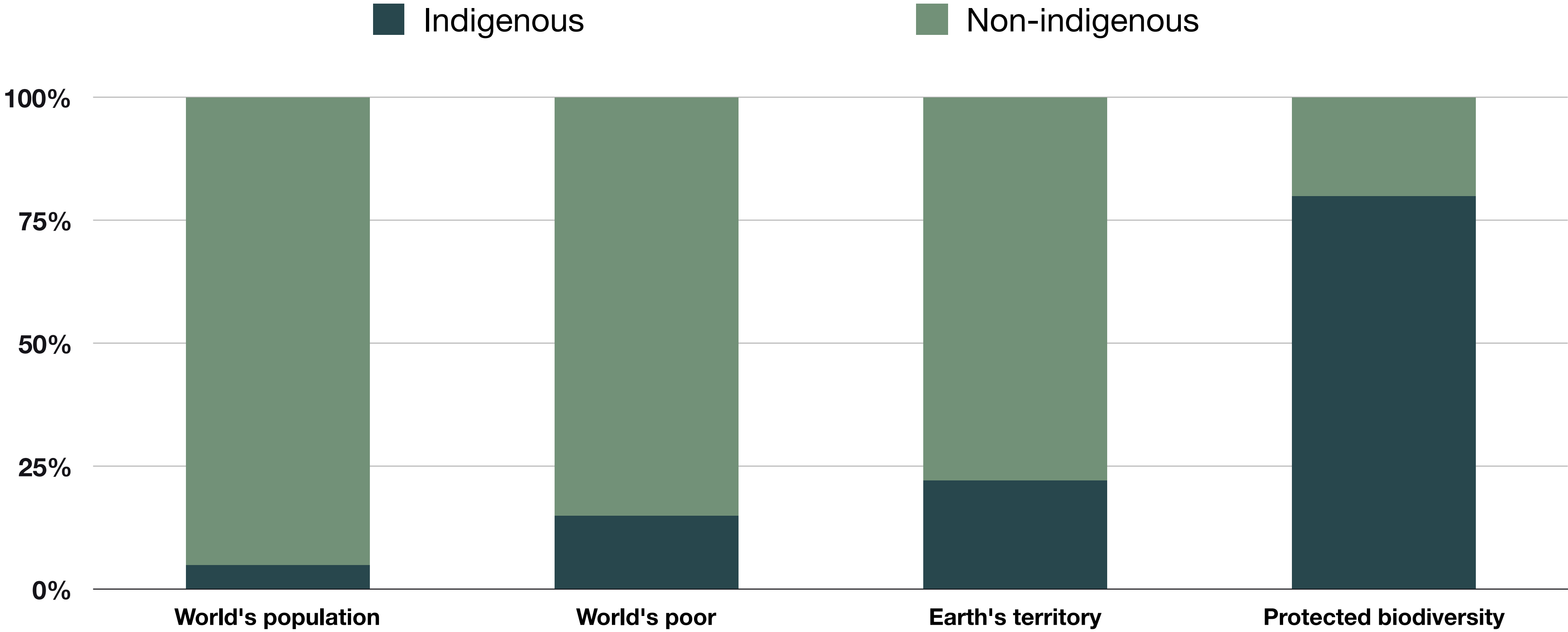
A PATHWAY TO SUSTAINABLE INNOVATION

Bridging Indigenous Wisdom, AI, and Business for Climate Resilience

Across 90 countries, approximately **476 million indigenous peoples** – representing **6% of the global population** – serve as stewards of around **80% of the Earth's remaining biodiversity and 25% of its land surface**. Their wisdom, accumulated over generations, holds invaluable insights for sustainable resource management, community well-being, and environmental conservation. As the climate crisis progresses, linear business models require alternatives.

Integrating indigenous knowledge into innovative business models can create profitable solutions. Especially when combined with modern technology like Artificial Intelligence. These solutions, while economically viable, also contribute to fighting the climate crisis.

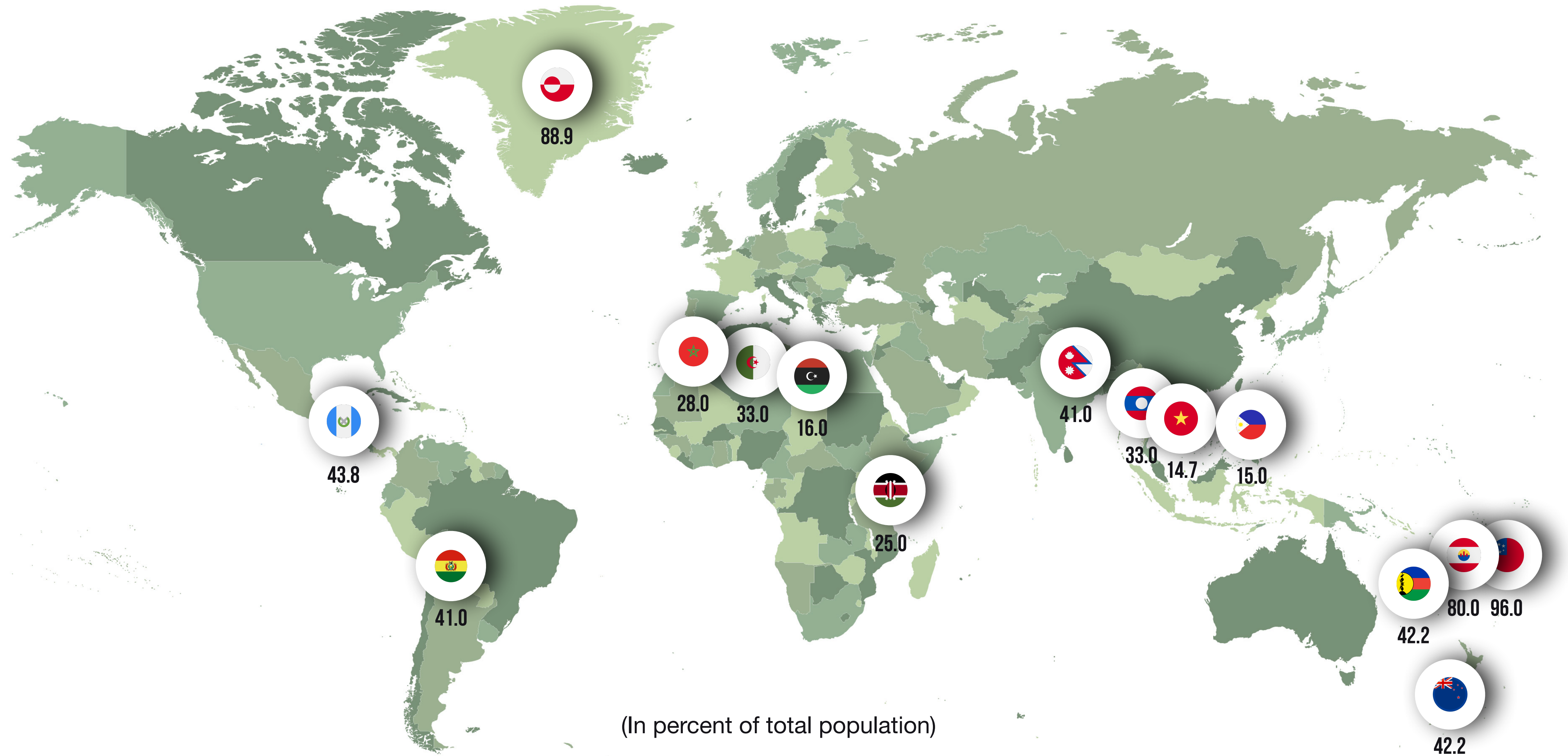
INDIGENOUS PEOPLES AND THE ENVIRONMENT




Source: [Australia - State of the Environment 2021, National and international frameworks](#)

Christoph Tänzer © 2023

INDIGENOUS POPULATIONS IN SELECTED COUNTRIES & TERRITORIES



A misty, green mountain landscape with dense forest and a central text overlay. The text is in a dark blue box with white and light blue letters.

ECOSYSTEM SERVICES **AS A FRAMEWORK**

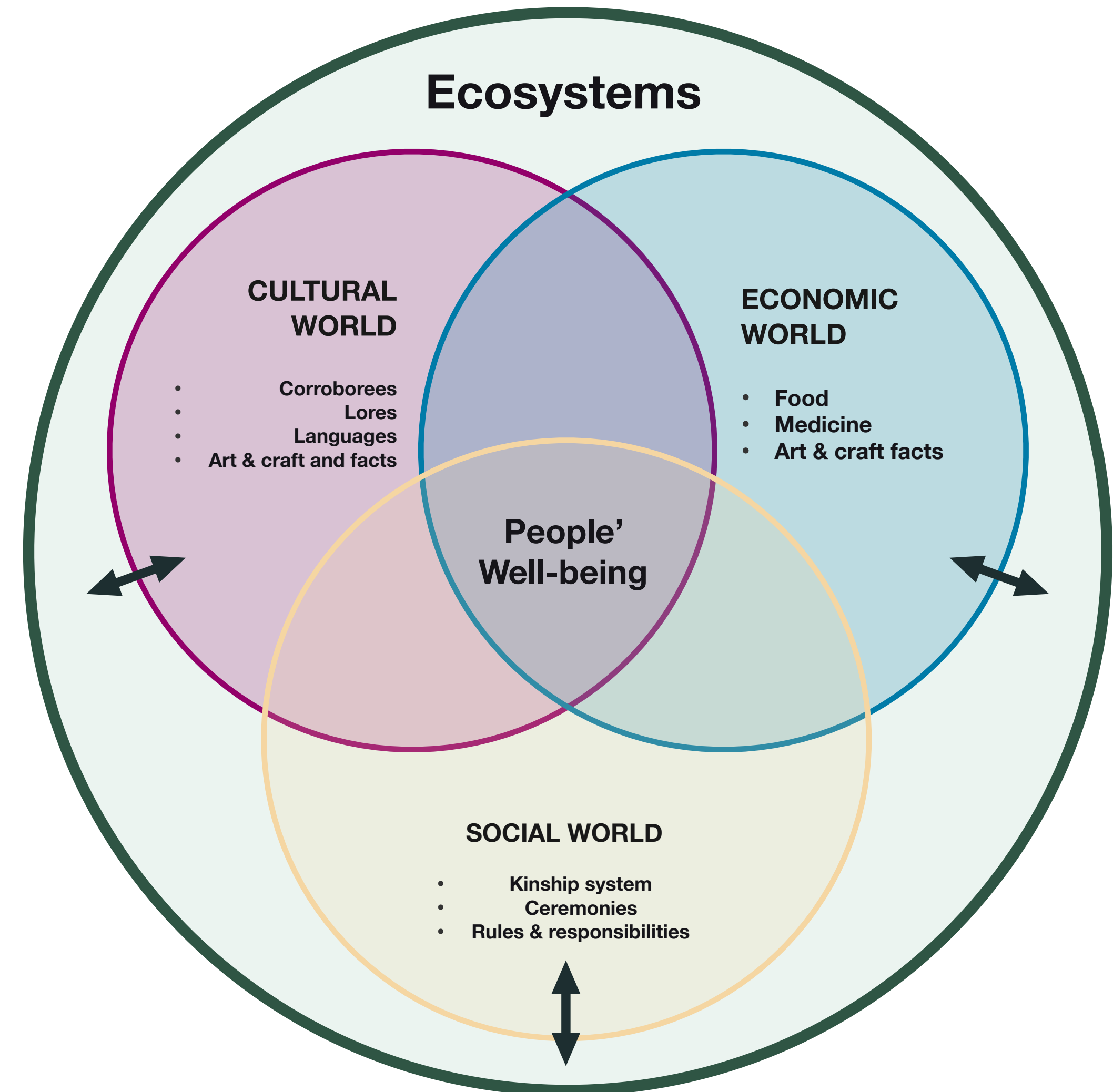
ECOSYSTEM SERVICES AS A FRAMEWORK

Indigenous Insights for Sustainable Business Practices

Harnessing indigenous knowledge offers a unique opportunity for business models. By understanding, recognizing, and valuing ecosystem services, we can innovate to create profitable business models that also support a regenerative approach. This symbiotic relationship fosters sustainability, conserves biodiversity, and contributes to climate resilience.

Understanding ecosystem services is crucial for designing sustainable business practices. These services, both tangible and intangible benefits provided by nature, form the foundation of our existence and economic activity. With their intimate knowledge of their lands, Indigenous peoples offer deep insights into these ecosystem services.

An Integrated model of Indigenous Economy, Social world and Ecosystems. Each component has perforated boundaries to represent to and fro relationship with ecosystems (e.g. people obtain food from their country but also have responsibilities to look after).



FROM HUMAN-CENTRED DESIGN TO CLIMATE-RESILIENCE



FROM HUMAN-CENTERED DESIGN TO CLIMATE-RESILIENCE

When Life-Centred Design meets Ecosystem Services

Human-Centred Design (HCD) has been a cornerstone of product and service development for companies like Google, Apple, Airbnb, and Adidas. While HCD has delivered products and services that meet user needs exceptionally well, it overlooks the broader human and environmental system.

Traditional business models primarily focus on desirability, viability, and feasibility. Life-Centred Design adds another lens: responsibility. This shift towards a more holistic view is where indigenous knowledge comes into play, bringing a deep understanding of the symbiotic relationship between humans and the environment.

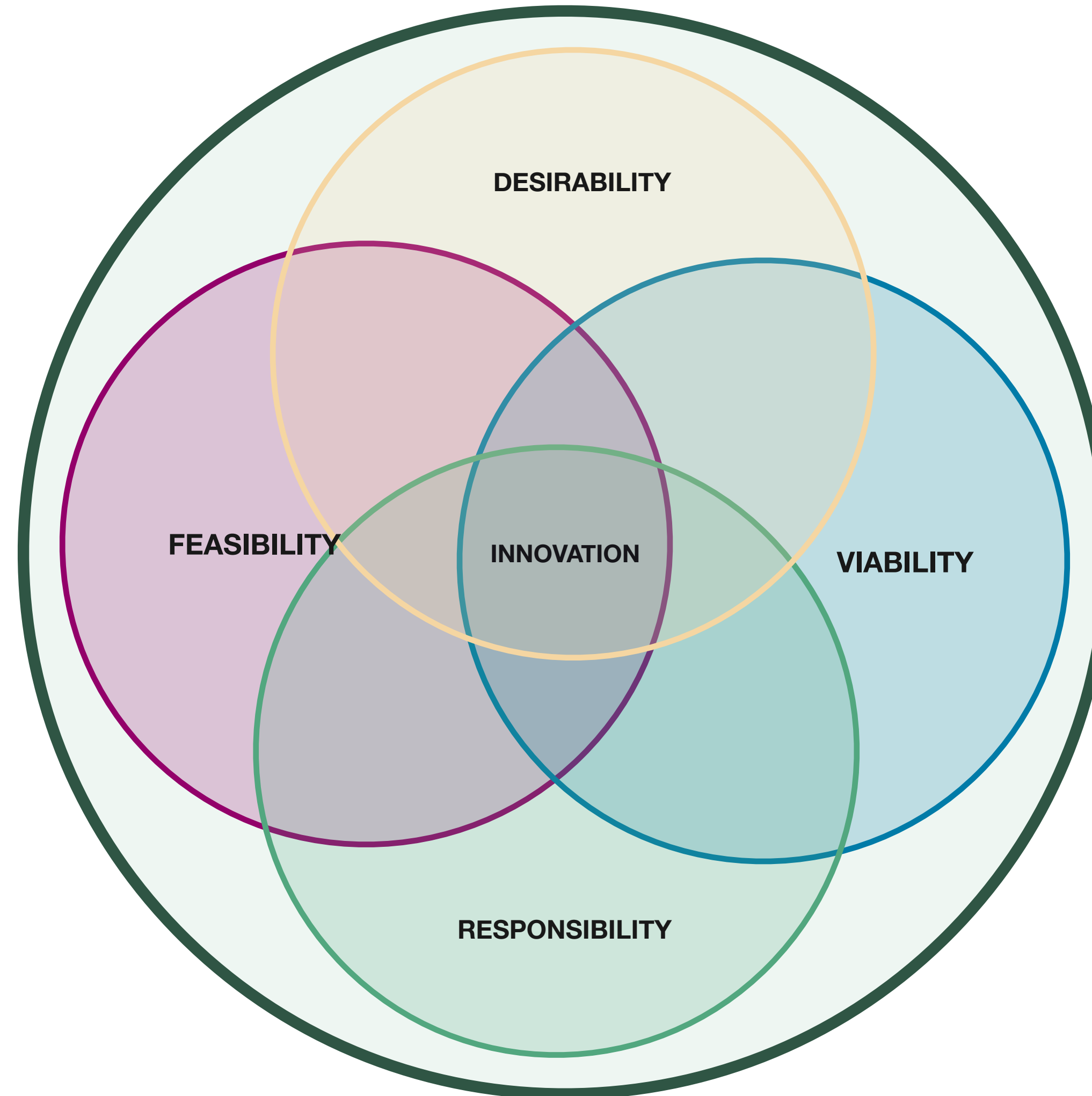
MERGING LIFE-CENTRED DESIGN AND ECOSYSTEM SERVICES

DESIRABILITY

- Design products and services that prioritize the well-being of all stakeholders and ecosystems.
- Engage with stakeholders to understand their needs and incorporate their feedback.
- Emphasize sustainable practices as a unique selling point to attract environmentally conscious consumers.
- Communicate the positive impact of the business on ecological systems to increase desirability.

FEASIBILITY

- Develop business models that integrate sustainable principles into core operations
- Identify and leverage existing ecosystem services to support business activities.
- Conduct feasibility studies to assess the practicality and viability of regenerative practices.
- Explore innovative technologies and approaches that align with ecological systems.




VIABILITY

- Establish revenue streams that align with regenerative practices.
- Identify and capitalize on market opportunities related to ecosystem services.
- Implement cost-saving measures by reducing energy and resource consumption.
- Seek partnerships and collaborations with like-minded organizations to enhance viability.

RESPONSIBILITY

- Embrace a holistic approach that recognizes the interdependencies between human and ecological systems.
- Prioritize the integrity and preservation of biophysical systems in all business activities.
- Foster sufficiency and opportunity by ensuring fair and equitable access to products and services.
- Promote transparency and accountability in reporting the environmental and social impact of the business.



**REGENERATIVE LEADERSHIP:
A NECESSARY SHIFT**

REGENERATIVE LEADERSHIP: A NECESSARY SHIFT

From Indigenous Wisdom to Future Leadership

Indigenous cultures and communities around the world, through their deep connection with nature and long-held traditions, offer valuable lessons in leadership that can significantly support new business models. What implications does this have for the future of leadership?

Implementing Regenerative Leadership:


Inspired by Life-Centred Design and Ecosystem Services, we are invited to reimagine our organizations as living entities, part of a larger socio-ecological system. This approach demands a 360-degree change, driving us to build organizations that are innovative, aware, and holistically focused.

Key Insights from Indigenous Cultures:

1. **Respect for All:** Many indigenous cultures emphasize respect for all forms of life and the interconnectedness of all things. This perspective translates into leadership as an understanding that every team member has their strengths, a valuable role to play and that their contributions should be respected.
2. **Stewardship and Sustainability:** Indigenous cultures often teach the importance of living in harmony with nature, valuing sustainability and long-term well-being over short-term gain. In leadership, this can mean prioritizing decisions that are sustainable for the team, the company, and the environment in the long term.
3. **Community-Centric Decision Making:** Decisions in indigenous cultures are often made with the entire community in mind, rather than focusing solely on individual desires. This can serve as a model for inclusive decision-making processes in leadership.

4. **Emphasis on Listening and Learning:** Many indigenous cultures value the wisdom of elders and the importance of listening and learning from those with more experience. This can translate into a leadership style that values mentorship, continuous learning, and open communication.
5. **Resilience and Adaptability:** Indigenous communities have shown great resilience in the face of challenges and change. This resilience can serve as a model for leaders to be adaptable and flexible, and to foster these qualities in their teams.
6. **Community-Centric Decision Making:** In many indigenous cultures, leaders are seen as servants to their people, not as autocrats. This kind of humble leadership, which prioritizes service to others, can inspire loyalty and a strong sense of team unity.
7. **Balance and Harmony:** Indigenous wisdom often speaks of the importance of balance and harmony, both in the natural world and in human society. In a leadership context, this could mean maintaining a healthy work-life balance, managing resources effectively, and striving for a harmonious team dynamic.

Traditional Leadership	VS.	Regenerative Leadership
Short-term	Focus	Long-term
Profit-centric	Profit Orientation	Stakeholder-centric
Individualistic decision-making	Collaboration	Collaborative decision-making
Limited consideration	Sustainability	Integral part of strategy
Risk-averse, incremental	Innovation	Welcomes disruptive innovation

A glowing green cube is shown in a dark space, containing a forest scene. A tree's roots extend from the bottom of the cube and spread across the ground. The scene is illuminated with a vibrant green light, and there are small glowing particles floating around. The text is overlaid on a dark rectangular background in the center of the image.

LEVERAGING AI AND INDIGENOUS KNOWLEDGE

LEVERAGING AI AND INDIGENOUS KNOWLEDGE

Symbiosis of the past and the future

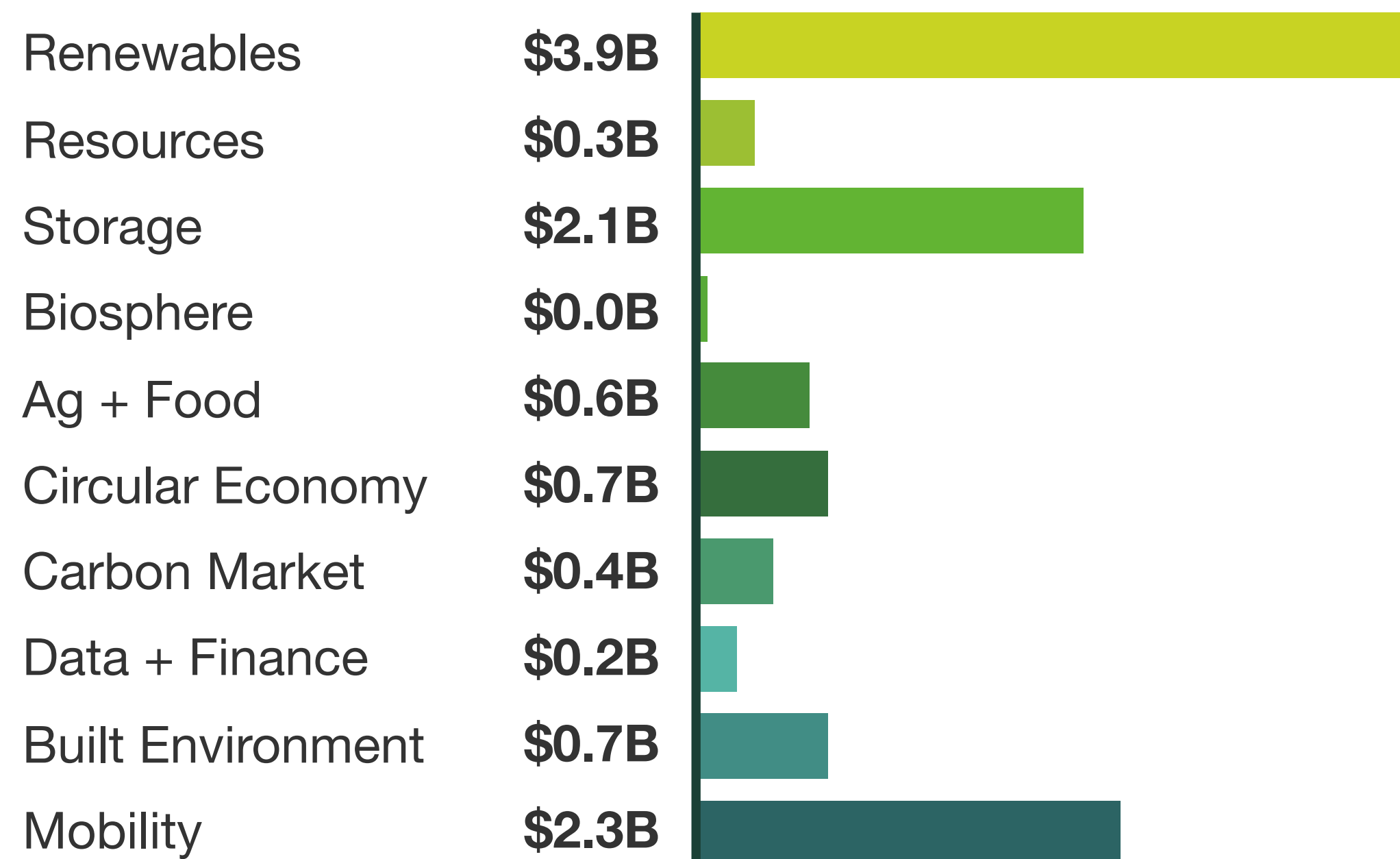
The confluence of Climate Tech and AI holds great potential for sustainable innovation. According to HolonIQ, **venture funding for Climate Tech increased to \$11.2 billion in the first quarter of 2023** alone, and **AI will add \$15.7 trillion to the global economy by 2030**, according to PwC.

With this in mind, exciting new opportunities are emerging from the symbiosis of AI to harness indigenous knowledge. If we develop models that help us make critical decisions about land, water, forests, and climate adaptation, preserving indigenous knowledge while paving the way for sustainable, climate-resilient, and profitable business practices.

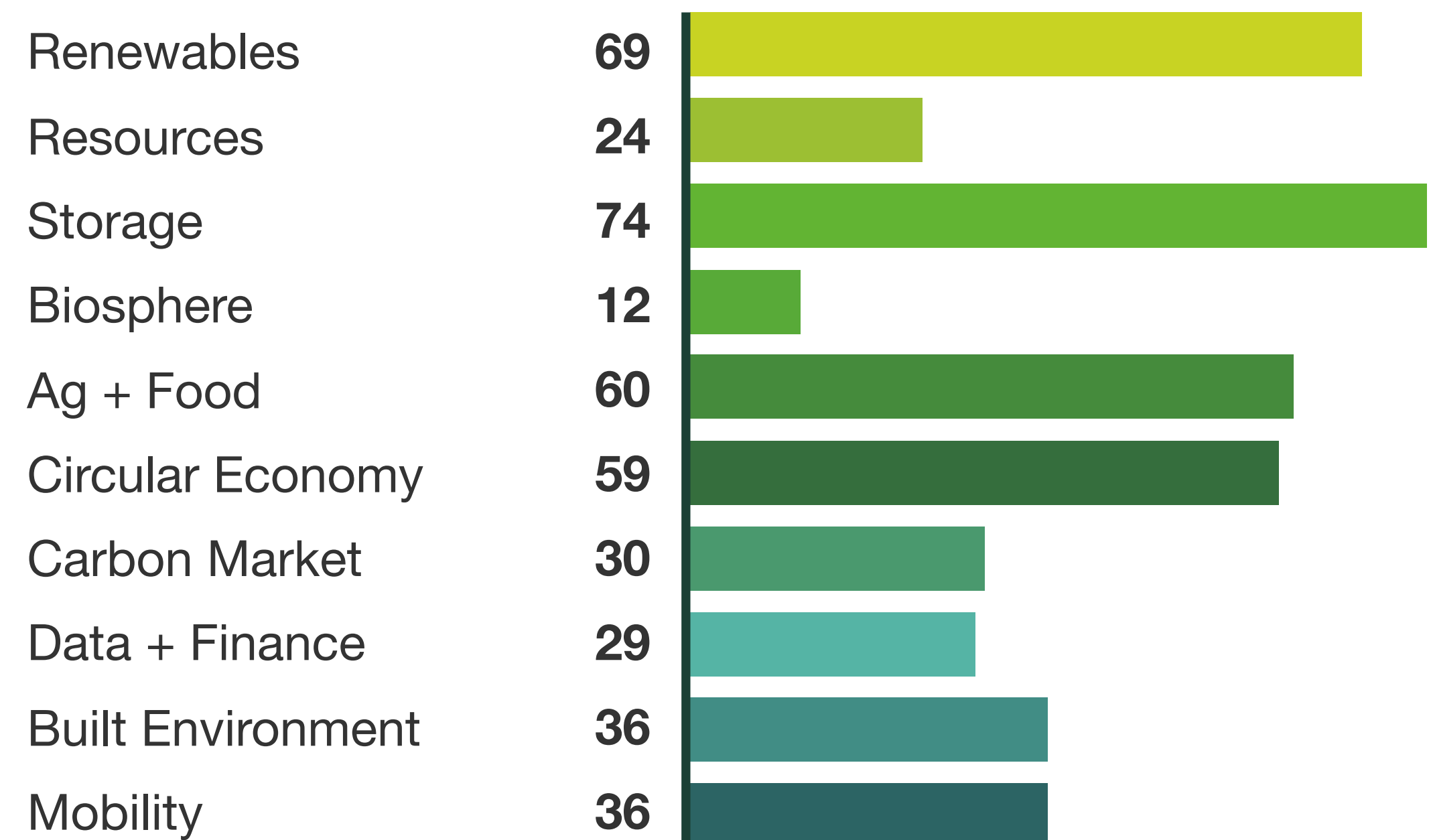
GLOBAL CLIMATE TECH VENTURE CAPITAL FUNDING, Q1 2023

(In USD Billions & and number of funding rounds)

CY2022 VC Deals (\$11.2B)



CY2022 VC Funding (429 VC Rounds)



The intersection of Climate Tech, AI, and Indigenous knowledge offers compelling opportunities for innovation and growth in several key areas:

Climate Adaptation: According to the Global Center on Adaptation, investment in climate adaptation can result in a return of \$2-10 for every \$1 invested. By leveraging AI in climate adaptation, businesses can achieve significant economic benefits while contributing to climate resilience. Indigenous Knowledge provides a rich understanding of local environmental patterns. AI can extrapolate this knowledge to make accurate, data-driven climate forecasts. This can help communities and businesses adapt to climate change more effectively.

Biodiversity Conservation: The World Bank states that countries with greater biodiversity are more likely to have higher income levels. By integrating AI and Indigenous Knowledge in conservation efforts, businesses can protect biodiversity while fostering economic growth. Indigenous peoples have intricate knowledge of their local ecosystems. AI can help document and analyze this knowledge, contributing to conservation efforts by predicting which species are at risk and suggesting measures to protect them.

Sustainable Agriculture: The Food and Agriculture Organization of the United Nations estimates that sustainable farming practices could increase global crop yields up to 58%. With AI, these practices can be scaled effectively and efficiently. Indigenous Knowledge often includes sustainable farming practices. AI can help scale these practices by predicting crop yields based on environmental data and suggesting the best planting methods and times.

Natural Disaster Prevention: According to a report by McKinsey, better prediction and response to natural disasters could reduce damage costs by 30%. The combination of AI and Indigenous Knowledge can significantly improve disaster preparedness, reducing costs, and saving lives. Indigenous communities often have generational knowledge on predicting and surviving natural disasters. AI can help systematize and expand this knowledge, leading to better disaster preparedness.

FIGHT FIRE WITH **GENERATIONAL** **KNOWLEDGE:** A HYPOTHESIS

“By the end of the century, the likelihood of catastrophic wildfires events will increase by a factor of 1.31 to 1.57. Even under the lowest emissions scenario, we will likely see a significant increase in wildfire events.”

FIGHT FIRE WITH GENERATIONAL KNOWLEDGE: A HYPOTHESIS

For countless generations, Indigenous communities have utilized the power of fire as a strategic instrument in landscape stewardship. With an intimate knowledge of how distinct fire behaviors can affect the presence of various species in an area, these communities contribute significantly to promoting and maintaining biodiversity. Colonial-era fire suppression policies disrupted beneficial fire management practices globally. These policies have suppressed both natural and cultural fires, often linked to Indigenous traditions, which led to:

- **A buildup of dry and dead vegetation,**
- **A contribution to larger and more severe wildfires, exacerbated by climate change,**
- **Interruption of natural and cultural fires in managing landscape health, such as controlling pests, diseases, and invasive species.**

INDIGENOUS FIRE MANAGEMENT PRACTICES AND THEIR IMPACT

Fire Management Practices



leads to



Impacts of Fire Management Practices



- **Controlled Burns:** Proactive method to reduce wildfire risk by consuming fuel buildup.
- **Seasonal Burns:** Burning practices carried out in specific seasons to manage ecosystems and mitigate wildfire risk.
- **Mosaic Burning:** Patterned burning creating differently aged patches of vegetation for diverse habitats.
- **Cultural Burns:** Burns by Indigenous people for biodiversity, resource enhancement, and cultural site maintenance.

- **Biodiversity Enhancement:** Various burning methods promote diverse habitats, supporting a variety of species.
- **Fire Risk Reduction:** Controlled and patterned burns reduce fuel load, mitigating wildfire risk.
- **Carbon Storage Increase:** Healthy ecosystems from fire management absorb more carbon, mitigating climate change.
- **Soil Fertility Improvement:** Fire returns nutrients to the soil, promoting plant growth and ecosystem health.
- **Traditional Food and Medicinal Plants Preservation:** Cultural burns help preserve and enhance traditional plant species.

INDIGENOUS FIRE MANAGEMENT & AI (HYPOTHESIS)

By respecting and supporting Indigenous rights, knowledge, and decision-making, AI can provide powerful tools to help in the fight of climate change related wildfires. Possible ways could be:

1. **Predictive Analysis:** AI can help predict fire behavior and assess the risk of wildfires based on factors such as weather conditions, vegetation types, and historical fire data.
2. **Remote Sensing:** AI can process and interpret data from satellites, drones, and other remote sensing technologies to monitor vegetation, moisture levels, and fire outbreaks in real-time.
3. **Optimizing Burning Practices:** AI can help optimize when and where to conduct controlled, seasonal, or mosaic burns for the best ecological outcomes, based on historical data and current conditions.
4. **Cultural Knowledge Integration:** AI can support the integration of Indigenous ecological knowledge with scientific data in fire management decision-making, helping to balance cultural and ecological goals.

5. **Biodiversity Tracking:** Machine learning algorithms can analyze camera trap and other wildlife data to track how fire management practices impact biodiversity.
6. **Carbon Storage Modeling:** AI can model how different fire management strategies affect carbon storage and sequestration in ecosystems, aiding in climate change mitigation planning.

THE PATH FORWARD



THE PATH FORWARD

Organizations have an incredible opportunity to leverage indigenous knowledge and AI to drive sustainable and resilient innovation. By respecting and incorporating indigenous knowledge and prioritizing Ecosystem Services and Life-centred Design, organisations can develop business models that are commercially viable and help mitigate the climate crisis.

The future lies in working in partnership with indigenous communities, valuing their knowledge, and understanding the symbiotic relationship between people and the environment. By combining indigenous knowledge with our technological achievements, we can connect with our planet and prevent development that may lead to our extinction.



ENGINEERING A BETTER TOMORROW TOGETHER



Contact me or connect
with me on LinkedIn.

HORIZON X

"If we follow the horizon into the unknown, we will find new paths that we have not thought of before."

Given the climate crisis, we must join forces and ideas to put our world at the forefront of global change. **Horizon X** is a project by Christoph Tänzer that aims for new blueprints, ways, and solutions to engineer a better tomorrow.

We bring together indigenous peoples, pioneers, engineers, entrepreneurs, and innovators to promote regenerative solutions and equitable practices. Our goal is to build a platform as a beacon for sustainable development and social responsibility that demonstrates the power and potential of innovation to reconnect us with our planet and a healthy coexistence.

Join us in shaping an inclusive, prosperous, and sustainable future where progress and planetary well-being go hand in hand.