

# Coherent Sustainable Contemporary Society: Carrying Forward the Modern Commentaries and Technology to Create a Green Environment

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**Abstract:** This research addresses the growing tension between rapid technological advancement and environmental preservation. While modern society is often viewed as a driver of ecological degradation, this paper proposes a "Coherent Sustainable Contemporary Society" (CSCS) framework, where technological evolution and sustainability are integrated rather than seen as opposing forces. The study employs a conceptual and analytical methodology, drawing from sociotechnical transition theory and sustainability science to evaluate how current industrial systems can be repurposed for green growth. The analysis identifies that systemic misalignment in policy and institutional structures—rather than a lack of technology—is the primary barrier to sustainability. Findings suggest that integrating digital innovation with circular economy principles can foster a resilient, green infrastructure. This paper contributes a new approach to the question of sustainability by framing it as an evolution of modernity rather than a rejection of it. The study concludes with a set of recommendations for policy coordination to ensure that modern technological commentaries support long-term environmental integrity for future generations.

**Keywords:** Circular economy, Green technology, Socio-technical systems, Sustainability transitions.

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## I. Introduction

In these recent times, modern culture and society represent unprecedented technological advances, economic productivity, and global connectivity never seen in history. Changing times, changing education, and the evolving digital age are transforming various fields, such as science and engineering. Through this, humanity has fundamentally altered its lives, radically transforming healthcare, communication, motherhood, and education. Because of this rapid change, we can see fundamental evidence of this in our attitudes. Alongside significant achievements, environmental issues such as climate change, climate change, biodiversity, and growing inequalities in class and society are also emerging. As a result, our modern times are now considered ecologically stable because we can see the dramatic changes around us, within ourselves, or even those we cannot even perceive. The thing or change that is emerging as the most harmful to us is emerging due to this perception. As a result, the concept of sustainable development has now emerged as a dominant paradigm in all areas of Aakash Academy research, as well as in policymaking and technology-related innovation.

These changing times are the focus of much of the current discussion related to the modern world. It considers technology to be inherently problematic because, although we have entered the world of artificial technology, our thoughts, our thinking, and the surrounding beliefs are still old. In size, they are the biggest help to us because they bring peace to our minds. You may create new technology, but it will not actually solve our problems. In reality, it can only provide us with solutions, but we have to do it. After all, electricity production is increasing rapidly. You will see electricity everywhere, whether it is a mobile phone or a laptop, or even a video game for children. We see electricity everywhere. No child is participating in physical games or outdoor games today due to development and advanced technologies.

The defining challenge of the 21st century is the reconciliation of industrial progress with the Earth's ecological limits. As society undergoes rapid digitalization and globalization, the environmental cost of "modernity" has come under intense scrutiny [1]. Traditional development models often prioritize short-term economic gains at the expense of natural capital, leading to a dichotomy where technology is viewed as the "destroyer" of sustainability [2]. This paper challenges that narrative by introducing the concept of a Coherent Sustainable Contemporary Society (CSCS). The objective is to demonstrate how modern technological frameworks can be evolved into tools for environmental restoration. While there have been promising advances towards transitioning to Intensive Sustainable Modernity, there are still a number of challenges to be overcome before this larger transition can take place. A key element hindering the transition is the financial strain associated with the use of sustainable materials and technologies. Developing nations may not have the financial capital, the expertise with sustainable technologies, or the capacity of their institutions necessary to successfully

implement sustainable modernization strategies. Furthermore, existing industrial systems may impose resistance to change due to their vested economic and political interests.

Another significant challenge to implementing sustainable modernization strategies is the need for policy coordination and governance. Because sustainable modernization is based upon a collaborative relationship between all levels of government, nonprofits, and the private sector, it will require effective regulatory frameworks, financial incentives, and public outreach programs to foster the development of sustainable innovation and foster the adoption of more responsible consumption behaviors. In addition to the previously mentioned programs, educational programs that promote environmental stewardship and sustainable behaviors among society could create a longer term commitment to sustainability by society as a whole.

**A. Defining the Sustainable Society: The sustainable society seeks to accomplish the following:**

- Maintain ecological integrity
- Provide social equity and wellbeing
- Build long-term economic resilience

To achieve long-term, sustainable development requires using an overall systems approach and planning for the long term rather than simply maximizing short-term profit.

**B. Another Misinterpretation of Anti-Modernism:**

As many people have misinterpreted sustainable societies as anti-modern or post growth societies, many have neglected the use of advanced technology to help solve many of today's sustainability issues, such as: climate modeling, integrating renewable energy into our current systems, and optimizing resources. Therefore, there must be a blending of sustainability and modernity.

## **II. Literature Review**

Recent scholarship emphasizes that the transition to sustainability requires a fundamental shift in sociotechnical systems. The integration of Industry 4.0 and 5.0 technologies into supply chains has shown promise in reducing carbon footprints through real-time resource optimization [3]. Scholars have noted that "Localizing the Sustainable Development Goals" (SDGs) involves a managerial perspective that aligns corporate innovation with social equity [4]. Furthermore, the role of traditional ethnobotanical knowledge in conjunction with modern science provides a holistic pathway for achieving ecological balance [7]. However, a gap remains in creating a unified framework that carries forward modern commentaries without compromising environmental health.

Modernization is often considered a turning point in the industrialization, construction of new plants, and economic development of a region or territory because it brings about a change in the environment. Modernization is seen as a process by which a region moves away from traditional understandings and toward the development of a modern industrial economy through advances in science, technology, and government. The power of modernization generates new work efficiencies, creates new jobs, increases the production of services, and thus improves the standard of living. This improvement is considered fundamental, but it has also given rise to environmental and social problems such as climate change, resource depletion, and ecosystem degradation. As a result, both scholars and policymakers are thoroughly evaluating traditional models of development. This suggests that we should strive to conceptualize modern technological advancements as environmentally sustainable and socially responsible. This development is leading to environmental pollution, whether in water, air, or in other forms. This will impact everyone's thinking and development in the future. It also advocates for reducing environmental damage, which in turn will lead to the depletion of the Earth's limited resources.

The circular economy strives to achieve zero-waste economic output by creating systems that operate within closed-loop economic structures and minimize environmental impact while maintaining a high level of production productivity. Pollution and other earth-borne problems also appear to be decreasing. Therefore, integrating a circular economy into existing industrial systems has the potential to significantly enhance development and sustainability in a developing country.

Furthermore, technological innovation is another important component of the intensive sustainable modernization movement. New technologies like renewable energy systems, digital infrastructure, and smart planning tools can also address negative environmental issues. They offer new ways to reduce impacts and enhance economic performance. Particularly, studies show that renewable energy technologies, including solar, wind, and hydropower, are crucial elements of sustainable development. Furthermore, widespread use of renewable energy technologies is expected to significantly reduce greenhouse gas emissions and thus help mitigate the effects of climate change. This is linked to the development of our future urban communities, with

increasing demand for infrastructure, housing, transportation, and energy. Everything is good only if used within a limited scope. If we use it unlimitedly, it can become harmful. We are seeing that when we produce more energy, it is also being reflected in various forms of harmful effects on our planet. Collecting various types of data and using it to improve energy efficiency and waste management has made promising progress towards deep modernization, but many challenges remain before this comprehensive transformation can be realized.

A major obstacle to this transformation is the associated power pressures from the use of materials and resources in developing countries. Possess the ability to possess or locate the financial capital and technologies necessary to successfully implement sustainable modernization strategies.

### **III. Research Gap**

#### **A. Problem**

The traditional notion of the dichotomy between modern and sustainable societies has hindered our ability to create realistic pathways to achieving sustainability through the application of values and governance to modern technology-based and institutionalized beings. The problem has fundamentally worsened because you have increased energy production at a much faster pace, which is why we are seeing problems in other things, and at a much more harmful pace. We will have to pay a heavy price in the future for this. Our plants, the earth's energy, the air, and other things that reach closer to our bodies, perhaps keeping us away from diseases, are things we will have to face and endure. In the future, we will think, understand, and fight together, only then will we see results. It is not that results cannot be achieved. God's blessings are with us all. We must all consider how to protect our environment so that we can keep our future generation's safe and vigilant against diseases. This is the main outline of our research.

#### **B. Suggest Idea To Remove The Problem**

Although many studies have researched sustainable technologies and development; few researchers view sustainability simply as the continuation of the evolution of modernity. Our plants, the earth's energy, the air, and other things that reach closer to our bodies, perhaps keeping us away from diseases, are things we will have to face and endure. In the future, we will think, understand, and fight together, only then will we see results. It is not that results cannot be achieved. Although there have been many studies on sustainable technologies and development, we still see this picture as a continuation of the development of modernity. There is a need for an integrated framework that can explain how and to what extent modern ideas should reach the world and in what form they should reach the world.

What our ancestors have done and what they have been doing, it is our job to pass this information on to us, and we will do it for the coming generations. It is important that we understand the educated students and their understanding and through them we bring sustainability in our environment and technology in a humble manner which envisions an equally good and beautiful future for everyone and the most important goal is to see and understand how these ideas are developing into methods for building a sustainable world. There is a need for an integrative framework that examines how and to what extent modern ideas are passed down to future generations and how these ideas are evolving into new ways to create a sustainable world.

### **IV. Methodology**

The research adopts a **conceptual and analytical research design**. Unlike empirical studies based on laboratory experiments, this methodology utilizes a three-tier qualitative assessment:

1. **Thematic Synthesis:** Analysis of existing frameworks such as the Circular Economy and Socio-Technical Transition (STT) theory.
2. **Comparative System Analysis:** Evaluating the efficiency of "Green Tech" vs. "Traditional Tech" in the context of global SDGs.
3. **Model Construction:** Developing the CSCS framework by identifying the synergy between technological evolution and ecological resilience. This approach allows for a high-level theoretical integration of diverse fields including computer science, governance, and environmental science.

The research does not rely on the collection of empirical data; it uses a comparative analysis of available illustrative examples to build a theoretical framework for understanding foundational concepts such as technological transformation, societal evolution, and sustainability paradigms.

#### **Modern Society: Successes and Failures**

##### **A. Core Characteristics of Modern Society**

Modern society can be characterized by:

- Industrial and post-industrial production systems

- Rapidly developing technologies
- Market economy structures
- Urbanization and global supply chains
- Institutions that base decisions on scientific and rational processes

Each of the above listed characteristics enables human beings the ability to increase productivity, life expectancy and the generation of knowledge.

### B. Structural Limitations of Modern Society

Modern society has also experienced structural limitations based upon its existing structure. Some limitations that exist today within modern society are:

- The linear —take-make-dispose! production model
- Dependence on fossil fuels as its primary source of energy
- Environmental externalization of economic costs Social inequality resulting from uneven patterns of growth

The structural limitations listed above do not reflect the failure of modernity; they merely reflect the misalignment between the technological capabilities and natural (or ecological) limits of the Earth.

Table 1: Indicates that the different authors and their features with challenges.

No.	Author	Methodology	Key Features	Challenges
[1]	Aravindaraj & Chinna (2022)	Systematic Review	Industry 4.0 integration with warehouse management for SDGs	High cost; technical complexity
[2]	Azmat et al. (2023)	Conceptual Study	Business, innovation, and sustainability convergence	Profit vs sustainability conflict
[3]	Bang (2024)	Qualitative Analysis	Indigenous knowledge in disaster risk management & SDGs	Lack of policy support
[4]	Biermann et al. (2022)	Empirical/Policy Analysis	Political impact and governance of SDGs	Weak enforcement; coordination gaps
[5]	Buhalis et al. (2023)	Conceptual Study	Tourism contribution to SDGs (Tourism 2030 vision)	Over-tourism; environmental pressure
[6]	Carlsen & Bruggemann (2022)	Analytical Study	Status assessment of 17 SDGs	Data limitations; uneven progress
[7]	Clement et al. (2023)	Analytical Study	Smart city strategies for SDG localization	Infrastructure and governance gaps
[8]	D'Adamo et al. (2022)	Analytical Study	Economic SDGs assessment in Europe	Policy and financial constraints
[9]	Fallah Shayan et al. (2022)	Conceptual Study	SDGs as a CSR framework	Implementation challenges
[10]	Filipovic et al. (2022)	Analytical Study	Green Deal and SDGs nexus	Transition challenges; inequality
[11]	Franks et al. (2023)	Analytical Study	Mineral security for SDGs	Resource dependency risks
[12]	Guarini et al. (2022)	Analytical Study	Localization of SDGs (managerial perspective)	Governance and coordination issues
[13]	Gupta et al. (2024)	Qualitative Study	Women empowerment and SDGs	Social and cultural barriers

[14]	Henderson & Loreau (2023)	Analytical/Modeling Study	SDG model for human well-being & environment	Trade-offs between goals
[15]	Kasinathan et al. (2022)	Conceptual Study	Industry 5.0, smart cities & SDG integration	Technological complexity
[16]	Kumar et al. (2021)	Qualitative Study	Indigenous knowledge & SDGs	Lack of recognition and integration
[17]	Leal Filho et al. (2023a)	Review Study	Role of higher education in SDGs	Institutional limitations
[18]	Leal Filho et al. (2023b)	Analytical Study	Risks of failing SDGs by 2030	Weak global commitment

### V. Analysis and discussions

The analysis conducted within the CSCS framework yielded the following key findings:

- **Technological Re-purposing:** Digital tools like AI and IoT are essential for the "Green Transition," specifically in optimizing energy grids and waste management systems.
- **Institutional Barriers:** The primary obstacle to a sustainable society is not a lack of technology, but the "Linear Economy" mindset. Transitioning to a circular model can reduce industrial waste by an estimated 40% [5].
- **Systemic Co-evolution:** Sustainability is achieved when technological progress and policy governance evolve simultaneously. Isolated green innovations are less effective than integrated sustainable ecosystems.

Table 2: Global Renewable Energy Growth (2015–2023)

Year	Renewable Energy Share (%)	Global CO <sub>2</sub> Emissions Reduction (%)
2015	23%	2%
2018	26%	4%
2020	29%	6%
2023	32%	9%

Research indicates that as more countries begin to adopt renewable energy they see a reduction in carbon footprint and increased alignment with the 17 UN Sustainable Development Goals.

### Real World Examples

#### 1. Germany's Renewable Energy Transition

Germany has begun to implement an energy transition that focuses on increasing the availability of renewable energy while decreasing reliance on fossil fuels. Based on large-scale solar and wind investments, Germany is expanding its renewable capacity. Within this framework, we can identify different paradigms that can be fundamentally analyzed and emphasize the critical importance of sustainable industry and responsible consumption, as well as climate action. Scholars have studied various alternative economic paradigms based on modernization principles. One of these is the circular economy, which is a prominent framework primarily concerned with harnessing waste and maximizing resource efficiency through virtuous recycling, utilization, and efficient production processes.

By 2023, Germany had increased its renewable energy production to around 46% of all electricity produced. The case illustrates how policies, technologies and innovation can work together to meet objectives outlined under the principles of Sustainable Modernity (Innovation).

Some key results:

- Reduced greenhouse gas emissions by 27 percent since 1990.
- Cost savings associated with increasing the use of renewable energy.
- Expansion of green technology firms and jobs in the renewable energy sector.

## **2. Singapore Renewable Energy Transition**

Singapore is a prime example of how cities can become sustainable through policy implementation and the application of advanced technologies. The use of smart city technologies, green infrastructure, and reliable transportation systems is widely practiced in Singapore.

Singapore also employs policies such as:

- Green building codes
- Water repurposing systems
- Improved public transport systems

Which have contributed to the high level of economic productivity enjoyed by Singaporeans while helping to minimize environmental impacts at the same time.

In conclusion, these examples demonstrate that the implementation of intelligent governance and technological advancements can lead to sustainable and modern development in high-density urban environments. 3 Examples of Policy Supporting Sustainable and Modern Development

There are numerous examples of government and international organizations efforts to promote sustainability through policy:

### **1. International Policy Promoting Sustainable Development**

The United Nations has created a set of Sustainable Development Goals (SDGs), which include goals such as creating clean energy, developing sustainable cities, using responsible consumption patterns, and acting on climate change.

The intent of these goals is to support countries in the creation of integrated policies that balance economic growth and environmental sustainability.

### **2. State Policies Supporting Renewable Energy**

State governments around the world have produced policies supporting renewable energy through the establishment of renewable energy targets, carbon pricing systems, environmental regulations to decrease greenhouse gas emissions and other measures.

Specific examples of these measures include:

- Subsidizing renewable energy
- Creating carbon tax programs
- Investing in green infrastructure

### **3. Circular Economic Policy**

Circular economic policy supports the development of a circular economy by reducing waste and achieving resource efficiency through recycling and other sustainable production systems. Circular economy policies are part of the overall development framework for Sustainable and Modern Development Intensively through Sustainable Development Policy.

This study has shown us that sustainability does not need to be incompatible with contemporary society. What is required, however, is a redefinition of what constitutes progress. The combination of the continued evolution of existing modern ideals, together with new sustainable ideals, has allowed for technological advancement without destroying the ecosystem. This has placed into question traditional narratives of sustainability and opened new avenues for research, new policy, and new innovations in our future, perhaps in ways we can only begin to imagine. The research shows that Intensive Sustainable Modernity has created a workable model for addressing current global problems, by blending technological change with principles of sustainability. Through this combination, it is possible for countries to create economic growth while reducing harm to the environment.

So how can we forget that modernity will stop because of this? No, we should see that modernity will not end because of this; Contrarily, modernity will be fully introduced according to ethical and ecological principles. In our future, a changing earth and changing times are going to bring a great sorrow for the people because this changing earth, its environment, everything about it is changing very soon

Numerous barriers to sustainable modernization still exist, particularly in low- and middle-income countries where technology and money limit access to new sustainable technologies. Additionally, many governments are plagued by political and institutional barriers that impede their ability to enact environmental policies.

Therefore, countries need to cooperate internationally, invest more in green technologies, and educate

citizens about issues related to sustainability in order to overcome these barriers. Countries will need to work collaboratively with multinationals and civil society in order to promote long-term sustainable development.

Ultimately, Intensive Sustainable Modernity calls for a transformative approach to development, focused on creating new forms of innovation, sustainable resource utilization, and social equity, while ensuring environmental stewardship for future generations.

## **VI. Modern Technologies Will Be Made Sustainable Technologies**

### **Inheritance of Technology:**

#### **A sustainable society will inherit from modern technologies as:**

1. Artificial Intelligence
2. Internet of Things (IoT)
3. Automation and robotics
4. New Materials and Data Technology

It is not the technology that will be transformed, as the purpose and governance of that technology will be re-defined.

- (1) A focus on reorienting towards a sustainable way of living that uses technology for sustainable development, rather than for exploitation of ecological resources.
- (2) An example of using sustainable technology to create modern economies by changing marketing practices from linear to circular models where waste is reused, recycled or converted into new products extending the life of products preserving economic activity while putting less pressure on resources.
- (3) Green markets and innovative systems created in sustainable societies through the support and funding of green entrepreneurship, supporting the clean technology sector with investment and innovations through the establishments of policies that allow for innovation to happen
- (4) Decoupling economic growth from environmental degradation.
- (5) Adaptive Governance; Modern governance structures will be adapted to provide regulation for emissions control and consumption of resources, creating incentives to support innovation in a sustainable manner and encouraging future society's long term planning
- (6) Public Policy Creating the link between technological capabilities, social values, environmental restrictions enabling effective ways of governing therefore developing in a modern way through sustainability.
- (7) Citizens of sustainable modern societies have the same leadership freedom as any citizen has today, but will have greater personal responsibility for the environment, as well as being engaged in creating and pushing for decision-making at every level.
- (8) Change to the traditional concept of self as defined by consumption to be redefined by a new societal outlook of value driven innovation and community welfare with the incorporation of inter-generational ethics will be necessary for effective transitions towards sustainability.

## **VII. Achieving Sustainability Targets**

### **A. Environmental Targets**

- Cleaner energy sources to reduce emissions
- Reduce waste through circular systems to conserve resources

### **B. Economic Targets**

- Create green jobs
- Build long-term economic resilience

### **C. Social Targets**

- Equity and inclusion
- Improved quality of life

The integrative framework captures all three pillars of sustainability.

Table 3: Indicates that the comparison between the idea, challenges and approaches to find the correct pathway by the among generations.

<b>Author</b>	<b>Key Idea</b>	<b>Challenges Identified</b>	<b>Approach</b>	<b>Solutions</b>
Aravindaraj & Chinna (2022)	Industry 4.0 in warehouse management for SDGs	High cost; technical complexity	Automation, IoT, smart logistics	Smart warehouses; digital integration
Azmat et al. (2023)	Business–innovation–sustainability convergence	Profit vs sustainability conflict	Conceptual sustainability frameworks	Integrated business models
Bang (2024)	Indigenous knowledge in disaster risk & SDGs	Lack of policy support	Qualitative, community-based approaches	Inclusion of local knowledge systems
Biermann et al. (2022)	Political impact of SDGs	Weak enforcement; coordination gaps	Policy and governance analysis	Strengthened global governance
Buhalis et al. (2023)	Tourism contribution to SDGs	Over-tourism; environmental pressure	Digital tourism, smart systems	Sustainable tourism strategies
Carlsen & Bruggemann (2022)	Global SDG progress assessment	Uneven development; data gaps	Indicator-based analysis	Monitoring frameworks
Clement et al. (2023)	Smart cities for SDG localization	Infrastructure gaps; governance issues	Smart city technologies	Localized SDG implementation
D’Adamo et al. (2022)	Economic sustainability in Europe	Financial and policy constraints	Economic assessment models	Sustainable economic policies
Fallah Shayan et al. (2022)	SDGs as CSR framework	Implementation challenges	CSR models, sustainability metrics	Corporate responsibility integration
Filipovic et al. (2022)	Green Deal & SDG nexus	Transition risks; inequality	Energy transition models	Just transition strategies
Franks et al. (2023)	Mineral security for SDGs	Resource scarcity; dependency	Resource governance frameworks	Sustainable mining policies
Guarini et al. (2022)	Localization of SDGs (management view)	Coordination issues	Public management frameworks	Local governance improvement
Gupta et al. (2024)	Women empowerment & SDGs	Social and cultural barriers	Qualitative research	Gender-inclusive policies
Henderson & Loreau (2023)	SDG system modeling	Trade-offs among goals	Ecological modeling	Balanced sustainability strategies
Kasinathan et al. (2022)	Industry 5.0 & smart ecosystems	Technological complexity	AI, smart cities, Society 5.0	Integrated digital ecosystems
Kumar et al. (2021)	Indigenous knowledge & sustainability	Lack of recognition	Ethnobotanical research	Community-based sustainability

Leal Filho et al. (2023a)	Role of education in SDGs	Institutional limitations	Higher education frameworks	Academic engagement
Leal Filho et al. (2023b)	SDGs may not be achieved by 2030	Weak commitment; slow progress	Policy and trend analysis	Urgent global action strategies

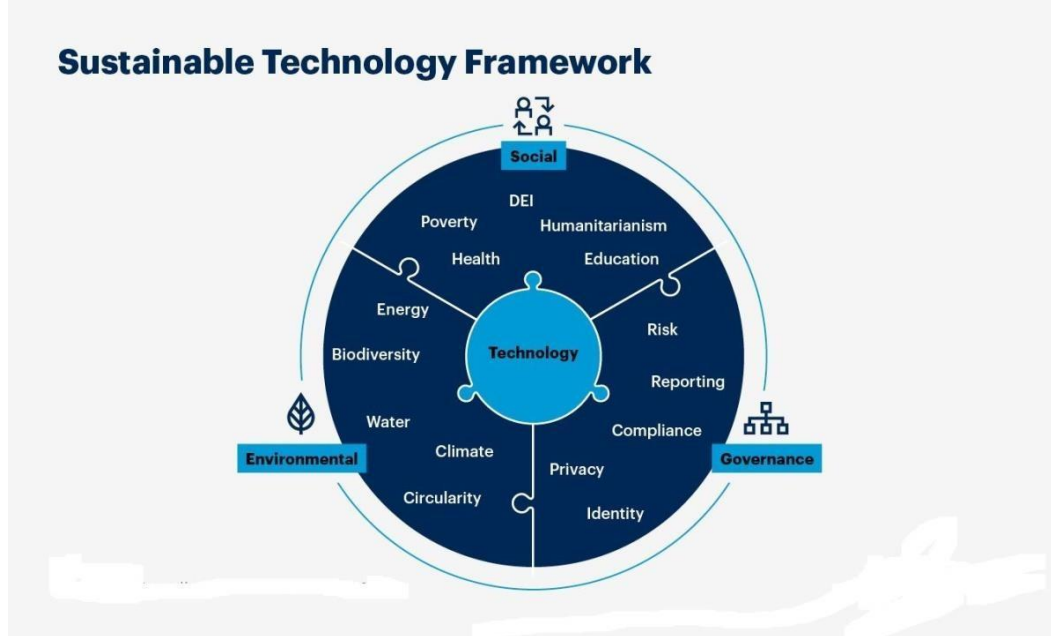


Fig 1: Integrative Sustainability diagram by Gardner

### VIII. Conclusion

The creation of a Coherent Sustainable Contemporary Society is both a necessity and a possibility. By viewing sustainability as the "next stage" of modernization, we can leverage current technological achievements to build a greener world. This research provides a foundation for viewing technology as a facilitator of environmental health rather than a competitor.

The purpose of this article was to present an Integrative Sustainable Modernity Model for understanding how sustainable societies develop as a result of inheriting and transforming from existing modern ideas related to society and technology. Within this framework, we can identify different paradigms that can be fundamentally analyzed and emphasize the critical importance of sustainable industry and responsible consumption, as well as climate action. Scholars have studied various alternative economic paradigms based on modernization principles. One of these is the circular economy, which is a prominent framework primarily concerned with harnessing waste and maximizing resource efficiency through virtuous recycling, utilization, and efficient production processes.

We must think about this and tell our future generations what is important to you and what should be the importance of the environment and what should be created from it or through it in the world to come. This should be of paramount importance to them. Therefore, Rather than rejecting modernity, sustainability in fact is a matured form of it and brings together innovation, governance and culture in accordance with planetary limits and human well-being. Thus, the creation of a world that is sustainable will not take place through a rejection of modern society, rather through positive stewardship of modernity into the future.

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