

From Profit to Purpose Using AI to Create Sustainable Business and Social

¹Dr. Harsha Mishra, ²Prof. Pranshu Agarwal

¹Associate Professor, ²Assistant Professor

Sant Hirdaram Institute of Management for Women

<https://doi.org/10.64882/ijrt.v14.iS2.1171>

Abstract

The paradigm of modern commerce is shifting away from conventional profit-maximization models to a purpose-driven approach that combines economic success with ecological and social sustainability. This study investigates the vital function of artificial intelligence (AI) which act as a catalyst for this paradigm shift, specifically how prediction analytics, machine learning, and automation might be used to generate "shared value." The study uses a multi-sector analysis to identify three major areas where artificial intelligence bridges the gap between economic viability and sustainability:

- Operational Decarbonization: AI-driven optimization for waste reduction, energy efficiency, and circular supply chains.
- Social Impact at Scale: Enhancing access to financial services, education, and healthcare and for underprivileged communities through algorithmic solutions.
- Ethical Governance: Developing inclusive and transparent AI frameworks to reduce bias and promote equitable value distribution.

The findings indicate that, while AI provides unparalleled efficiency opportunities, its actual potential resides in its capacity to measure as well as regulate complex ESG (Environmental, Social, and Governance) parameters, allowing purpose to be viewed as a tangible asset instead of a secondary issue. The report concludes with a strategic framework for managers to use AI not only for financial advantage, but also as a foundational pillar in constructing resilient, future-proof enterprises that are beneficial to both shareholders and society.

Keywords: Ecological Sustainability, Social Sustainability, Ethical Governance, Social Impact, Decarbonization, Environmental, Social, and Governance

Introduction

The global corporate landscape is undergoing significant transformations. The traditional corporate paradigm, which was primarily concerned with maximization of profit and shareholder wealth, is experiencing a significant change. Rising degradation of the environment, widening social disparities, and rising stakeholder expectations have forced corporations to take a more purpose-driven strategy. This emerging paradigm focuses the integration of financial performance, environmental stewardship, and social responsibility, which is often conceptualized using frameworks like the triple bottom line and ESG (environmental, social, and governance) standards.

This shift has been greatly aided by artificial intelligence (AI). AI is highly and strategically used to help firms evaluate, manage, and improve extensive environment and social impact criteria, going beyond its traditional applications in efficiency and cost reduction. Unprecedented capabilities are provided by technologies like automation, machine learning, and predictive analytics to match business strategies with sustainable social benefit generation.

This study investigates how AI may help firms transition from a profit-driven business model to one that is purpose-driven which generates value for society. In particular, it looks at how AI may be used to scale social impact, improve ethical governance, and decarbonize operations - all of which establish AI as a key component of resilient and sustainable businesses.

Review of Literature

Prior research highlights the growing importance of sustainability and purpose-driven strategies in modern organizations.

Sustainability and AI: Porter & Kramer (2011), BCG (2022) in their research have demonstrated how AI can optimize energy use, cut waste, and facilitate cyclical chains of supply? Businesses can create financial value in ways that also create benefit for society by addressing its difficulties, according to Porter and Kramer's notion of Creating Shared Value (CSV). AI-driven systems can greatly increase energy usage, optimize the utilization of resources, and lower carbon emissions, according to research on artificial intelligence in environmental sustainability (Jiang et al., 2021). In a similar vein, Elkington's Triple Bottom Line paradigm emphasizes the necessity of striking a balance between revenue, individuals, and the environment.

The societal impact of Artificial Intelligence: Studies reveal that AI-powered systems give underserved people better access to financial inclusion, healthcare, and education (UNESCO, 2021). In the social sphere, research indicates that AI applications in the fields of finance (fraud and credit scoring detection), healthcare (predictive diagnostics), and education (individualized learning) might increase access and enhance results for marginalized groups (Topol, 2019). Research by Wamba et al. (2020) suggests that big data analytics and AI enhance organizational agility and enable data-driven sustainability decisions.

Ethical Governance: According to Floridi et al., 2018, Nonetheless, researchers warn of the ethical dangers of AI, such as algorithmic bias, an absence of transparency, and issues with data privacy. In order to guarantee that AI systems foster equity, responsibility, and inclusivity, the literature highlights the significance of ethical governance frameworks.

ESG Integration: Research indicates that artificial intelligence (AI) may quantify and control intricate ESG factors, turning sustainability into a measurable corporate advantage (PwC, 2023).

All things considered, current research shows that AI has the potential to improve social impact and sustainability while emphasizing the necessity of strong governance to control related dangers.

Strategic framework for integrating AI with ESG goals to create shared business and social value

Based on the analysis, a conceptual model is proposed to explain how AI drives sustainable and purpose-oriented value creation.

1. To develop a strategic framework for integrating AI with ESG goals to create shared business and social value.
2. To examine the role of Artificial Intelligence in enabling sustainable business practices.
3. To analyse how AI contributes to operational decarbonization and environmental sustainability.
4. To evaluate the impact of AI in enhancing social outcomes in areas such as healthcare, education, and financial inclusion.

Research Methodology

- Method: Exploratory and Qualitative study.
- Secondary Data Analysis: Secondary data includes industry reports, scholarly publications, and case studies in a variety of industries (education, healthcare, manufacturing, and finance).
- Multi-Sector Case Review: Analysis of AI applications in industries like energy, manufacturing, healthcare, and finance.
- Study Framework: Three dimensions—social impact, ethical governance, and operational decarbonization—are the focus of this thematic study.

Instead of testing particular hypotheses, the exploratory investigation seeks to provide a theoretical and strategic framework.

Data Analysis

Objective 1: To examine the role of Artificial Intelligence in enabling sustainable business practices.

1. The role of AI in facilitating Sustainable Business Practices:

AI processes enormous databases to find inefficiency that human analysis could overlook, acting as the "brain" of contemporary sustainability initiatives. AI applications in the real world have progressed from theory to extensive operational plans. Here are particular case studies for every category you asked for, showing how world leaders are using AI to achieve their sustainability and ESG goals.

1.1 Management of Predictive Resources:

Businesses can forecast demand, cut down on overproduction, and manage energy and water use with predictive

AI Nestlé: Water Conservation Driven by AI

- The Problem: Cutting water waste in manufacturing facilities around the world.
- The AI Solution: To track water flow in real time throughout its plants, Nestlé implemented sensors driven by AI and predictive analytics. In order to identify tiny leaks and anticipate possible pipe breaks before they happen, the system makes use of machine learning.
- Impact: Significantly raised the rate of recycling within their manufacturing cycles and achieved a 15% decrease in water usage.

Accurate Demand Prediction by Levi Strauss & Co.

- The issue: The garment industry's overproduction results in significant landfill trash and elevated Scope-3 emissions.

- The AI Solution: To match production plans with real market demands, Levi's employs AI-driven demand forecasting. The AI stops the production of extra inventory by examining trends in consumer behavior.

- Impact: A direct decrease in waste from raw materials and advancement toward their 2030 target of a 42% decrease in Scope-3 emissions.

1.2 Transparency and Reporting

AI automates the "data drudgery" of ESG reporting, ensuring accuracy and mitigating "greenwashing" risks.

Kraft Heinz & Barclays: Materiality Driven by AI (Datamaran)

- The issue: Managing "double materiality"—recognizing the ways in which sustainability concerns impact the business and the environment—is the challenge.

- The AI Solution: These companies make use of Datamaran, a platform for artificial intelligence that continuously reads thousands of peer reports, news stories, and regulatory updates. It determines which ESG risks are the most significant to their particular firm, such as labor laws or carbon levies.

- Impact: Gives these businesses access to audit-ready ESG data, enabling them to provide investors and regulators with credible, evidence-based sustainability disclosures.

Unilever: AI for Human Rights and Social Risk

- The difficulty: keeping an eye on moral labor standards throughout a vast, multi-tiered international supply chain.

- The AI Solution: Unilever and IBM worked together to create ETHICS, an AI platform that scans social media and local news in several languages using Natural Language Processing (NLP). It finds "hyper-local" complaints of environmental incidents or labor infractions that conventional audits could overlook.

- Impact: Better understanding of the palm oil supply chain enables early intervention before social problems worsen.

1.3 Circular Economy Optimization

AI is the key to "closing the loop" by improving sorting, recycling, and product life extension.

H&M Group: Circular Ecosystems Powered by AI

- The difficulty: Making the switch to a 100% circular approach from the line "take-make-waste" model.

- The AI Solution: To maximize assortment planning, H&M employs AI. Deep discounts and eventual disposal are less necessary because they accurately forecast which clothing will sell in certain areas. In order to enable high-quality recycling, they additionally make investments in AI-driven sorting systems that can distinguish between different textile compositions, such as cotton and polyester.

- Impact: Aiming for materials obtained responsibly or entirely from recycled sources by 2030.

Finland's ZenRobotics: AI Waste Sorting

- The Challenge: Sorting home and construction debris by hand is labor-intensive, risky, and frequently imprecise.

- The AI Solution: To accurately recognize and sort a variety of materials (such as wood, metal, and particular plastics), ZenRobotics employs "ZenBrain," a machine learning engine that integrates cameras and sensors.

- Impact: Effectively converting wastes into a resource by allowing the extraction of highly pure material that can be supplied back into the process of manufacturing.

Objective 2: To analyse how AI contributes to operational decarbonization and environmental sustainability.

2. AI in Operational Decarbonization and Environmental Sustainability

In the transition toward a "Net Zero" economy, AI acts as an optimization layer that allows companies to decouple economic growth from carbon emissions. Below are key case studies of global leaders using AI for operational decarbonization and environmental sustainability.

2.1 Energy Grid & Industrial Decarbonization

Industrial operations often suffer from the "simulation-to-reality gap," where human-led adjustments fail to account for the sheer complexity of energy systems.

Google: Using DeepMind to Cool Data Centers

- The Problem: Data centers use a lot of energy, and a large amount of their carbon footprint is caused by cooling systems.

- The AI Solution: DeepMind's machine learning was implemented in Google's data centers. In order to forecast future temperatures and pressures and automatically modify cooling infrastructure, the AI examines past data from hundreds of thousand sensors, including temperature, power, and pump speeds.

- Impact: Significantly reduced their operational emissions of their digital services by achieving a 40% reduction in cooling energy and a 15% decrease in total electrical overhead (PUE).

Siemens: Digital Twins & Gridscale X

- The Challenge: Because wind and solar energy are intermittent, integrating them into current power grids is challenging.

- The AI Solution: Siemens builds a "Digital Twin" of the electrical grid using its Gridscale X platform. AI systems modify grid demands in real-time and predict green energy production based on meteorological trends.

- Impact: More carbon-free electricity was able to reach customers thanks to a 30% increase in grid use without the need to construct new physical infrastructure.

2.2 Smart Buildings and Infrastructure

Buildings account for nearly 40% of global energy-related CO2 emissions. AI is being used to make them "self-healing" and autonomous.

Schneider Electric: Advisor for EcoStruxure Microgrid

- The difficulty is juggling grid demand, battery storage, and on-site renewable energy.

- Schneider's AI-powered platform makes decisions on its own about when to use, preserve, or transfer power back to the grid. It picks up on building occupancy trends and links them to increases in electricity prices.

- Impact: By lowering CO2 emissions by 335 tons annually, this solution assisted the Lippulaiva retail complex in Finland in becoming the first carbon-neutral shopping center in Europe.

Microsoft: Microgrids Driven by AI

- The difficulty: Making the switch to entirely electricity without carbon emissions by 2030 while maintaining energy resilience.

- The AI Solution: Researchers at Microsoft created AI microgrids that control battery discharge via reinforcement learning. The AI anticipates when the regional electricity system will experience strain and transitions to solar energy that has been stored.

- Impact: Showed that AI is more effective than conventional controllers in managing decentralized energy networks, which lessens the need for "peaker" gas plants, which are typically used to cover energy gaps.

2.3 Methane & Emission Detection

Methane is over 80 times more potent than CO2 in the short term. AI is the only way to track these "invisible" leaks at scale.

Microsoft & Chevron: Methane Detection

Using Agentic AI Finding methane leaks in distant wells and pipelines spanning thousands of miles is a challenge.

- The AI Solution: AI algorithms (Vision AI) look for the distinct the spectral signature of methane using satellite photos and sensors mounted on drones.

- Impact: Millions of tons of greenhouse gases were kept out of the atmosphere by cutting down on the time it took to find and fix leaks from weeks to real-time.

2.4 Waste Reduction & Circularity in Operations

Decarbonization isn't just about energy; it's about the "embodied carbon" in the products and waste we create.

Amazon: The Decision-Making Engine for Packaging

- The Problem: Excess weight from transportation due to overpackaging raises the carbon impact of each delivery.

- The AI Solution: To select the most effective packing (such as moving from a box to a padded mailer), Amazon employs a machine learning algorithm to examine a product's design, durability, and customer feedback.

- Impact: Since 2015, this AI has contributed to the removal of over two million metric tons of packaging material, thereby lowering the amount of fuel required for transportation

Objective 3: To evaluate the impact of AI in enhancing social outcomes in areas such as healthcare, education, and financial inclusion.

3.1 AI in Healthcare: Breaking Geographic Barriers

In regions with a shortage of specialists, AI acts as a force multiplier for local clinicians.

Apollo Hospitals (India): Preventive Care Using Clinical AI

- The Challenge: Non-communicable diseases (NCDs) are prevalent in India, and there is a severe lack of trained physicians in rural areas.

- The AI Solution: Apollo created a set of clinical AI algorithms (such as AICVD for cardiovascular risk) that use patient data analysis to forecast the likelihood of developing chronic illnesses including CKD (chronic kidney disease) and heart disease. Additionally, they start emergency care while in travel with AI-enabled 5G ambulances.

- Social Outcome: These algorithms have validated more than 1.7 million patient records, allowing for early intervention. By automating repetitive documentation, they want to free up two to three hours each day for physicians and nurses, giving them more time to provide direct patient care.

Zipline: AI-Powered Medical Logistics in Ghana and Rwanda

- The Challenge: Due to inadequate road infrastructure, "last-mile" delivery of blood and vaccines to distant clinics is frequently not feasible.

- The AI Solution: Zipline provides on-demand medical supply delivery using autonomous drones driven by AI flight controllers. The AI uses weather and wind information to improve aircraft routes in real time.

- Social Outcome: By completing more than 12 million births and giving 2,400+ medical facilities immediate access to COVID-19 vaccines and life-saving blood, Zipline has greatly decreased mortality among mothers and crisis intervention times.

3.2 AI in Education: Personalized Learning at Scale

AI solves the "Bloom's Taxonomy" problem by providing 1-on-1 tutoring that was historically reserved for the wealthy.

Khan Academy: AI tutor for Khanmigo

- The Problem: Teachers in packed classes are unable to give each student the individualized attention they need to close their individual learning gaps.

- The AI Solution: GPT-4-powered "Socratic" teacher Khanmigo was introduced by Khan Academy. In contrast to conventional chatbots, it poses leading questions to assist pupils in solving problems on their own rather than providing answers.

- Social Outcome: Following a semester of utilizing Khanmigo for mathematics instruction at Enid High School in Oklahoma, no pupils failed the course. It serves as a lesson-planning aid for overburdened teachers and a round-the-clock learning coach for pupils.

Democratizing Language Literacy with Duolingo

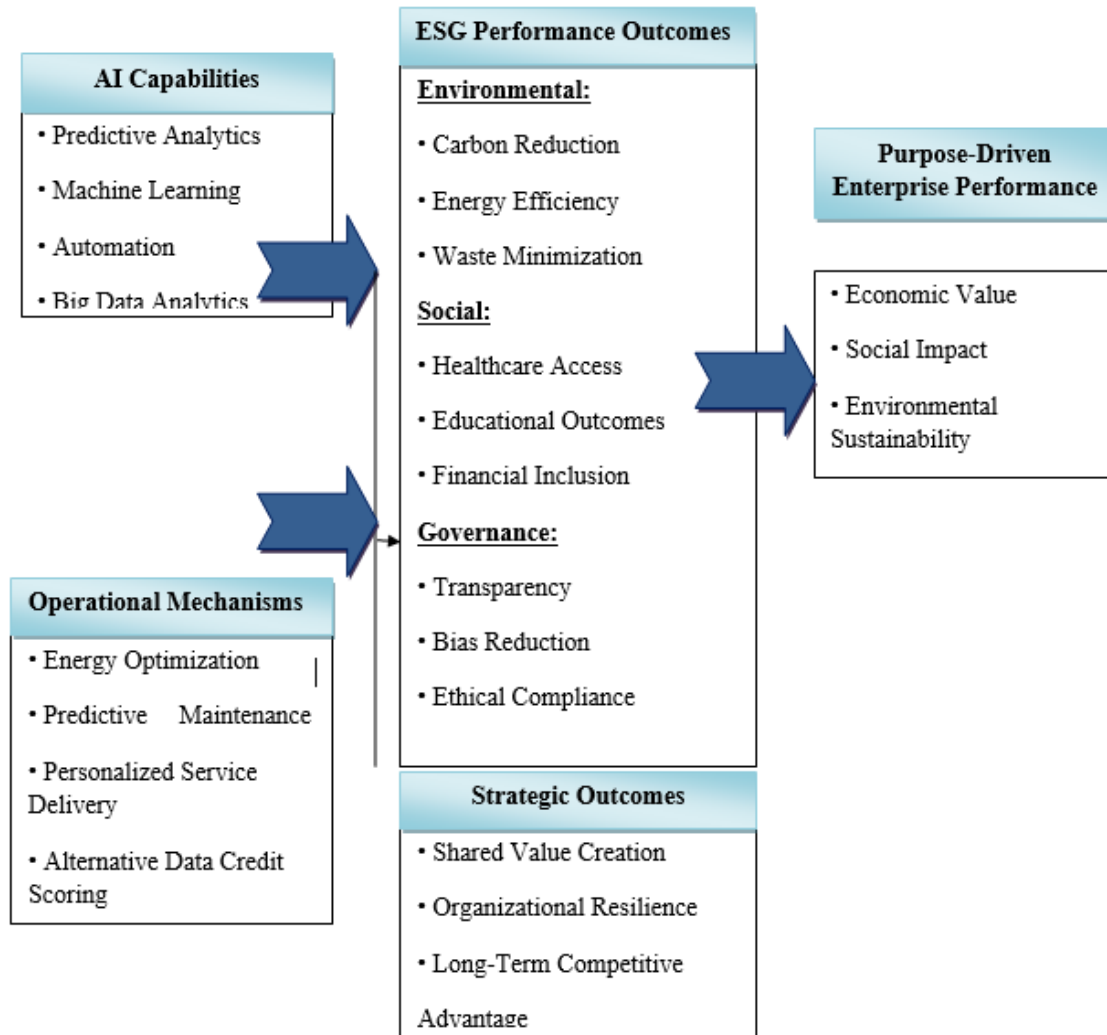
- The Challenge: Low-income students frequently cannot afford the high cost of quality language instruction.

- The AI Solution: Duolingo's "Birdbrain," a model that forecasts a lesson's level of difficulty for a particular user, is powered by AI. Users can now practice having actual discussions with AI characters thanks to the latest integration of Generative AI (Duolingo Max).

- Social Outcome: Duolingo offers free, excellent literacy and language resources to more than 100 million people each month worldwide. Research revealed a 51% increase in

engagement following AI integration, demonstrating that tailored "gamified" AI prevents students from quitting.

Fig. 1: Strategic framework for integrating AI with ESG goals to create shared business and social value



3.3 AI in Financial Inclusion: Building Digital Identities

For the "unbanked," the primary barrier is a lack of traditional credit history. AI uses alternative data to bridge this gap.

Tala: Unbanked People's AI Credit Scoring

- The Problem: Thousands of individuals in emerging nations are unable to obtain formal loans because they lack a bank account and credit score.

- The AI Solution: To create a "financial identity," Tala's mobile app leverages AI to examine additional data, including past mobile bill payments, retail transactions, and even contact organization.

- Social Outcome: More than 8 million clients in Kenya, the Philippines, and Mexico have received more than \$4 billion in credit from Tala, many of whom were getting their first official loan to launch small enterprises.

Safaricom's M-Pesa: AI-Powered Mobile Money

- The difficulty: controlling liquidity and preventing fraud in an extensive system of rural mobile financial brokers.

- The AI Solution: Safaricom employs AI algorithms to forecast "cash-out" demand at particular agent locations and to track patterns of transactions for fraud prevention.

- Social Outcome: By offering a safe alternative to a physical bank branch for saving and transferring money, M-Pesa is recognized for having helped approximately 2% of Kenyan households escape poverty

Findings and Solutions

Key Findings

1. AI lessens its influence on the environment while greatly increasing operational efficiency.

2. Scalable social changes in financial inclusion, healthcare, and education are made possible by AI.

3. AI-driven analytics improve the effectiveness of ESG measurement and monitoring.

4. Businesses seem more resilient and prepared for the future when their AI strategy is in line with their mission-driven objectives.

Proposed Solutions

1. AI-Driven Sustainable Dashboards: Construct AI performance dashboards that incorporate ESG metrics.

2. Inclusive AI Design: When developing AI, include bias checks and fairness.

3. Cross-Functional ESG-AI Teams: Combine IT, compliance, and sustainability.

4. Stakeholder-Centric AI Policies: Create clear guidelines for algorithmic responsibility and data use.

5. Capacity Building: Educate managers and staff on how to match sustainable goals with AI capabilities.

Conclusion

Organizations' definition of success has fundamentally changed as a result of the move from profit to purpose. AI is now more than just an efficiency tool; it is the core framework for sustainability in the twenty-first century. This change is made possible in large part by artificial intelligence, which combines social and environmental goals with economic performance. This study shows that AI's full potential is found in its capacity to measure, control, and optimize intricate ESG factors in addition to increasing efficiency.

Organizations may achieve their ESG objectives, turn purpose into a strategic asset, and increase long-term profitability by utilizing artificial intelligence for functional carbon reduction, expanding social impact, and bolstering ethical governance. This study's proposed paradigm shows how AI transforms from a cost-cutting tool to a strategic tool that creates competitive advantage and addresses global issues when combined with ESG objectives.

According to the research, purpose-driven AI tactics help develop robust, future-proof businesses that generate value for both society and shareholders.

In conclusion, AI should be seen as a strategic enabler of equitable and sustainable growth rather than just a technical instrument, setting up companies to prosper in a global economy that is becoming more and more purpose-driven. Businesses that see purpose as a material asset and use AI to generate value that benefits society and shareholders alike will be the ones driving commerce in the future.

References

- [1] Elkington, J. (1997). *Cannibals with Forks: The Triple Bottom Line of 21st Century Business*.
- [2] Floridi, L., et al. (2018). *AI4People—An Ethical Framework for a Good AI Society*.
- [3] Jiang, Y., et al. (2021). *Artificial Intelligence and Energy Sustainability*.
- [4] Porter, M. E., & Kramer, M. R. (2011). *Creating Shared Value*.
- [5] Topol, E. (2019). *Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again*.
- [6] Wamba, S. F., et al. (2020). *Big Data Analytics and Firm Performance*.
- [7] UNESCO. (2021). *AI and Education: Guidance for Policy-makers*. Paris: UNESCO Publishing.
- [8] PwC. (2023). *AI and ESG: Measuring Sustainability Impact*. PwC Global Report.