**Knowledgeable Research**
*An International Open-access Peer-reviewed Journal*
**Vol-1, No-2, *August 2022***
**Web: http://www.knowledgeableresearch.com/**
*https://doi.org/10.57067/pprt.2022.1.2.1*

# Sustainable Technology and its Role in Business Innovation

Pankaj Singh
*Dept. of Commerce,*
*Bala Devi degree College, Bisalpur, Pilibhit*
*Email: psingh78@gmail.com*

**********

## Abstract

*Innovation and sustainable technology are becoming more and more intertwined. Indeed, innovative, cutting-edge technology can significantly reduce environmental burdens, enhance social circumstances, and foster economic progress. However, there are gaps in the research about what motivates the creation of "sustainable" technical breakthroughs, what fosters their expansion, and what motivates organizations to adopt "sustainable" technological innovations. The design and analysis of intricate, integrated management systems as well as sustainable development are frequently linked to sustainable technology, which is a key area of study for environmental science and the advancement of the world economy. Waste minimization and reduced material and energy input are the most important environmental objectives. The current study looks at the connection between innovation and environmentally friendly technology.*

**Keywords :** Sustainable technology, Business innovation

**********

## Introduction

Technology and enterprise innovation are propelling the financial system towards the hooked-up dreams for sustainable development. Because the generation we hire in enterprise operations has an effect at the environment, society, and financial system, generation and enterprise corporations are perpetrators of cap potential damage and feature accidental effects for the financial system, society, and environment. At the equal time, those actors are important in growing sustainable technology for sustainable corporations to resolve those difficulties. As a result, while drawing near sustainable enterprise method via a sustainable enterprise, generation, and innovation paradigm, the focal point is on generation and enterprise innovation. The significance of incorporating sustainability into the employer version to set up or preserve a aggressive side in an ever-converting financial system is underlined. Sustainable technical advances allow you to make bigger your operations and develop your enterprise with the aid of using permitting you to discover new markets. A latest McKinsey survey in Germany reaffirmed the cost of generation withinside the workplace. The evaluation located that a employer's capacity to develop may be boosted via fast adoption of automation. Furthermore, generation improvements along with predictive analytics and device mastering permit you to forecast destiny consequences for enterprise

movements primarily based totally on historic data. They help you in appropriately awaiting your clients' reactions to new merchandise or advertising initiatives.

**Objects of study**

Objects of study are as follows :

- to gain knowledge on sustainable technology
- to comprehend the significance of sustainable technology in business innovation

Concept of Sustainable technology

Sustainable technology refers to innovation that takes into account natural resources while also promoting economic and social growth. These technologies aim to dramatically decrease environmental and ecological concerns while also producing a long-term product.

Technology sustainability can be described in several ways:

**Substitution.**

In its production, the technique encourages a shift from non-biodegradable to biodegradable materials. It also substitutes renewable resources for nonrenewable ones. Through its usage or manufacturing, sustainable technology prevents deterioration, pollution, and other negative environmental repercussions.

**Efficiency.**

In terms of energy and resource usage, the technology is efficient.Technology that is sustainable has already found its way into general use and innovation. The following are some examples of sustainable technology and innovations:

**Concept of Innovation**

Innovation is described because the software of thoughts generated thru innovative processes. Innovation is the embodiment, combination, and/or synthesis of know-how into new goods, processes, or offerings which can be unique, relevant, and valuable. It is the technique of turning a sparkling and innovative idea or invention right into a service or product that provides cost or that clients could pay for. You use creativity to reinforce your hassle-fixing skills. So you are now no longer completed till you've got created a product, service, or technique that fulfils the preliminary call for or solves the hassle you recognized on the start. It has to do with the commercialization of innovative inventions, which occurs while a person

complements or provides cost to modern products, processes, or offerings. Entrepreneurs are more and more more prioritising enterprise innovation withinside the modern virtual generation with a view to get aggressive benefits and reap advanced performance. Within the sustainable employer improvement idea, the Triple Integrated Equation (TIE) incorporating social, ecological (environmental), and financial features has merged the views of ecology and society to the already present financial equation.

**Types of Business Innovation**

Depending on the classification criteria, different types of innovation are recognised. The four fundamental invention kinds are briefly explored below, regardless of the classification basis:

**1. Creation:**

The term "innovation" refers to the first time the production of a new product or service, or the introduction of a new technique. A device, method, composition, or procedure that is original or novel is called an invention. So, from an organisational sense, it's always vital to plan five and 10 years ahead, and to keep pushing the limit even if there isn't a customer today. Customers may not benefit from innovations today, but they may benefit from them in the future.

2. **Lengthening**:

A new use or application of an already existing product, service, or process can be defined as an extension. As a result, you're no longer striving to solve problems, but rather assisting others in solving new challenges and devising novel solutions. The majority of innovation occurs here since we are usually trying to improve on what we are already doing. We want to strengthen existing capabilities in existing markets, and we know what problems need to be handled and what skill areas are required to do so. One disadvantage is that incremental improvements may not always have a large impact because they are typically only marginally better than what is currently available.

**3. Repetition:**

Innovation is the result of creativity and manifests itself in the form of new modifications to products, processes, or services. The creative imitation of an established notion is known as duplication. It makes use of your current technology and adds value to the client (new

features, design tweaks, etc.) in your current market. In some way, almost every company engages in incremental innovation.

**4. Composition:**

It is the incorporation of existing concepts and variables into a new formulation or application. Most breakthroughs are the outcome of a deliberate, targeted quest rather than a flash of inspiration. Most breakthroughs are the outcome of a deliberate process that often goes through numerous phases rather than being the result of sudden discoveries. As long as the new market is receptive, this invention is fantastic at attracting new customers. Because of the dependence on and reintroduction of known technologies, the danger of synthesis is usually modest. Most of the time, it will need to be tweaked to meet the needs of the new market.

**Business innovation and sustainable technology**

Sustainable technological innovation is important, however there could be no commercial enterprise with out commercial enterprise version innovation. Many businesses, on the opposite hand, have thrived due to commercial enterprise innovation, with out the want to increase new era or whatever new at all. The effect of era on commercial enterprise has ended in huge will increase in exchange and commerce. As a end result of the advent of era, commercial enterprise standards and fashions have been changed. This is due to the fact era has furnished a brand new and advanced technique of undertaking commercial enterprise. It made undertaking commercial enterprise transactions easier, greater convenient, and greater efficient. Accounting systems, control facts systems, factor of sale systems, and different less difficult or greater complex units are examples of technological acts in commercial enterprise. Even the calculator is a technological device. It's hard to assume going again to a time while the whole lot became finished manually, which could basically entail beginning once more from the beginning.

Following are some examples of future business innovation.

**1. Electric vehicles**

Commercial fleets might quickly follow in the footsteps of personal electric vehicles, which are gaining market share. However, a thorough grasp of the total cost of ownership is

required to facilitate a smooth transition. Electric trucks, sometimes known as "eTrucks," were once prohibitively expensive. However, due to increasingly cost competitive and available electric vehicle infrastructure, total cost of ownership may soon be comparable to diesel-powered trucks. By 2030, we believe that the adoption of battery electric commercial vehicles (BECVs), particularly in the light- and medium-duty categories, will have surpassed that of electric cars in several countries. Although many heavy-duty BECVs may require charging in the middle of their journey, our research shows that for early adoption, a charging station every 80 to 100 kilometres on popular routes will sufficient.

**2. Low-cost energy storage**

The rise of electric vehicles has exploded the market for lithium and cobalt batteries, lowering their prices dramatically. Lithium ion batteries currently cost $200 per kilowatt-hour, down from $1,000 nine years ago. The increased battery market has ramifications beyond electric vehicles. They are increasingly being used as energy storage solutions by industry and utilities. Batteries are proven beneficial in lowering power costs, increasing dependability and resiliency, and making power systems more flexible to operate, thanks to constantly falling battery prices. However, because cheap energy storage is widely available, utilities will need to adapt swiftly. One option is to switch from a variable pricing structure to a set cost for grid access (similar to cable TV), especially as more people start to generate their own energy. Another option is to improve circuit-by-circuit nodal planning in grid-planning systems.

**3. Recycled plastic**

Every year, 260 million tonnes of plastic garbage are produced around the world, yet only 16 percent of it is recycled. The plastics industry has the opportunity to transition from a "take, make, and dispose" business model to a circular model, which strives to eliminate waste across sectors while generating economic, societal, and environmental advantages. Pyrolysis, which employs heat and the absence of oxygen to turn plastic waste back into liquid feedstock, is one possible circular process. With a recycling-based profit pool estimated at $55 billion during the next decade, the benefits are both economic and environmental.

**4. Solar energy is readily available.**

Renewable energy will continue to grow increasingly affordable and accessible through 20o20, a trend that will have significant ramifications for the approximately 1 billion people

who do not have access to power around the world. While expanding the grid is a component of the access answer, countries in Sub-Saharan Africa and the Caribbean, which account for the majority of the world's unelectrified population, are looking into renewable energy such as solar to deliver energy to millions of people rapidly and cheaply. Solar home systems (SHSs) that were previously unaffordable can now be a smart alternative for communities that are too far from a dependable grid connection thanks to innovative financing plans. According to a recent McKinsey report, SHSs can assist power 150 million households by 2030.

**5. Carbon capture and storage.**

Rather than focusing solely on totally decarbonizing the primary industrial commodities driving plastics and cement, we might also investigate safely capturing the carbon released during production. CCS allows businesses to capture carbon at its source, compress it, and transport it to a suitable long-term storage location. Not only does the technology have the ability to drastically cut greenhouse gas emissions, but it also has the potential to generate additional revenue if CO2 can be profitably employed to produce other products. Manufacturers who use captured carbon to make plastics like polyurethane are among those already striving to put captured carbon dioxide to commercial use. Previously, emerging technologies such as direct air collection were too expensive to apply at scale. However, according to a new Stanford University study, the cost of direct air capture, which captures carbon dioxide from the air and turns it into synthetic fuel, might someday fall to $100 per tonne of CO2.

**6.The role of hydrogen in the energy transition**

It's difficult to conceive meeting aggressive global warming targets without considering hydrogen as a crucial component of the answer. By 2050, hydrogen-powered vehicles are expected to power more than 400 million cars, 15 to 20 million buses, and more than 20% of passenger ships and locomotives, according to hydrogen-led environmental approaches. While battery-powered electric vehicles have a higher overall fuel economy, hydrogen-fueled fuel cells can store more energy while being lighter. As a result, they're an excellent choice for huge freight vehicles that need to travel great distances. Fuel cell vehicles fueled by hydrogen are already on the road in Japan, South Korea, California, and Germany, with more than ten types expected by 2020. In short, hydrogen fuel has the potential to assist the world achieve its objective of reducing carbon dioxide emissions by 60%. Although the essential

technology is currently available, the cost of manufacturing hydrogen must drop dramatically, and the infrastructure supporting it must improve. By acting as a long-term transit and storage solution for renewable electricity, hydrogen could help make other renewables more efficient. It has the potential to be a critical enabler in the energy transition.

## Conclusion

Based on the findings, it can be concluded that technology and innovation complement each other. Around the world, technology tools and advancements are growing increasingly popular. A business boardroom will quickly resemble a scene from your favorite science fiction novel. Invest in an appropriate business technology programme to help with the corporate world's technological change. Sustainable technology is frequently associated with the design and analysis of complex, integrated management systems as well as sustainable development, and it is a major focus of environmental science and global economic development. The long-term view of design for environmental sustainability is that of adapting to a lifestyle that fits current demands without jeopardizing future generations' needs.

## References

1. Ardito, L., Messeni Petruzzelli, A., & Albino, V. (2016). Investigating the Antecedents of General Purpose Technologies: A Patent Perspective in the Green Energy Field. Journal of Engineering and technology management, 39), 81-100.
2. Ardito, L., Messeni Petruzzelli, A., Pascucci, F., & Peruffo, E. (2019). Inter-Firm R&D Collaborations and Green Innovation Value: The Role of Family Firms' Involvement and the Moderating Effects of Proximity Dimensions. Business Strategy and the Environment, 28(1), 185-197.
3. Ardito, L., Petruzzelli, A.M., & Ghisetti, C. (2019). The Impact of Public Research on the Technological Development of Industry in the Green Energy Field. Technological Forecasting and Social Change, 144), 25-35.
4. Cheng, C.C.J. (2020). Sustainability Orientation, Green Supplier Involvement, and Green Innovation Performance: Evidence from Diversifying Green Entrants. Journal of Business Ethics, 161(2), 393-414.

5. Cillo, V., Petruzzelli, A.M., Ardito, L., & Del Giudice, M. (2019). Understanding Sustainable Innovation: A Systematic Literature Review. Corporate Social Responsibility and Environmental Management, 0(0.

6. Fraccascia, L., Albino, V., & Garavelli, C.A. (2017). Technical Efficiency Measures of Industrial Symbiosis Networks Using Enterprise Input-Output Analysis. International Journal of Production Economics, 183), 273-286.

7. Gasparin, M., Green, W., Lilley, S., Quinn, M., Saren, M., & Schinckus, C. (2020). Business as Unusual: A Business Model for Social Innovation. Journal of Business Research.