Online at: https://researchtrendsjournal.com ISSN No: 2584-282X

INTERNATIONAL JOURNAL OF TRENDS IN EMERGING RESEARCH AND DEVELOPMENT

Volume 2; Issue 2; 2024; Page No. 08-10

Received: 04-01-2024
Accepted: 14-02-2024

Digital transformation towards sustainable development in the future

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Abstract

Digitalization can play an intersection role in prompting sustainable development. Innovative technologies AI, IoT, and blockchain will be playing a facilitating role in environmental conservation, social inclusion, and economic growth. Mitigation of environmental challenges in several forms such as climate change, and pollution, and promoting social, and economic development through fostering healthcare advancements, education accessibility, and economic empowerment. This study will concentrate on the exploration of the role of digital transformation for sustainable development highlighting its benefits, associated risks, and obstacles in the form of privacy concerns, technological dependence, and disparities in technological accessibility. It will suggest how the stakeholders' governments, businessmen, NGOs, and academicians can play vital roles and promote job creation, economic growth, and holistically maximizing the benefits, mitigating the risk of digitalization in sustainability efforts.

Keywords: Digital transformation, sustainable development digital technologies, barriers to digital transformation

Introduction

Presently the issue of digital transformation and promoting sustainability is gaining attention in business and academic fields. Digital transformation is the rewiring of the organization, with the objective of continuous value addition through the integration of rising digital technologies in every functional area of business from supply chains & workflows, to customer interactions & value propositions for other stakeholders. It should begin with a clear vision, opportunity, and goals, including the transformation of business processes, elimination of redundant activities, and automation of manual handoffs to prevent errors. (Elgohary, 2022) [3]. Through digital transformation productivity will be enhanced and the velocity of business will be increased. digital transformation has the potential to revolutionize the way businesses operate and deliver value to customers. Digital transformation has a wide range of definitions, the basic tenet of digital transformation is it focuses on a fundamental change of processes, enabled by innovative adoption of technology aiming at radical improvement of the enterprise. The origin of digital transformation can be traced to the 20th century however it has become a buzzword now, digital dealing of products and services was already been discussed in the 1990s for online sale of products and services Sustainable development can defined as promoting the development in such a manner that presently the resources should be used efficiently and effectively so that need of future cannot be compromised. Thereafter scope has been extended to economic and social, and environmental concepts. It also focuses on the protection of the natural environment. In light of this understanding, it can be said that it focuses on such a way of managing the transformation so that it can at same promote the economic, social & environmental aspects also. (Alojail & Khan, 2023) [1] Digital transformation not only focuses on radical transformation in the manner the information is being processed but also on the overall business model or adopting totally a new model of transformation. (Dyatlov *et al.*, 2019) [2] Planning for sustainable development through digital transformation relies on the notion of continuous improvement in technological upgradation with analysis of impact in a broader perspective of economic, social, and environmental impact. Key aspects to be addressed are minimization of e-waste, optimum energy consumption, and environmental footprint through the adoption of particular technology.

These efforts will help the organization achieve operational efficiency and effectiveness with cost savings and it will add to economic growth.

Objectives

The present study has adopted an exploratory approach through the synthesis of information from previous research, and prominent digital technology-based companies such as Microsoft, a software-based US company that specializes in manufacturing, and selling software and also produces personal computers Oracle specializes in selling database software and technology Intel is a US multinational company specialized in production of semiconductor chip Google LLC it is a multinational technology company profiles are visited to understand their strategies for sustainable development through digital transformation. The idea behind choosing these companies is they being dominant players in the digital transformation market, can provide innovative approaches to how to adopt digital technologies for promoting sustainable development.

The two objectives that the present study will cover

- What are the approaches of these leading multinational technology-based companies for dealing with digital transformation?
- Secondly, discussion on the benefits of digital transformation and sustainable development.
- Lastly, highlighting the major hurdles that might come in way.

Methodology

The present study has adopted the secondary method for the collection of data. Firstly the concepts of digital transformation and sustainability are being understood thereafter how sustainable development will be promoted through the convergence with technology. The websites have also been accessed to understand the concept, and data has been accumulated from newspapers & magazines.

Findings

Approaches adopted by the above-discussed companies are firstly they addressed climate change as a serious issue and discussed that we adopted such an approach so that emissions can be reduced reasonably. Intel adopted the strategy to purchase and rely more on renewable energy sources or alternative measures.

Next after the climate, they discussed water management, waste management was directed through conversion and recycling, composting, and donations and avoiding 80% of waste to go global for landfilling.

Next the circular economy to motivate the world to adopt such an approach so that waste can be reduced at the global level through sustainable design principles.

Adopting strategies for the benefit of nature and biodiversity as we are relying on the climate to meet all our needs, so efforts should be made in such a manner that the environment should be protected we must assess the health of our nature. A more sustained and integrated practice should be adopted to understand what is happening around us, technology also provides massive assessment to guide the effort in the right direction.

To develop a strategy for digital transformation aligning with sustainability following are the strategies

- Understand the market, & its customers.
- Develop a futuristic vision for an organization and where it wants to stand in the future.
- Building a sustainable framework through monitoring of digital transformation and emerging technology.
- Support the development of digital and data-related skills.

Digital transformation will promote the following benefits linked with the sustainable promotion of business. (ElMassah & Mohieldin, 2020) [4].

- Increasing efficiency and productivity
- Better Management of resources
- More resiliency.
- Greater agility.
- Improving customer engagement and personalization.
- Promoting greater innovation.

Operational efficiency

Through the automation of manual processes, operational efficiency can be increased

- Reducing repetitive & time consuming tasks, reduction of human errors, and improvement of productivity.
- Employees will focus on more strategic issues and value-added activities.
- Improving communication by adoption of innovative tools
- Instant messaging and video conferencing will reduce the hurdle of distance.
- Data analytics tools will help in gaining valuable insights into customer behavior, market trends, and operational efficiency.
- These strategies will empower the organizations for continuous improvement and remain competitive.

Environmental value addition

Promoting innovation, and operational efficiency, through the adoption of digital technologies, or other additional benefits.

Reducing the need for physical resources through automation will add to the reduction in energy consumption, reduction in carbon emission and reduction in waste generation.

Enhancing digital methods for communications and collaborations will also add to reducing transport-related emissions.

Competitive Advantage

Digital transformation talks about leveraging the emerging technology of artificial intelligence, machine learning, cloud computing, and big data analytics.

These efforts will facilitate the organizations in positively improving agility and responding to market dynamics.

Improving the governance and management

Stakeholders of organizations such as employees, suppliers, stakeholders, and other related parties should be involved actively in the digital transformation journey. Identification of resources required, and technology infrastructure, ensuring timely availability and appropriate use.

Adopting Risk Mitigating Strategies

Risk can be of any form that can arise through technical challenges, resource constraints, and regulatory aspects, these should be properly mitigated, planned, and organized manner that should be adopted to remove the hurdles and ensure a smooth process of transition.

Essential resources and its successful implementation

To promote digital transformation careful planning, execution, and ongoing support are required. The experts who are experienced in the field of innovation, change management, and data analytics should be engaged to play a key role.

Experts and consultants will be guided with proper innovative solutions promoting sustainable development in digital transformation.

Hurdles in the way to promoting digital transformation toward sustainable development

Though the digital transformation will accelerate progress at the same time it will widen the socioeconomic gaps for those lacking connectivity, affordable devices, and skills. (Rupeika-Apoga & Petrovska, 2022) [5].

- Lack of collaborative culture.
- Lack of executive sponsorship
- Lack of clear digital transformation goals.
- Investment not made inappropriate oversight.
- Legacy application
- Infrastructure complexity.
- Shortage of IT security
- Lack of appropriate funding options
- Resistance to change

Conclusion

The concepts of sustainability and digital transformation discussed highlighted how digital transformation will promote sustainable development. Through the findings the present study will be providing direction to policyholders, businessmen, organizations, and other interested parties that digital transformation is the need of the present scenario but why there is a need for focusing on sustainability aspects too and interlinking it with the same. The study provides evidence that through digital transformation sustainable development goals can be promoted and also add in increasing the efficiency of organizations and reducing wastage.

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