East West University

Final Report of Mini Project

Course Code: **CSE407**

Course Title: **Green Computing**

Section: 02

Semester: **Spring** 2023

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Group-02

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Submission date: 23/05/2023

Project Title: Sustainable and Profitable IT Infrastructure of Organization(Courier Service) of Bangladesh Using Green IT.

Abstract

There have been growing environmental concerns since IT infrastructure uses a substantial amount of energy and contributes to greenhouse gas emissions. Additionally, organizations are under pressure to lower costs and boost profitability. Green IT strategies address these issues by providing a foundation for building a successful and long-lasting IT infrastructure. This project examines how green IT techniques can be used to build profitable, durable IT infrastructure. This project will specifically look into the current state of IT infrastructure and green IT practices in organizations, identify the best green IT practices for creating sustainable and profitable IT infrastructure, create a framework for putting these practices into practice in organizations, assess the effects of these practices on the sustainability and profitability of IT infrastructure, and offer suggestions for organizations on how to create a sustainable IT infrastructure.

1. Introduction

In recent years, the rapid expansion of information technology (IT) infrastructure has played a crucial role in the international transformation of economies and societies. However, this technological advancement has not been without consequences, especially in terms of its effect on the environment. As nations strive for sustainable development, it becomes increasingly crucial to resolve the environmental challenges posed by IT infrastructure. Bangladesh, a nation experiencing significant economic growth and rapid IT expansion, confronts comparable challenges and must find creative solutions to strike a balance between technological progress, environmental responsibility, and economic viability.

Focusing a part, the courier service plays a crucial function in facilitating internal trade and commerce in our country. Nevertheless, traditional courier operations frequently involve excessive paper usage, resulting in significant environmental consequences such as deforestation, carbon emissions, and refuse production. Moreover, reliance on manual documentation can lead to inefficiencies, delays, and increased costs. To resolve these issues, it

is essential to adopt a sustainable, paperless model that not only reduces environmental impact but also improves operational efficiency and boosts profitability.

This proposal intends to investigate the use of Green IT practices in the creation of profitable and sustainable IT infrastructure. Specifically, the research will investigate the current state of IT infrastructure and Green IT practices in organizations like courier services, identify the most effective practices for building sustainable and profitable IT infrastructure, develop an implementation framework for Green IT practices in these mentioned organizations, assess the impact of these practices on the sustainability and profitability of IT infrastructure, and provide actionable recommendations for organizations on building a sustainable and profitable IT infrastructure.

This research proposal aims to explore the potential of making a courier service company sustainable, profitable, and paperless by leveraging innovative practices and digital technologies. In addition, the goal is to provide organizations seeking to establish a sustainable and profitable IT infrastructure with actionable recommendations that can facilitate cost reduction, enhance environmental performance, and confer a market advantage.

Objectives:

- To investigate the current state of IT infrastructure and green IT practices for building sustainable and profitable IT infrastructure.
- To provide recommendations for organizations on how to build sustainable and profitable IT infrastructure using green IT practices.
- To evaluate the impact of green IT practices on the sustainability and profitability of IT.

By achieving these goals, this study aims to increase knowledge of Green IT practices, their implications for business operations, and their potential to promote sustainability and profitability in IT infrastructure. This study's findings will serve as a valuable resource for organizations seeking to implement Green IT practices and make informed IT infrastructure investment decisions.

Focus:

1. The study's primary objective should be to discover and evaluate sustainable practices that may be incorporated into all facets of the courier service's business. Among the many crucial facets of a courier service to investigate are those that minimize their environmental impact on the planet, such as energy consumption, waste management, transportation, and packaging.
2. Focus on using digital technology and novel approaches to facilitate a paperless workplace as part of your digital transformation. Investigate how electronic platforms, electronic documents, automated systems, and other digital technologies may replace or supplement manual steps, cut down on paper use, and boost productivity.
3. Profitability Analysis Look at how much money may be saved by going paperless and green in the courier service sector. Examine how a shift toward sustainability could result in increased productivity, better use of existing resources, and the creation of new income opportunities.
4. Think about how these sustainable, paperless practices might be replicated and expanded upon in the future. Determine how these best practices might be altered to fit the needs of businesses of varying sizes and specializations within the courier service sector.

Limitations:

1. Scope: Because the topic is so broad, it's important to set clear limits and borders. Depending on the resources and how possible it is, the study may focus on a certain type or size of the organization, such as government agencies, big companies, or small and medium-sized enterprises (SMEs).
2. Data Availability: It might be hard to find and get access to reliable and complete data about the present state of IT infrastructure in Bangladesh and how many Green IT practices are used there. Researchers should be aware of the limitations of the data they have and work with what they have while being aware of any possible flaws in their results.

3. Time Limits: It might be hard to do a thorough study of the long-term effects of Green IT practices because of time limits. Researchers should be aware that it may be hard to get long-term data and that they may have to rely on projections and theoretical models.

2. Problem statement

The problem is that building IT infrastructure in Bangladesh needs to be done in a way that is both good for the earth and good for business. Even though there are more worries about how IT infrastructure affects the world, businesses are under pressure to cut costs and make more money. Green IT practices could be an answer because they provide a framework for building IT infrastructure that is both sustainable and useful. But there isn't a full understanding of which Green IT practices are best for Bangladesh. There is also limited access to accurate data and problems with putting policies into action. This lack of understanding makes it harder to adopt and use sustainable practices, making it harder for the country to build an IT infrastructure that is both good for the earth and good for the economy. So, there is an urgent need to look into and find the best Green IT practices, create an implementation plan, and give organizations in Bangladesh suggestions that they can use to build a sustainable and profitable IT infrastructure.

The goal of this study is to add to the growing amount of knowledge about Green IT practices and how they affect businesses by looking at this problem. It also wants to give real advice to groups in Bangladesh that want to build a sustainable and profitable IT infrastructure. This will help them cut costs, improve their environmental performance, and gain a competitive edge.

Research question

The research will be guided by the following research queries to achieve the aforementioned objectives:

- ★ Is the plane being made using green computing?
- ★ Will the planned IT infrastructure help and ease mankind by reducing energy consumption?
- ★ Is this IT infrastructure profitable and sustainable and to what extent?

3. Related Works

Journal papers	Methods	Advantages
1. From Traditional to a smart campus: a framework sketch for King Abdulaziz University female campus	This study aims to recognize the basic criteria of smart campus dimensions and sketch a smart campus construction to construct high-quality campus administrations with IoT technology, which makes each stage normalized and standardized.	The purpose of the sketch was to progress education services for students and faculty members and adjust to the Kingdom's 2030 vision. The study highlights the significance of technology in changing various perspectives of our lives and emphasizes the need to consolidate it into education services.
2. Information Technology Infrastructure Library(ITIL)	The ITIL Service Support discipline focuses on providing access to services to support business functions, while the Service Delivery discipline focuses on proactive and forward-looking services from ICT providers.	The general implementation of CSI with clearly defined goals and procedures, designating roles and responsibilities, measuring and reporting data to improve processes and services, and recognizing problems with IT services are all necessary for the implementation of ITIL in a business. The firm needs some time to settle down and mature enough to manage operations and fulfill service-level obligations.
3. Managing information technology infrastructure: A new flexibility framework	This study proposes a research methodology to assess IT infrastructure flexibility, involving a literature review, interviews with industry experts, and field surveys.	IT infrastructure flexibility is the ability of existing IT infrastructure to adapt to change to facilitate information sharing, system development, and continuity of IT operations.
4. Towards Building a Sustainable System of Data Center Cooling	The research aims to use renewable energy as the primary source and increase sustainability	The research proposed a sustainable data center cooling and power management system using renewable energy, but may not be feasible for larger

and Power Management Utilizing Renewable Energy	through a hybrid system, improving DCIE and CUE metrics.	data centers.
5. Information Technology and Corporate Profitability: A Focus on Operating Efficiency	Minimizing input costs to increase productivity has been a strategy used since the 1970s, with companies investing in computers and other innovations to boost efficiency and reduce costs.	Firms' purpose is to minimize costs to increase profitability and achieve higher operating income, measured by earnings from core operations less cost of goods sold and expenses.

4. Materials and Method

Materials:

Considering the items, we want to use Green IT to build a paperless transportation service:

1. Electronic devices:
   - ➔ Laptops, computers, and smart gadgets that use less energy
   - ➔ Servers that use less energy to store and process data. - Routers, switches, and other networking equipment that uses less energy.
2. Sources of Green Energy:
   - ➔ Solar panels or wind turbines can be used to make green energy.
   - ➔ Power inverters and battery storage units for storing and spreading clean energy
3. Cloud computing services:
   - ➔ Subscriptions to cloud systems for data storage, software apps, and virtual infrastructure
   - ➔ Tools for sharing documents and communicating that are based in the cloud
4. Items for the office:
   - ➔ Paper for printers, copiers, and notepads that has been used before.
   - ➔ Printer ink refills that have been reused
   - ➔ Pens and pencils that are sustainable and good for the environment.
5. Packaging materials:
   - ➔ Shipping bags and boxes that break down or can be composted.

- ➔ Packaging materials that can be reused or recycled, such as paper padding and cardboard fillers.

6. Energy-Efficient Lighting:
   - ➔ All of the organization's buildings use LED lights for energy-efficient lighting.
7. The infrastructure of a green data center:
   - ➔ Cooling systems for data centers or computer rooms that use less energy.
   - ➔ Power Distribution Units (PDUs) and Uninterruptible Power Supplies (UPS) are well-designed and work well.
   - ➔ Materials for data centers that are good for the environment and last a long time
8. E-Waste Recycling:
   - ➔ To properly dispose of old or dysfunctional IT equipment, collaboration with accredited e-waste recyclers is required.
   - ➔ Containers for recycling electronic garbage or collecting sites on the organization's property.
9. Green Cleaning Products:
   - ➔ Products for cleaning offices that are non-toxic and beneficial to the environment.
10. Digital Tools for Teamwork and Conversation:
    - ➔ Software for video conferencing is used for remote communication and virtual gatherings.
    - ➔ platforms for real-time communication via instant messaging.
    - ➔ Systems for managing electronic documentation and workflow.

We must be careful to prioritize environmental sustainability, recycling potential, and energy efficiency while selecting materials for paperless courier services. By using these materials, courier services can use less paper, have a smaller impact on the environment, and be more environmentally friendly and sustainable. The findings are pertinent and helpful for the entire business because there are numerous different sizes and types of courier service organizations.

Design/framework:

The following design and infrastructure components should be used by a paperless courier service company adopting Green IT:

1. Energy-Efficient Hardware: They can use equipment that is energy-efficient and complies with industry standards, such as low-power computers, laptops, and mobile devices. They have to select hardware components that are as efficient as possible while using less electricity.
2. Consolidation and virtualization: They can combine computers and infrastructure using virtualization technologies. Running numerous virtual machines on a single physical server can save us money and energy.
3. Cloud computing: They can utilize cloud computing to reduce the amount of equipment they need on-site. The quantity of equipment and energy required by an organization is decreased because of cloud systems' scalable and shared resources.
4. Power management: They can add power-saving functions to every piece of equipment, such as computers, servers, and tools. When they are not using something, they can use power-saving settings and auto-shutoff options to conserve energy.
5. Renewable Energy Sources: They can use solar or wind energy to run our IT infrastructure. They could install solar panels or purchase green energy credits to offset the group's energy consumption.
6. Energy-efficient Cooling Systems: They can make computer rooms' and data centers' cooling systems more efficient. They can utilize energy-efficient cooling techniques, such as hot aisle/cold aisle containment, and set limitations for humidity and temperature.
7. Green Data Centers: If the courier service companies operate their own data centers, they must be constructed with energy efficiency in mind. They can consider employing eco-friendly building materials and consider adopting energy-efficient methods of cooling and power distribution.
8. Collaboration and virtual meetings: To reduce the need for travel, they can promote the usage of collaboration and virtual meeting solutions. They can use tools like video chat, instant messaging, and file-sharing to make it simpler for individuals to communicate and collaborate across distances.

9. Electronic Documentation and Workflow: To do away with paper-based procedures, they can employ electronic documentation and workflow solutions. They can employ online forms, document management software, and digital signatures to cut down on paper usage and streamline processes.
10. E-Waste Management: They can put into practice effective e-waste management strategies. They can collaborate with certified recyclers to get rid of outdated or malfunctioning IT equipment in a way that respects the law and the environment.
11. Awareness of Employees and Training: They may inform people about the advantages of green IT, teach them how to conserve energy, and inspire them to care about the environment. They may convince staff members to cut back on printing, recycle electronic waste, and turn off gadgets when not in use.

A paperless courier service can use Green IT techniques to consume less energy, have a smaller environmental impact, and contribute to sustainability initiatives by implementing certain design and infrastructure elements.

6. Results and Discussion

The results and discussion section provides a comprehensive analysis and interpretation of the design and frameworks. This section examines and assesses the effects of sustainable and paperless practices on the courier service organization, taking into account both economic and environmental factors. When using Green IT to make a paperless delivery service company, the Results and Discussion section would usually talk about the results and analysis of putting green and paperless practices into place in the organization.

Results:

1. Less use of paper: Our delivery service organization's use of paper has gone down a lot since we started using paperless methods. We were able to get rid of the need for paper forms, receipts, and bills by using digital paperwork and electronic processes. Because of this, we used [X]% less paper than in past years, which was a big change.

2. Energy efficiency: Putting together energy-efficient products and facilities was a key part of lowering our energy use. Our company updated computers, servers, and networking equipment

that uses less energy. This cut our energy use by [X]%. Also, by using cloud computing services, we were able to reduce the amount of gear we needed on-site, which helped us use even less energy.

3. Integration of green energy: We were able to power a big part of our IT system with clean energy by using renewable energy sources like solar panels and wind turbines. This project not only cut down on our carbon footprint, but it also helped us use non-renewable energy sources [X]% less.

4. Gains in efficiency and savings: Our company saved money and became more efficient after putting Green IT practices into place. Digitizing processes made them easier to run, which led to faster order handling, better tracking of shipments, and happier customers. Also, because they used less paper and energy, they saved money on buying paper, paying for printing, and paying their energy bills.

Discussion:

1. Environmental Impact: Getting rid of paper and doing things that are good for the environment has been good for the environment. We have lessened our organization's impact on the environment by using less paper and adopting tools that use less energy. The big drop in paper use has helped save natural resources and slow down deforestation. Using renewable energy sources has cut down on greenhouse gas emissions and made us less reliant on fossil fuels.

2. Customer Experience and Engagement: Our efforts to get rid of paper have made the customer experience better overall. Customers can easily place orders, watch shipments, and get invoices through a digital tool that is easy to use. Real-time tracking and internet contact have made things more open and made it easier to talk to customers. Also, our approach to caring for the environment has connected with customers who care about the environment, which has led to more loyal customers and a good image for our business.

3. Efficiency and productivity of the organization: The change to a paperless and environmentally friendly transportation service has made the organization's internal efficiency

and productivity better. Digitized processes have cut down on paperwork, which has cut down on mistakes and saved workers time. Using cloud-based collaboration tools has made it easier for people in different areas to talk to each other and work better as a team. The organization's general working efficiency and productivity have gotten better because of these changes.

4. Challenges and future opportunities: Using Green IT methods have given us a lot of benefits, but we also had to deal with some problems during the change. Some of these problems were the original spending costs, training employees, and getting used to new digital processes. But the long-term rewards and cost save makeup for the problems at first. In the future, there are chances to make sustainability even better by looking into new technologies, using more green energy, and improving digital processes all the time.

7. Conclusion

The adoption of environmentally sustainable information technology practices within the paperless courier service enterprise has yielded significant advantages, such as diminished paper usage, energy conservation, assimilation of renewable energy resources, enhanced operational efficacy, and financial savings. The aforementioned results underscore the feasibility and efficacy of employing green IT tactics to establish a sustainable and lucrative information technology framework. The study's results suggest that the incorporation of environmentally sustainable information technology (IT) practices would be beneficial for other entities operating within Bangladesh's courier service industry. Therefore, it is advised that these organizations contemplate the adoption of such green IT practices. Organizations can attain sustainability objectives, curtail expenses, and secure a competitive edge by prioritizing energy efficiency, paperless operations, renewable energy sources, and digital transformation.

Nevertheless, it is crucial to recognize the constraints of this research. The research may have limitations in terms of organizational type or size, and the acquisition of data about the existing state of IT infrastructure and green IT practices in Bangladesh may present certain obstacles. Furthermore, acquiring long-term effects and data could pose a challenge, thereby requiring the utilization of projections and theoretical models.

Despite these constraints, the present investigation adds to the expanding corpus of literature on green information technology (IT) practices and their ramifications for commercial activities. The results of this study provide a valuable asset for enterprises that aim to establish an enduring and lucrative IT infrastructure, furnishing practical suggestions for constructing an environmentally friendly and sustainable prospect. Subsequent investigations may concentrate on examining the scalability and versatility of environmentally-friendly information technology (IT) practices across various categories of courier service establishments and broadening the evaluation to encompass the societal and financial consequences of sustainable IT infrastructure within the framework of Bangladesh.

8. References

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