

The Prospects and Challenges of Digital Financial Services in the Post Pandemic World for Developing Countries: The Role of E-Commerce in Context of 4IR in Bangladesh

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Abstract: The 4th Industrial Revolution (4IR) technologies are being rapidly implemented in developing countries, but the corona virus pandemic has slowed their acceptance. In light of this, this article provides an overview of the opportunities and problems associated with 4IR technologies in developing nations such as Bangladesh. This study attempts to uncover the prospects of Digital Financial Services (DFS) in Bangladesh by introducing related ideas such as 4IR and digital economy. The report then goes over the major IT infrastructure issues, as well as a few regulatory and operational limits, such as digital illiteracy, digital infrastructure and access gaps, regulatory and policy gaps, and skill and education gaps. To close these gaps, the study suggests ways for governments in the region to work together to accelerate the adoption of 4IR technology. The article provides an introduction of Digital Financial Services (DFS), which aims to speed up 4IR technology innovation in Bangladesh in order to meet the SDGs by 2030. Policymakers, academics, learners, specialists, and stakeholders in digital financial services will benefit from this study.

Field of Study: E-Commerce and 4IR

Abbreviations: DFS= Financial Services, 4IR= fourth industrial revolution, CR= Corporate Responsibility, SDG= Sustainable Development Goals

1. Introduction

Various studies have defined Ecommerce and digital financial services in various ways. However, the majority of the definitions of e-commerce explain that purchasing and selling goods and services over the internet utilizing electronic payment methods is Ecommerce. In the context of 4IR of different fast moving consumer goods and services, Anna Zinola (2020) stated that the pandemic has affected purchase and consumption attitudes and behaviors. Online selling is now considered a worldwide incident. The majority of studies have focused on developed Western countries. The growing economies of Africa, Asia and Latin America who were sluggish to adopt electronic marketplaces and enterprises at first, now significantly investing in Ecommerce infrastructure. The purpose of this article is to better understand some of the techniques for selling online in emerging countries, as well as the challenges that come with digital financial services. Arpita Pandey and Dheeraj Sharma's paper on Ecommerce Selling in an Emerging Economy was published in 2016 stated that some success elements for entering and sustaining in emerging markets with an online sales strategy to establish a personalized and differentiated value offer and manage the customer experience to think long term. As a result, promising nations might be fertile ground for massive online sales growth, but they face their own set of the challenges and impediments that are distinct from market circumstances in developed markets.

Purcarea, Ioan Matei (2021) stated that marketing teams are experiencing significant hurdles in terms of digital marketing, social media marketing frameworks and comprehending the development of Ecommerce in the digital neo-economy. There is no doubt about the importance of discovering by learning and taking into account the importance of innovation exploration and discovery, as well as the importance of using data to apply Artificial Intelligence as we approach a new era of innovation in e-commerce digital payment in 4IR.

Jun Chen, ShiyanXu, YuxinTian and Chenyang Zhao presented a structured literature review of cross-border e-logistics research on e-commerce in order to identify existing gaps and opportunities in digital financial services to develop practical strategies to balance logistics costs and service levels. The role of e-commerce in the context of 4IR in Bangladesh must be re-engaged, which includes being open to learn in order to solve problems for people, combining personalization with automation, updating data collection methods, ensuring customer trust, and, last but not least, continuously nurturing marketing expertise and soft skills. Within the retail industry's vast shift of value to online, the current growth of retail ecommerce sales, evaluative aspects, and future perspectives, including the need to seamlessly connect the mobile banking financial services customer experience with the in-store experience, are all major concerns today. Consumers' behaviors are constantly changing, according to Mandal, Sudipta, and Sharma, Dheeraj (2016), as they assess the prices charged for products based on digital financial services via e-commerce information available from various communication channels, social networks, prior purchasing experience, the point of purchase, online resources, and other sources.

Tim Dixon and Marston Andrew (2003) identified some major developments in digital financial services in e-Commerce from the perspectives of both consumers and marketers, focusing on their strategic responses and retail sector constraints. The position of the worldwide e-Commerce marketplace was also investigated using policy implications for governments in regard to urban design and form in developing nations such as Bangladesh. Working groups in the process of digital financial services of e-Commerce project management for the twenty-first century A.V. Gorkusha and Ju. I. Enin (2018) explained organization and coordination in the process of digital financial services of e-Commerce project management. Chao Chiang-Nan (2017) Marketers who have spent money on smart phone ads have discovered that programmatic advertising allows them to better target customers, especially when they discover that phone users are interested in specific products while browsing digital financial services in 4IR. These studies focus on the success of e-commerce, DFS, mobile banking, and mobile marketing through an empirical survey and verifying this marketing trend some important insights for marketers in their future marketing activities. This article examines the opportunities and constraints of digital financial services in a post-pandemic world for developing countries, as well as the significance of e-commerce in the context of 4IR in Bangladesh.

2. Rationale and Scope of Study

E-commerce digital financing aids online retailers in expanding their businesses, covering marketing costs and increasing sales. E-commerce digital financial services funding is used by online sellers to help them manage their cash flow and meet their payment obligations. DFS is beneficial for managing the capital issue, including pre- and post-issue activities related to the capital and income issuance, as well as arranging for the placement of capital and debt instruments with investment institutions. Having an e-Commerce store can be used to diversify sales by expanding the range of products/services available for sale, expanding the business, bringing in more customers, ensuring reliability, convenient money transfers, and easy and fast online trading. It's worth noting that ecommerce will help both B2C and B2B businesses increase brand exposure and payment security in the market.

3. Objectives of the Study

This study is an attempt for achievement of two major objectives of the prospects and challenges of digital financial services in the post pandemic world for developing countries with the role of e-commerce in the context of 4ir in Bangladesh.

A. General Objective

To analyze the prospects and challenges of digital financial services in post pandemic world of 4IR for developing countries like Bangladesh.

B. Specific Objectives

The specific objectives are:

- To analyze and evaluate the policies from the previous literature review and applications of digital financial services in different organizations.
- To evaluate the execution of E-commerce programs in organizations and to identify the strength and weakness of HRs in organizations.
- To provide information about 4IR concerned regarding the efficiency of the impact of SDGs in Bangladesh.
- To provide some arguments and suggestions with a view to increasing the use of digital financial services in the post pandemic world in most of the e-commerce organizations in Bangladesh and overseas.

4. Methodology of the Study

The research is exploratory in nature and is based on a thorough review of previous relevant studies. This research was based solely on secondary data. Secondary sources of data were gathered from a variety of e-commerce, 4IR, and digital financial services publications. DFS and their impact on organization growth in ecommerce at post pandemic situations have also been gathered from many national and international periodicals, books, newspapers, magazines, and websites. The data was evaluated using a theoretical framework and a variety of literature reviews on this topic.

However, the findings of various prior researches have made significant contributions to the practices and analyses of e-commerce, 4IR, and digital financial services in developing-country companies. To conduct this study, the researcher used systemic search methodology to locate some linked edited unedited direct works and various published and unpublished position papers, which he was able to outline in this existing review of literature.

5. Literature Review

Bangladesh has made significant progress in establishing a digital economy by widely disseminating digital financial services. This rise in the financial technology industry is due to the government's effective legislative reforms and digital Bangladesh strategy. In the altered framework of the fourth industrial revolution, the country has enormous DFS prospects in the next years. Linking 4IR tools, such as 5G networks, AI, the internet of things, and other technological advancements, will open up new horizons of possibility for spreading DFS (Rashid M.H, 2020). DFS are required in locations where financial institutions are limited to promote formal channels of the economic transaction and to increase financial inclusion with accuracy while preventing fraud (Shehab 2019).

Digital Financial Service (DFS) is a cheap financial service that facilitates financial inclusion and reduces poverty, according to Rashid M.H. (2020). Financial technology (Fintech) enables it to reach rural poor people at reduced costs, with greater accuracy, speed, and transparency. Linda Kambale defined financial services such as payments, savings, insurance, remittance, credit, and more that are accessed and supplied through digital channels such as the internet, mobile phones, ATMs, and point-of-sale terminals. Mobile Phone Services is also referred to as DFS (MFS). MFS stands for mobile financial services, which include M-banking, M-money, and M-payment. The relevant terminology of DFS is defined in the World Bank Group Report - 2020. These three primary reasons distinguished 4IR from the third: speed, velocity, and system impact. In 4IR, the changes happen at an exponential rate rather than a linear rate (Xu et al., 2018). In his book, 'The Fourth Industrial Revolution,' published in January 2016, Schwab (2016) explained 4IR by describing how the way people live and work is changing fundamentally. He stated that the 4IR is fundamentally different from the previous industrial revolution, in which humans triumphed over animal power and made significant advances in manufacturing.

In Bangladesh, DFS stands for Mobile Financial Service (MFS), which began with mobile banking services such as Dutch Bangla Mobile Banking and bKash. As of December 2018, at least 18 banks and non-bank financial institutions (NBFIs) in Bangladesh were operating MFS, covering 67 million individuals and showing constant development; the average transaction was around BDT 316 billion. DFS is facilitating financial inclusion for rural people and promoting people's technological adaptation (Kibria, 2019). Bangladesh is undergoing a technology revolution, with a big tech-savvy young,

demographic and 12 million middle-class individuals set to triple by 2025 (Islam, 2018). Network effects, which are separate from traditional corporate networks, are associated with the digital economy, which lower transaction costs, facilitate communication, develop trust, and make authentication simple (Basu et al., 2020; Colin et al., 2015).

Digital platforms are consuming an increasing amount of revenue, and towards the end of 2016, digital ad sales in the United States overtook traditional TV for the first time. This represents a significant change in the way business is performed. It's a new TV paradigm that challenges the old model's viability, much to how the rise of mobile gaming has stifled the expansion of portable gaming devices (Katz, 2016). Adults spent more time on their Smartphone than on desktops, and mobile data traffic is expected to expand at a 54 percent annual compound growth rate from 2015 to 2020 (Cisco, 2016). Wang, et al. (2015), look at how ecommerce solutions cater to a variety of consumers who utilize them for different purposes and in different ways over time. They investigate the biography of mobile text messaging, an example of mobile commerce technology, in China to address the complicated socio-technical situation. They use an actor-network approach to comprehend the evolution and dispersion of text messaging through time, as well as changing actor configurations. Flosi et al (2013) attempted to better comprehend the occurrence of sub-optimal digital campaign delivery in terms of viewability, audience delivery, regional targeting, and brand safety. Several key empirical generalizations that have arisen were emphasized and examined for their significance for the digital advertising ecosystem in this study. Edelman (2014) investigates inefficiency issues that challenge researchers to make mobile surveying more user-friendly.

Huang and Korfiatis (2016) look at mobile app markets to see whether they can assist users figure out if a mobile app is right for them before upgrading or buying it. This study looks at how online reviews influence trial attitude building, a process that naturally has an impact on both users' cognitive structure and emotional responses to online experiences. Chao, et al. (2012) looked into the growth of internet advertising as a key promotion tool, which has encouraged businesses all over the world to change their strategic focus to online media. These mobile-influenced sales numbers reflect in-store product purchases that were made with the help of a mobile device (Fulgoni, et al 2016). Marketers could learn from successful mobile apps produced by huge retailers like the Amazon, eBay, Target, and the Kohl's that cover a wide range of customer needs, as well as research proving that mobile advertising can be more effective than web advertising (Fulgoni & Lipsman, 2016. Liang and colleagues (2015) proposed better understanding of the effect of textual consumer reviews on mobile app success is demonstrated by the empirical analysis. Pousttchi, et al. investigated and concludes that m-commerce in the smartphones era is reinventing established value networks and transforming the economy as a whole. They look at more than a decade of study and find considerable changes in m-commerce subjects over time, as well as some early predictions for the future. They believe that the sector of m-commerce still has to develop a robust theoretical base (Pousttchi, et al 2015). The literature review covers a wide range of topics related to 4IR, DFS, and mobile advertising in e-commerce. This study compares the efficiency of DFS on 4IR e-commerce trading, despite the fact that it intends to focus only on the core concerns.

6. Analysis and Explanation of Study

6.1 4IR Concept and Analysis

The blurring of barriers between the physical, digital, and biological world is referred as the Fourth Industrial Revolution. Artificial intelligence (AI), robots, the Internet of Things (IoT), 3D printing, genetic engineering, quantum computing, and other technologies have all been combined to create it. It's the driving force behind a slew of products and services that are quickly becoming vital in today's world. The Fourth Industrial Revolution is bringing about significant changes in the way we live and impacting nearly every industry. It's all happening at such a rapid pace that the Consumer Success Platform was created to keep up with constantly changing customer expectations. Fourth Industrial Revolution (4IR) is expected to transform society by building the foundations from the previous three revolutions.

The invention of the steam engine in the 18th century ushered in the first industrial revolution, allowing for the first time the mechanization of industry and driving social transformation as people

grew more urbanized. Electricity and other technological advances led to mass production during the second industrial revolution. Computers and digital technology were born during the third industrial revolution, which began in the 1950s. This resulted in increased production automation and industry upheaval.

Due to increased interconnection and smart automation, the Fourth Industrial Revolution conceptualizes rapid change in technology, industry, and societal patterns and processes in the twenty-first century.. Klaus Schwab, the founder and executive chairman of the World Economic Forum and author of the book *The Fourth Industrial Revolution*, described today's advancements as a new revolution. "Like the revolutions before it, the Fourth Industrial Revolution has the potential to boost global income levels and improve the quality of life for inhabitants around the world," Schwab said in a 2016 piece.

6.1.1 4IR Technologies Driving Changes

a. Artificial intelligence

Artificial intelligence (AI) refers to computers that can "think" like humans. They are capable of recognizing complicated patterns, processing data, drawing conclusions, and making recommendations.

b. Block chain

Block chain is a decentralized, secure and the transparent method of recording and distributing data that does not require the use of third-party intermediaries. The most well-known block chain application is the digital currency Bitcoin.

c. Faster computer processing

Computers are becoming smarter thanks to new computational technology. They allow computers to handle massive amounts of data quicker than ever before, and the cloud has enabled organizations to securely store and access their data from anywhere with the internet connection.

d. Virtual reality and augmented reality

Virtual reality (VR) simulates the actual world through immersive digital experiences (through a VR headset), whereas augmented reality (AR) blends the digital and physical worlds.

e. Biotechnology

Biotechnology makes use of cellular and biomolecular processes to create new technologies and products for a variety of applications, such as producing new medications and materials, improving industrial production processes, and developing cleaner, more efficient energy sources.

f. Robotics

Robotics is the study of the design, production and the application of robots for personal and commercial purposes. While robot assistants aren't yet in every home, technological advancements have made robots more complicated and clever.

g. The Internet of Things (IoT)

The Internet of Things refers to the ordinary products that connected with the internet and detectable by other devices implanted into packages.

h. 3D printing

Manufacturing companies can use 3D printing to produce their own parts with less tooling, at a cheaper cost, and faster than traditional methods. Additionally, designs can be altered for a precise fit.

6.1.2 4IR Affects in E-Commerce and Future of Business Work

Customers have more options than ever before, and they're not scared to switch brands for a better experience, thanks to technology that allows businesses to offer greater personalization and more meaningful, integrated experiences across bricks-and-mortar and online channels. The workplace is where the Fourth Industrial Revolution's turmoil is most likely to be felt. As AI and greater automation eliminate many types of occupations, the Fourth Industrial Revolution will have a significant impact on people's livelihoods. At the same time, whole new employment categories are emerging. Businesses

must prepare their staff for the new world that lies ahead as the 4IR reshapes the future of work. This frequently entails a greater emphasis on lifelong learning, up skilling for new job kinds, and a commitment to diversity.

To stay up with changing technologies, businesses will need to ensure that their workforce has the correct balance of skills. According to another poll, 59 percent of recruiting managers believe AI would have an impact on the types of capabilities their firms require. Workers will almost certainly be required to refresh their abilities on a regular basis throughout their careers. Many senior executives are already scratching their heads, wondering how all of this will be accomplished.

We're seeing an increased need for emotional intelligence, creativity, and critical thinking as AI begins to touch the job and automation replaces certain traditional skills. With the Fourth Industrial Revolution providing enormous potential and challenges, we must all work together to guarantee that everyone benefits. The potential of billions of people connected by mobile devices, with unparalleled processing power, storage capacity, and knowledge access, is limitless. Emerging technological developments in disciplines including artificial intelligence, robots, the Internet of Things, autonomous cars, 3-D printing, nanotechnology, biotechnology and quantum computing will multiply these possibilities.

Artificial intelligence is now everywhere, from self-driving vehicles and drones to virtual assistants and investment software. From software used to discover new treatments to algorithms used to anticipate our cultural preferences, AI has made impressive progress in recent years, fueled by exponential gains in processing power and the availability of massive amounts of data. In the meantime, digital fabrication technologies interact with the biological environment on a regular basis. Engineers, designers, and architects are merging computational design, additive manufacturing and synthetic biology to create a symbiosis between microbes, our bodies, the goods we consume, and even the structures we live in.

6.1.3 The Impact of 4IR on Business, Government and People

Indeed, there is convincing evidence that the technologies that enable the Fourth Industrial Revolution are having a significant influence on firms across all industries. Many sectors are experiencing the introduction of new technologies that generate whole new ways of meeting current demands and dramatically disrupt established industrial value chains on the supply side. The creation of technology-enabled platforms that combine demand and supply to disrupt current industrial structures, such as those seen in the "sharing" or "on demand" economy, is an important trend. These digital platforms like Smart phones bring people, assets, and data together, resulting in whole new ways to consume goods and services.

New technologies and platforms will increasingly empower citizens to engage with governments, voice their thoughts, coordinate their actions, and even avoid official oversight as the physical, digital, and biological worlds continue to intersect. Governments will have new technological powers to expand their control over populations, based on ubiquitous monitoring systems and the ability to manipulate digital infrastructure, at the same time. Government systems and public authorities' ability to adapt will ultimately determine their survival. They will survive if they can embrace a world of disruptive change while subjecting their structures to the standards of openness and efficiency required sustaining their competitive advantage. They will confront growing difficulties if they do not evolve.

The 4IR will have a significant impact on national and international security, as well as conflict dynamics. Individuals and small groups will increasingly join states in being capable of causing mass devastation as this process progresses and new technology such as autonomous or biological weapons become easier to utilize. New anxieties will arise as a result of this new vulnerability. At the same time, technological advancements will give rise to the possibility of reducing the impact of violence through the development of new forms of protection. Our feeling of privacy, concepts of ownership, consumption patterns, the time we give to work and leisure, and how we develop our jobs, cultivate skills, meet people, and nurture relationships will all be affected by the 4IR.

6.2 Electronic Commerce (E-commerce)

Electronic commerce (e-commerce) is a business strategy that allows consumers and businesses to buy and sell goods and services through the Internet. Ecommerce can be done on computers, tablets, smart phones, and other smart devices, and it operates in four key market categories. Ecommerce transactions can be used to buy almost any commodity or service imaginable, including books, music, aircraft tickets, and financial services like stock investing and online banking. As a result, it is regarded as a highly disruptive technology. E-commerce refers to the purchasing and selling of goods and services, as well as the transfer of payments or data, over an electronic network, most commonly the internet. Business-to-business (B2B), the business-to-consumer (B2C), consumer-to-consumer and the consumer-to-business transactions are all possible. Transaction costs will be significantly reduced thanks to electronic commerce. It eliminates a lot of the fixed expenditures of running a physical store. As a result, the companies can enjoy a significantly bigger profit margin. It ensures that things are delivered quickly and with little effort on the side of the customer. The Amazon, eBay, Walmart Marketplace, Chewy, Wayfair, Newegg, Alibaba, Etsy, Overstock, Rakuten, and other e-commerce marketplace platforms are examples.

6.2.1 Key Types of Ecommerce Models

There are four main types of e-commerce models:

- a. B2C (Business to Consumer): When a company sells a product or service to a single customer (e.g. you buy a pair of shoes from an online retailer).
- b. B2B (Business to Business): When a company sells a product or service to another company (e.g. a business sells software-as-a-service for other businesses to use)
- c. Consumer to Consumer (C2C): When one person sells a product or service to another (e.g. you sell your old furniture on eBay to another consumer).
- d. Consumer to Business (C2B): When a person sells their own products or services to a business or organization, this is known as consumer to business (C2B) (e.g. An influencer offers exposure to their online audience in exchange for a fee, or a photographer licenses their photo for a business to use).

6.2.2 E-commerce Success Requirements

- A well-defined brand identity.
- A user-friendly interface.
- A website that is mobile-friendly.
- High-resolution product images.
- Feedback from customers.
- A Checkout Process That Is Simple.
- Excellent customer service.
- A Reliable Order Fulfillment Process.

6.3 Concept of Digital Financial Services

As more firms aim to bring their products and services to consumers' doorsteps, Bangladesh's current generation is growing up with smart devices and convenience services. Businesses in finance, on the other hand, are employing smart phones and other gadgets to deliver financial services to our fingertips. Users can rapidly access services like banking and utility/merchant payments through digital financial services (DFS), while businesses can save money by not having to service customers in person. DFS, however, has far greater potential than convenience, it has the potential to increase financial inclusion in areas where financial institutions are scarce, to combat fraud by ensuring payments are made to the correct person, and to reduce the costs associated with making a large number of financial transactions. It has the potential to benefit the government through taxes as more financial transactions become formalized, in addition to individuals and enterprises.

6.3.1 Digitization and Use of DFS and MFS in Bangladesh during COVID-19

During the start of COVID-19, Vision 2021 was used to quickly digitize and use platforms to expedite processes, especially for vulnerable, underserved, and under-reach communities. Though mobile financial services (MFS) through mobile phones to access financial services and execute financial transactions with simple cashless payment experiences were growing rapidly in Bangladesh, the

benefits of using MFS through mobile phones to access financial services and execute financial transactions with simple cashless payment experiences were still not widely anchored across the country. Throughout the COVID-19 pandemic, there has been a growing reliance on digital solutions that focus on user experiences in product and service design to help people adjust to the "new normal."

More than 15 banks in Bangladesh offered MFS with over 1.03 million agents around the country. BKash, the first MFS operator, has been operating under the authorization of Bangladesh Bank as a subsidiary of BRAC Bank Limited, and has recruited around 10 million new customers, bringing its total customer base to 50 million, with current daily transactions of over Tk. 10 billion. The BKash platform's success stems from the wide range of services it offers, including sending and receiving money, mobile recharge, cash out, payments, tickets, news, and partner offers, with recent enhancements to cover donations and pay bills during the pandemic (e.g., utility bills, government fees, education, credit card, etc.). Nagad, a joint venture that operates under the Bangladesh Post Office and was formed in 2019, is country's fastest-growing mobile financial service operator, with over 2.5 million clients. Rocket, owned by Dutch Bangla Bank Limited, is the country's third largest MFS provider. Bangladesh has experienced great growth in the MFS sector thanks to the collaboration of central banks and government agencies. To develop MFS opportunities and preserve consumer interests, favorable regulatory regimes must promote sandboxes and other media for testing, as well as establish rules and restrictions. MFS has molded the present digital healthcare experience, particularly in the health sector for medical expenses, through the ongoing use of everyday cashless encounters and better user experiences. In March 2021, patients used Square Hospital's partner health system's discount and special bundled offers to pay for online healthcare packages such as the video call doctor's appointments and medical test samples.

6.3.2 Bangladesh Policy & Trends for DFS in E-commerce

The Bangladesh Bank established "Guidelines on Mobile Financial Services (MFS) for Banks" in 2011, formalizing MFS activity. This involves adopting a solely bank-led financial services paradigm, in which users interact with banks via a mobile finance middleman. The government has also taken steps to encourage digital financial services through Access to Information (a2i) projects such as the Digital Financial Services Lab, which is targeted at incubating fintech businesses geared at low-income populations in cooperation with Bangladesh Bank. Currently, the central bank permits remittance, cash in/out, utility bill payments, C2B payments, salary disbursements, and government payments to be made through MFS. Due to non-compliance with laws, the number of banks permitted to supply MFS decreased dramatically in 2016. Despite this, the numbers of transactions and volumes have continued to raise MFS has grown at an exponential rate since then, thanks to the proliferation of low-cost mobile phones and expanding network coverage across the country. However, issues including digital literacy, limited competition, and security concerns continue to be a barrier to taking the next step toward broader financial inclusion. BKash now reigns supreme in Bangladesh's mobile money sector, with Rocket and No god trailing far behind. There are, however, a plethora of alternative digital financial services (DFS).

7. Findings and Recommendations

According to predictions, nearly all retail purchases (95%) will be performed online through DFS by 2040. The global benefits of e-commerce for retailers, wholesalers, consumers, and producers will come from online sales and purchases of e-commerce digital financial services if these projections come true. Financial service companies that compete with banks, on the other hand, can provide a wide range of services to their customers online, in addition to basic banking. Here are some observations and suggestions for improving 4IR e-commerce performance in Bangladesh and abroad to secure DFS adoption. Physical currency is being retired in many nations shifting to crypto currency eventually for its added security protections and usefulness.

- a. In poor countries, billions of people lack access to banking services. Furthermore, a sizable segment of the population in wealthy countries is unbanked or under banked. Online retailers can sell products and provide financial services to their clients by developing e-commerce digital financial services.

- b. Individuals will no longer need to maintain any records/receipts because they will be able to access these permanent records online. The implementation of block chain technology in 4IR can help to eliminate e-commerce payment fraud.
- c. Artificial intelligence (AI) is already being used to analyze and find patterns in Big Data. To predict behaviors, online businesses can cross-reference purchase activities with other Big Data indicators. This enables an online store to show products and/or service offerings at the optimal time, when they are most relevant to a customer.
- d. The majority of online buyers regularly utilize a Smartphone for e-commerce to make bank card transactions using a simple attachment that reads a bank card. For authorization, the system transfers the transaction through the mobile network. g. This service is extremely convenient, with extremely minimal transaction fees. There are no monthly fees as well.
- e. The purchasing insurance from a large retailer or an insurance agency is just as simple online. The use of artificial intelligence for customer service eliminates the need for a big human staff of professionals.
- f. The modernization and usage of DFS in e-commerce transactions will have an impact on enterprises as part of the fourth industrial revolution's. As a result of job automation, organizational productivity has increased. From procurement to sales, supply chain to telecommunications, the Fourth Industrial Revolution has aided in cost reduction and enhanced the bottom line.
- g. In 4IR, people were freed from manual activities to focus on higher-level problem-solving abilities and adoption with the e-payment via DFS and MFS.
- h. From the Amazon's Prime service to grocery stores offering online ordering and delivery or store pick-up, the retail landscape has changed, and so have brick-and-mortar shops and delivery methods with Bangladesh fastest, easiest, and most reliable DFS systems.

8. Limitations of Study

Because of the correct direction and information, the researcher was unable to obtain sufficient data. There has been very little research done in this connected e-commerce domain, according to the best research information, which is why there is no unique correct precise advice. The importance and challenges of e-commerce, 4IR, and digital financial services in Bangladeshi and international enterprises were the focus of this study. As a result, the data was created solely for a certain location.

9. Conclusion

Impacts of the COVID-19 Pandemic on e-Commerce and the Provision of Digital Financial Services for Micro, Small, and Medium Enterprises and Consumers in Developing Countries like Bangladesh Production will be automated by an increasing number of robots and autonomous systems in the future. Autonomy will be a vital signal for e-commerce and e-payment in industry 4.0 factories. These advanced machines will also help industry 4.0 ambitions by allowing for more flexible transformation in the future. As a result, digital financial services will play a critical role in the expansion of international e-commerce. The tools DFS and MFS are used to cope with multi-sector integration in e-commerce and digital trade. In the context of 4ir in Bangladesh, the study looked at the opportunities and constraints of digital financial services in a post-pandemic world for developing countries, as well as the crucial role of e-commerce. That is why this research was conducted. This research will help bridge the gap between organizational accountability and the problems of 4IR in Bangladesh and abroad by increasing the use of DFS and MFS in e-commerce trading.

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