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Recognizing the need for research for exploring new business models in the changing business scenario as well as developing new pedagogy in management, and for creating an influence on the academics as well as corporate thinkers, the institute embarked upon publication of its journal, *Review of Professional Management: A Journal of Management*, way back in 2003 and has been published regularly ever since. The Editorial Advisory Board of the journal comprises of eminent academics from universities and business schools from across geographies. It is a biannual peer-reviewed journal. It is an open access journal and all the publications of the journal are licensed under Creative Commons. The journal follows guidelines on publication ethics in accordance with The Committee on Publication Ethics (COPE).

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Aims and Scope

Review of Professional Management: A Journal of Management, a bi-annual peer-reviewed journal of New Delhi Institute of Management, provides a platform to academics, researchers, practitioners, and professionals from public, private and government sectors to share their original research, innovative practices and articles with Indian and international perspective that shape policy or governance or functioning of an organisation. The journal publishes conceptual, analytical, empirical, and perspective articles that significantly contribute to theory, practice or policymaking in all the functional areas of management and allied subjects.

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Contents

Editorial

- Environmental, Social and Governance (ESG) Strategies for
Climate Change 107
Radha R. Sharma

Articles

- The Economics of Cryptocurrencies: Finance in Digital Era 109
Isha Narula and Kriti Dhingra
- Beacon Technology the Future of Retail: A Review of the Literature
and SWOT Analysis 120
Ruchita Pangriya
- How Corruption Distance Affects FDI Inflows in India? 131
Poonam Bewtra
- Identification of the Preferences Signals of Facebook Algorithm in
Prioritising Page Posts on Users' Feeds 143
Sunil Barsaiyan and Charu Sijoria
- Investigation of Relationship Between Selected Criteria of e-Governance
Services with Satisfaction of e-Governance Service Users 157
Mayank R. Mathur and Parimal H. Vyas

Perspective

- India's Quest for Achieving \$5 Trillion Economy: A Critical Review 182
M. Narendra

Case Study

- An Economic Analysis of the Performance of Public Service
State Road Transport Undertaking of India: A Case Study of the
Haryana Roadways 196
Neelam Khanoda and Dara Singh

Book Review

- Mukund Rajan & Rajeev Kumar, *Outlast: How ESG Can Benefit Your Business* 212
Reviewed by *Karishma Jain and P. S. Tripathi*

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Environmental, Social and Governance (ESG) Strategies for Climate Change

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The term ‘Environmental, Social and Governance’ or ‘ESG’ refers to the assessment and disclosure of environmental effects and risks associated with business practices. It is a process used to describe a variety of factors that are likely to impact an organization’s long-term performance. In the present dynamic and changing business environment, ESG policy plays a significant role in managing operations in an organisation. Although the basic elements of an ESG policy will vary depending on a company’s unique operations, activities and needs, some key components, can be kept in view while preparing EGC framework (Emerick, n.d.): (a) environmental goals that align with company’s long-term goals, (b) social responsibility, that is, clear guidelines for how the company will work with different stakeholders, (c) governance structure for effective and efficient implementation of policies and (d) reporting and auditing to ascertain if the company is meeting its goals.

ESG disclosure communicates a company’s environmental, social and governance policies and performance to its stakeholders. This contributes to increased transparency and trust among the stakeholders which are likely to contribute to business results. Besides, it helps the company in identifying potential risks and opportunities associated with those areas, including climate change and its mitigation. Research yields that companies with robust sustainability policies are more competitive and give better returns to shareholders and stakeholders (Dorobantu et al., 2014). Also, a favourable ESG reputation protects companies from a substantial decline in the stock market (Edmans, 2011). It also leads to improved relations with external stakeholders and customers and results in loyalty and engagement with customers and employees. ESG can influence consumer preference as well. McKinsey research has revealed that customers say they are willing to pay to ‘go green’ (Henisz et al., 2019). It is observed that ESG disclosure has been adopted by a number of countries in recent years due to regulatory pressure, industry and sector and availability of information.

India aims to reach net zero by 2070. India’s Long Term Low Emissions Development Strategy (LTS), submitted to the UNFCCC in November 2022, details India’s vision and plan of action for achieving its target to become a net zero emitter by 2070.¹ In the LTS, India outlines sector-specific action areas, targeting the power, industry, transport, building and urban sectors. Although a few companies have reached net zero target and some have committed for it, for the

country to reach net zero target, commitment and concerted efforts for decarbonisation of all the industries are needed along with innovations, energy transition and digitalisation where ESG will play a critical role.

Environmental Sustainability Index (ESI) is produced by Honeywell every quarter, in collaboration with Futurum Research, which provides a comparison of sentiment and progress of environmental sustainability (ES) initiatives on various parameters. The index is based on survey of more than 600 professionals involved in planning, strategic development, implementation or oversight of corporate environmental sustainability initiatives. This helps in tracking the progress of companies and assesses potential to reach their environment goals by current and future adoption of technologies (Honeywell, 2022).

Hence, climate urgency calls for companies to focus on their ESG strategy involving policy, practices and metrics that matter the most for the long-term corporate sustainability.

Note

1. <https://climateactiontracker.org/countries/india/net-zero-targets/#>

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The Economics of Cryptocurrencies: Finance in Digital Era

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Isha Narula¹ and Kriti Dhingra¹ 

Abstract

Global economic markets are encountering apprehensions and susceptibilities after the pandemic of COVID-19. Investment patterns are becoming restrained because of uncertain global scenarios and reduced GDP worldwide. World economies are moving towards digital era and investors are becoming more open towards the newest forms of investments. Due to the uncertain scenarios, investors globally are looking forward to some lucrative forms of investments and cryptocurrencies are the ray of hope for global investors. The present study is attempt to explore the changing dynamics of cryptocurrencies with the market uncertainties. Volatility of five cryptocurrencies, namely Bitcoin, Ethereum, XRP, Chainlink and Bitcoin Cash are analysed using the Generalised AutoRegressive Conditional Heteroskedasticity Model. Results showed that the investors preferred taking cautious decisions and invested more in famous bitcoin rather than other cryptocurrencies.

Keywords

Cryptocurrency, volatility, GARCH, spillover

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Introduction

The global outburst, COVID-19 which has been labelled a pandemic by the World Health Organisation (WHO) has significantly impacted economy of the world (Yarovaya et al., 2020). Sales of products declined, consumer behaviour changed,

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production reduced, organisations had financial burdens and there was increase in the unemployment rate worldwide (Lahmiri & Bekiros, 2020). Amid these circumstances, the financial market undoubtedly responded.

The revolutionary utopia that the technology growth promises seems to come closer at an astounding pace, yet unexpected challenges have come up. This pandemic has destabilised the entire world in the past few months, not only putting lives in danger but also plundering the economic well-being of deep-rooted global businesses and subsequently the world's financial structure.

The world was not prepared for this global pandemic, not even back in 1918–1920 during the Spanish flu. But the difference between then and now lies in the fact the world has been more technologically sound, people can work remotely, shop online, have teleconsultations with a doctor through video calling and also buy digital currencies. Even before the onset of COVID-19, digital assets were maturing gradually. During the last decade, the evolution of a new currency called 'cryptocurrency' was seen.

In the past few years, 'cryptocurrency market' has attracted the attention of various investors, researchers and government (Makarov & Schoar, 2020; Nasir et al., 2019). The philosophy behind cryptocurrency lies in the famous quote by Richard Kovacevich, 'banking is necessary, banks are not' (Baur et al., 2018). Cryptocurrencies are an unruly payment mechanism which does not require any intermediation from the banks. They can be used by business organisations that use blockchain technologies for the production and circulation of cryptocurrencies. Therefore, cryptocurrencies are not measured by any central bank or government and they are not a part of the real economy (Böhme et al., 2015).

There has been a rapid increase in the size of the cryptocurrency market. The reasons behind this increase can be (Yousaf & Ali, 2020):

1. Declining community belief in the dominant banking arrangement posts the worldwide economic crises (Weber, 2016)
2. Industrial revolution 4.0 and the usage of various smart technologies
3. Acknowledgement of cryptocurrency legally in diverse republics
4. Acknowledgement of cryptocurrency from famous corporations alike Microsoft, Tesla, Facebook, JP Morgan and Shopify (<https://www.businessinsider.com/top-cryptocurrencies>)

Now, financial sphere is more digitised and virtualised because of technological advancements, it is important that we are able to overcome the problem of dynamically predicting the cryptocurrency market. The tools used for predicting and modelling the cryptocurrency market need proper improvisation so that the distrust of the public for cryptocurrency as a pioneering financial asset can be duly managed (Danylchuk et al., 2020).

Cryptocurrency market is considered a volatile market, also a substantial portion of the purchase of cryptocurrency is considered speculations (Fry & Cheah, 2016). With the rising number of cryptocurrencies and the increase in market capitalisation of the cryptocurrency market (Ji et al., 2019) many studies have been conducted to understand the cryptocurrency market in terms of its

volatility (Corbet et al., 2018; Liu, 2019; Liu & Tsyvinski, 2018). Moreover, cryptocurrency can also be seen as a commodity where people can benefit from the increase and decrease in value of the currency (Amanzholova & Teslya, 2018).

Despite the increasing interest of people in this form of money, many countries are not in the favour of its adoption. As of March 2018, five nations have received enactment that makes owning or executing cryptographic forms of money illicit. For instance, in 2017, Bangladesh banned Bitcoin and other virtual monetary forms. As per Bangladeshi law, exchanges utilising Bitcoin or other virtual monetary forms are unlawful, and violators are liable to a sentence of as long as 12 years in jail.

Despite having a mixed reaction to its advantages and disadvantages, cryptocurrencies have always drawn attention of many researchers. Previous studies have shown the cross-market volatilities between cryptocurrency market and other markets (Bouri et al., 2017; Gajardo et al., 2018). Thus far, from an investment point of view, it is vital to comprehend the altering aspects of the digital currency marketplace, especially how the cryptocurrency market's efficiency got affected during the uncertainties in the market. This makes it significant to study the impact of one cryptocurrency on another cryptocurrency during such times.

Objectives of the Study

- To recognise the transformation in the conditional variance of the cryptocurrencies due to global pandemic of COVID-19.
- To understand the transition in investor behaviour due to changes in global investment markets due to pandemic of COVID-19.

Literature Review

Many studies have been conducted to inspect the profits and instability transmission among various cryptocurrencies. Yi et al. (2018) studied the instability interconnection among 52 cryptocurrencies for estimating the high-dimensional VARs by making use of the LASSO-VAR approach. They found that the 52 cryptocurrencies were strongly interconnected and also analysed the volatility spillover from bitcoin to the supplementary cryptocurrencies.

Koutmos (2018) measured the volatility and return broadcast among the 18 foremost cryptocurrencies. He revealed that Bitcoin was the main contributor to volatility spillovers among the 18 cryptocurrencies. He also explained that the return and volatility spillovers had increased with time and also there can be spikes in the spillovers whenever there is any major news regarding cryptocurrencies.

Katsiampa (2019) employed the diagonal BEKK model and investigated the instability between Bitcoin and Ethereum. They found that cryptocurrencies in the cryptocurrency market were interdependent on each other, and their volatility and correlation were responsive to any major news event. They analysed that Ethereum could be a tough hedge in counter to Bitcoin.

Ji et al. (2019) studied the profits and unpredictability among six cryptocurrencies (Bitcoin, Ethereum, Ripple, Litecoin, Stellar and Dash) by applying the measures developed by Diebold and Yilmaz (2012) and found that Bitcoin followed by Litecoin was the net spreaders of Profits and instability to additional cryptocurrencies. Also, Ripple and Ethereum were the net receivers of the spillovers.

Katsiampa et al. (2019a) analysed the shockwave and instability spillover among three cryptocurrencies (Bitcoin, Litecoin and Ethereum) using the BEKKMGARCH model and found that there was bi-directional shock spill-over among Bitcoin and Ethereum, Bitcoin and Litecoin. Also, bi-directional volatility spill-over was pragmatic among Bitcoin and Ethereum, Bitcoin and Litecoin, and Litecoin and Ethereum pairs.

Canh et al. (2019) investigated the unpredictability undercurrents in the seven foremost cryptocurrencies Bitcoin, Stellar, Dash, Litecoin, Ripple, Monero and Bytecoin by using the DCC-MGARCH model and found that there was noteworthy volatility transmission between all seven cryptocurrencies. They also observed that structural breaks were present in all these cryptocurrencies and the shift in market capitalisation spreads from smaller to larger cryptocurrencies.

Liu and Serletis (2019) in their study examined the shockwave and instability transmission across three foremost cryptocurrencies, namely Bitcoin, Litecoin and Ethereum. They used the Generalised AutoRegressive Conditional Heteroskedasticity (GARCH) in the mean model to conduct their study and found that there was substantial shock and volatility spillover among the three of them.

Beneki et al. (2019) applied the BEKK-GARCH modelling procedure to explore the instability transmission among Bitcoin and Ethereum. They found a one-directional instability transmission from Ethereum to Bitcoin.

Motivation of the Study and Research Gap

In times of the pandemic of COVID-19, investors worldwide were in state of confusion and dilemmas about investment decisions. As the future looks very gloomy and investors are losing confidence in stocks of even renowned and well-established companies, cryptocurrencies can be a ray of hope for investors to bag profits. At present times, investors are looking for a safer and more profitable form of investment where they feel more secure and confident. In such uncertain financial and economic scenarios, this study is an attempt to understand the role of cryptocurrency as potential investment avenue. The study majorly focuses on the performance and predictability of cryptocurrency with the help of the GARCH model. The researchers have tried to explore the changes in volatility patterns pre and during-COVID times. Such shifts in volatility will also contribute to assessing the behavioural shifts of investors.

On the basis of the literature review, it could be observed that many researchers are working to study the spill-overs among cryptocurrencies throughout a phase of the crisis. Numerous researchers have observed the instability spill-over among various assets such as a bond, equity and commodity during a crisis period (Aloui et al., 2011; Bekaert et al., 2014; Diebold & Yilmaz, 2009) but the cryptocurrencies

have still not been investigated. Therefore, this literature gap will be addressed by our study.

Research Methodology

The contemporary research has discovered the behaviour of volatility of selected five cryptocurrencies, namely Bitcoin, Ethereum, XRP, Chainlink and Bitcoin Cash with the help of GARCH (p, q) model. The purpose of selecting these five cryptocurrencies is that they are the top five traded cryptocurrencies. The study is considering the scenario of pre and during COVID-19. As per WHO's report, the first case of COVID-19 was detected in December 2019. So, the data prior to December 2019 are considered to be pre-COVID and data after December 2019 are considered to be during-COVID. The study is an attempt to understand the shift in the volatility behaviour of the selected cryptocurrencies because of pandemic. The two-year daily cryptocurrency prices are taken from coinmarketcap.com ranging from 1 December 2018 to 30 November 2019 (pre-COVID) and 1 December 2019–30 November 2020 (during-COVID).

The market prices are changed into returns with the support of the subsequent formulary:

$$R_t = \ln(P_t/P_{t-1}) \times 100 \quad (1)$$

Here, R_t designates revenues at period t , whereas P_t and P_{t-1} are the prices of the cryptocurrencies at period t and $t-1$. The stability of the data has been weighed by employing Augmented Dickey–Fuller (ADF) Test. The Null Hypothesis of ADF test conditions that ‘Return has Unit Root’. This hypothesis has been forbidden during all the regimes selected for all the currencies.

Model Advancement for Cryptocurrency Return Volatility (Degree of Modification in the Construction of Conditional Volatility)

GARCH (1,1) Model

The archetype of GARCH (p, q) model is originated by Bollerslev (1986) who acclaims that conditional variance of the revenues generated by any stock or currency is directly related to its previous conditional variance and squared values of its previous error terms. Conditional mean equation of GARCH (1,1) prototype is detailed as follows:-

$$R_t = C + \alpha R_{t-1} + \varepsilon_t \quad (2)$$

Conditional volatility prototype is demonstrated as follows:

$$h_t = \omega_0 + \alpha_1 \varepsilon_{t-1}^2 + \beta_1 \sigma_{t-1}^2 \quad (3)$$

In Equation (2), R_t is the revenue derived from the prices of cryptocurrencies. Here, α can be defined as the influence of previously logged revenues on present revenues. In the present prototype, ε_t is independently and identically distributed. Which again states that the error terms have stable variance and zero mean. Equation (3) explains the conditional variance, and h_t is the conditional variance of ε_t . Here the value of ε_t demonstrates a constant fluctuation throughout the selected time frame. α_1 demonstrates the impact of recent news on today's revenues. This phenomenon is also acknowledged as 'news coefficient' and popularly identified as ARCH effect in financial history. Another constant identified as β_1 in the prototype also significantly influence the performance of the currency. This is prevalently acknowledged as 'persistent coefficient' or the 'GARCH effect'. This outcome explores the influence the older information on the cryptocurrency. The GARCH (p, q) prototype, explores both ARCH (p) and GARCH (q) effects.

In this contemporary research, GARCH model is implied to inspect the movement of instability or the consequences of volatility spillover among the cryptocurrencies in pre-COVID and during-COVID regimes. To extract the results, the residual series of the cryptocurrencies is derived and furthermore it is squared. The series is squared with the purpose of eradicating the negative influence. The residual of the cryptocurrency data which is squared afterwards is positioned as shockwave instigator in the volatility prototype as a regressor. The coefficients of these shockwave instigators are significant as well as validate spillover effect transmitting among the cryptocurrencies.

GARCH (1,1) model to validate spillover effect is having subsequent stipulations:

$$h_t(\text{returns}) = \omega_0 + \alpha_1 \varepsilon_{t-1}^2 + \beta_1 \sigma_{t-1}^2 + \psi(\text{sqresid}_{\text{returns}}) \quad (4)$$

The prototype mentioned above recognises h_t which symbolises conditional variance of the cryptocurrency. This h_t is regressed and also a function of mean identified as ω_0 . Here, α_1 is the function of 'news coefficient' and β_1 is the function of 'persistence coefficient'. Furthermore, ψ signifies the residual of cryptocurrency. This residual series of cryptocurrency is placed in variance equation as a shockwave instigator.

The typical GARCH (1,1) archetypal takes up a symmetrical reply of instability in the direction of 'good' and 'bad' newscasts.

Data Analysis

The contemporary segment of the research debates the outcomes of the tests run on the pre- and during-COVID phases/regimes.

Table 1 depicts the outcomes of the unit root test on the returns of five selected cryptocurrencies, namely Bitcoin, Ethereum, XRP, Chainlink and Bitcoin Cash. The data have been selected in two phases, pre-COVID and during COVID. Pre-COVID period ranges from 1 December 2018 to 30 November 2019 and during-COVID period ranges from 1 December 2019 to 30 November 2020. The data

Table 1. Results of Unit Root Test.

	During-COVID	Pre-COVID
Bitcoin	22.156 (0.000)	−19.709 (0.000)
Ethereum	−21.932 (0.000)	−20.200 (0.000)
XRP	−9.401 (0.000)	−19.447 (0.000)
Chainlink	−20.678 (0.000)	−19.370 (0.000)
Bitcoin Cash	−22.321 (0.000)	−16.682 (0.000)

Notes: Pre-COVID: 1 December 2018–30 November 2019.

During-COVID: 1 December 2019–30 November 2020.

Table 2. Volatility Spillover of Cryptocurrencies in Pre-COVID (from 1 December 2018 to 30 November 2019).

	Bitcoin	Ethereum	XRP	Chain-link	Bitcoin Cash
C	0.000 (0.000)	0.000 (0.000)	0.0002 (0.000)	0.000 (0.018)	0.000 (0.000)
ARCH	0.086 (0.051)	0.004 (0.564)	0.104 (0.0001)	−0.005 (0.022)	0.138 (0.000)
GARCH	−0.008 (0.710)	−0.039 (0.008)	−0.019 (0.4751)	1.003 (0.000)	−0.028 (0.263)
SQRESBitcoin	—	0.519 (0.002)	−0.005 (0.873)	−0.043 (0.001)	0.075 (0.609)
SQRESEthereum	0.648 (0.000)	—	0.561 (0.000)	−0.080 (0.000)	1.067 (0.000)
SQRESXRP	0.083 (0.033)	0.679 (0.000)	—	0.135 (0.000)	0.154 (0.214)
SQRESChainlink	0.004 (0.281)	0.005 (0.210)	−0.001 (0.362)	—	0.0006 (0.901)
SQRESBitcoinCash	−0.009 (0.965)	0.1004 (0.075)	0.054 (0.056)	0.011 (0.0003)	—

have been reported stationary on observing the results of unit root test on selected five cryptocurrencies in two phases.

Table 2 demonstrates the result of volatility spillover in pre-COVID period ranging from 1 December 2018 to 30 November 2019. The study has considered five cryptocurrencies, namely Bitcoin, Ethereum, XRP, Chainlink and Bitcoin Cash. For each cryptocurrency, the volatility spillover from the rest of the four cryptocurrencies has been assessed. On observing the outcome, Bitcoin returns have been influenced by the volatility of Ethereum (0.648) and XRP (0.033). Ethereum's returns have been affected by Bitcoin (0.519), XRP (0.679) and Bitcoin Cash (0.1004 at 10% level of significance) respectively. XRP's returns

Table 3. Volatility Spillover of Cryptocurrencies in During-COVID (from 1 December 2019 to 30 November 2020).

	Bitcoin	Ethereum	XRP	Chain-link	Bitcoin Cash
C	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.176)	0.000 (0.189)
ARCH	0.129 (0.042)	-0.012 (0.074)	0.031 (0.177)	-0.017 (0.692)	-0.051 (0.000)
GARCH	0.549 (0.000)	-0.008 (0.158)	0.027 (0.448)	0.019 (0.702)	0.202 (0.006)
SQRESBitcoin	–	0.332 (0.116)	0.010 (0.917)	0.010 (0.808)	0.117 (0.145)
SQRESEthereum	0.0002 (0.409)	–	0.175 (0.035)	0.013 (0.736)	0.106 (0.044)
SQRESXRP	0.0003 (0.340)	0.654 (0.000)	–	0.905 (0.002)	0.244 (0.000)
SQRESChainlink	-0.0002 (0.000)	0.033 (0.103)	-0.007 (0.000)	–	-0.0009 (0.002)
SQRESBitcoinCash	0.002 (0.000)	0.184 (0.028)	0.365 (0.000)	-0.0008 (0.906)	–

have been affected by Ethereum (0.561) and Bitcoin Cash (0.054). Chainlink's returns are influenced by Bitcoin (-0.043), Ethereum (-0.080), XRP (0.135) and Bitcoin Cash (0.011). Bitcoin Cash's returns are influenced by Ethereum (1.067) only. The ARCH effect has been observed on all the cryptocurrencies except Ethereum, whereas GARCH effect has been reported on Ethereum (-0.039) and Chainlink (1.003). The results report that recent news affects the returns of all the currencies except Ethereum whereas persistency effect is only visible in two cryptocurrencies. Chainlink is one of the most vulnerable currencies which is getting influenced by all the other cryptocurrency and demonstrate both ARCH and GARCH effect. Bitcoin, XRP and Bitcoin Cash are the least vulnerable and do not get affected by maximum number of cryptocurrencies. For investors, Ethereum can be one of the good investments as it is not as vulnerable as Chainlink and not as indifferent as Bitcoin, XRP and Bitcoin Cash. Most of the significant spillovers are directly impacting the returns of respective cryptocurrencies except Ethereum (-0.080) on Chainlink and GARCH (-0.039) effect on Ethereum.

Table 3 demonstrates the outcomes of spillover effect among the designated five cryptocurrencies during the time frame ranging from 1 December 2019 to 30 November 2020. This regime has been identified as during-COVID period. On observing the outcome, it is identified that Bitcoin is affected by Chainlink (-0.0002) and Bitcoin Cash (0.002), although the impact is very minimum. Ethereum is influenced by XRP (0.654) and Bitcoin Cash (0.184), XRP is affected by Ethereum (0.175), Chainlink (-0.007) and Bitcoin Cash (0.365). On observing the results of Chainlink, it has been reported that only XRP (0.905) could influence its returns. Ethereum (0.106), XRP (0.244) and Chainlink (-0.0009) have significantly influenced the returns of Bitcoin Cash. ARCH effect also known as new effect has been observed on Bitcoin (0.129), Ethereum (-0.012) and Bitcoin

Cash (-0.051). GARCH effect also known as persistency effect is observed on Bitcoin (0.549) and Bitcoin Cash (0.202).

It has been discovered that Chainlink is one of the cryptocurrencies which is getting volatility spillover only from XRP but affecting the returns of all the cryptocurrencies except Bitcoin. Hence, Chainlink's volatility can be employed to predict the reruns of other cryptocurrencies. Bitcoin Cash is one of the most vulnerable cryptocurrencies among all the five as it is getting volatility spillover from Ethereum, XRP and Chainlink and also reporting ARCH and GARCH effect. Bitcoin can be a good investment opportunity as it is not as vulnerable as Bitcoin Cash but can also be predictable in comparison to others.

Findings of the Study

The present study is an attempt to explore the impact of the pandemic on the cryptocurrencies. In recent times, it has been observed that investors' focus has shifted to digital currencies instead of traditional forms of investment. The study has identified a shift in the behaviour of investors due to pandemic where the impact of recent information has been reduced and investors are a little less sensitive to recent piece of information, whereas older news was not that significant in pre-COVID times also. Bitcoin is one of the most popular forms of cryptocurrency in the history of cryptocurrencies. One of the major findings of the study states that earlier investors were exploring other forms of cryptocurrencies, for example, Ethereum and Chainlink as these cryptocurrencies were receiving volatility spillover from maximum number of cryptocurrencies. But the scenario has been completely transformed due to COVID. During-COVID Bitcoin Cash, XRP and Bitcoin are receiving volatility spillover from maximum number of cryptocurrencies. A major shift has been observed in Chainlink as in pre-COVID times it received volatility spillover from rest of the four cryptocurrencies and during-COVID times it received volatility spillover only from XRP. The study confirmed that the pandemic has made the investors more cautious about their investments and they do not want to invest their money in less reliable forms of investments.

Conclusion and Implications of the Study

On comparing the pre- and during-COVID results, ARCH effect has been reduced from four to three cryptocurrencies. Ethereum has been demonstrating ARCH effect during-COVID times, whereas earlier it was not showing any impact of the recent news. GARCH effect has been observed on two currencies earlier while it is still visible on two cryptocurrencies only, whereas in pre-COVID times it was observed on Ethereum and Chainlink and during-COVID times it is observed on Bitcoin and Bitcoin Cash. It can be seen that during COVID times investors have switched to the most famous cryptocurrency rather than putting their money in other forms of investments. This investor behaviour shows that investors want to play safe in the market by just investing in renowned investment avenues. The study also contributes to understanding the role of investor sentiments while selecting any form of investment. The present scenario has forced the investors to go for most reliable

form of cryptocurrencies while earlier investors were more open to newer forms of investments. The present scenario has made them more vulnerable and cautious.

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Beacon Technology the Future of Retail: A Review of the Literature and SWOT Analysis

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Abstract

Beacon technology is in the nascent stage and is expected to grow unexceptionally. Despite the enormous scope in this field, limited work is available on this technology. Previous literature on Beacons is scattered and mostly focuses on experimental work and its architecture. This article works on this gap and tries to present a systematic review of the literature and does a SWOT analysis on Beacons. The current study presents the results of 80 academic papers. For the SWOT analysis, a two-phase interview was conducted to collect information. This article is going to enhance the existing literature on Beacons and will help future researchers to understand the concept clearly and concisely.

Keywords

Beacon, Bluetooth Beacons, proximity marketing, literature review, SWOT analysis

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Introduction

There is an undying fact that smartphones are changing working models and plan of actions of businesses as well as commercial centres at an amazing rate. App development revenue will reach \$693 billion in the next two years (CDN, 2020).

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Today's technological innovation era has made Beacon-based technology solutions a hot topic in the tech industry. Although many people are unaware of this technology, it has been discovered that it has become an important part of many people's lives, as well as businesses. This new technology has had a colossal impact on the retail industry.

In the year 2013, Apple coined the term 'Beacon'. Beacon is now referred to as 'iBeacon' by industry experts. Beacon is small pieces of hardware used to send radio signals to nearby devices. The broadcasted radio signals sent by Beacon can be received by smart devices like mobile phones (Triantafyllou et al., 2017; Yao et al., 2019). Beacon has compatibility with mobile devices; they can be used to improve user experience and connectivity. They are one of the key conceptual components of the internet of things (Danova, 2015; Zhuang et al., 2022). The global Beacon technology market is expected to grow at 45.5 per cent during 2019–2024 to reach \$10.2 billion by 2024 (ReportLinker, 2019).

The discussion on Beacon is in the nascent stage. Limited work has been done on its implementation in the retail sector. The available literature on this technology is scattered. This article presents a detailed literature review on Beacon technology and exhibits a SWOT analysis of this technology. This article will add value to the available literature on Beacon technology and may help the present and future applications of Beacon's in various sectors. This article will be useful for researchers, scholars and strategy makers by educating them and presenting the modern ways of customer engagement through automation.

Methodology

The current study presents the results of 80 academic papers selected from various databases on Beacon technology. The peer-reviewed literature; dissertation and conference proceedings were the main sources of information. Literature search was conducted using databases such as ProQuest, Google Scholar, Research Gate, Elsevier, Emerald, ScienceDirect, IEEE Xplore, SpringerLink and JSTOR. The search was performed with the keywords, namely Beacon, technology in retail, Bluetooth technology, Bluetooth Low Energy (BLE) and near field communication. The results were screened based on the relevance of their title first, followed by reading the abstract and keywords. The detailed process of selecting literature is presented in Figure 1.

Data for SWOT analysis was gathered through two-phase interviews. In the first phase, telephonic interview was conducted with six experts in the area of digital technology and retail to explore information on Beacons devices. These questions were designed by the author based on the literature reviewed. Seven open-ended questions were used to get the views of experts (Table 1). Views of experts were noted down. A manual content analysis was performed and four themes were identified.

Based on these four themes (strength, weakness, opportunity and threats), an open-ended questionnaire was framed with 15 questions on it (Table 2). This questionnaire was sent to two experts for face validity.

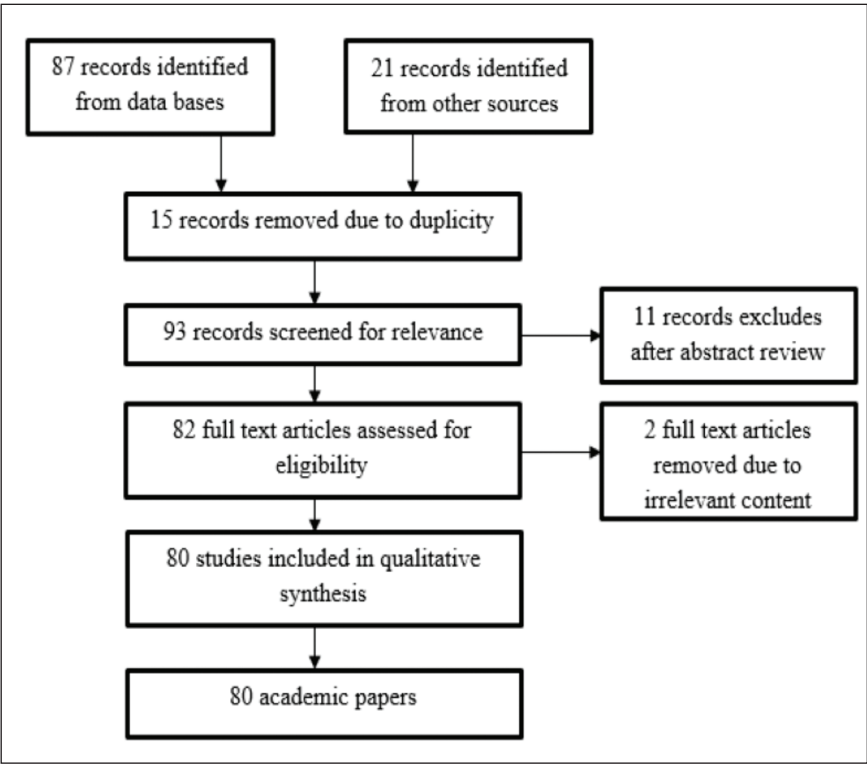


Figure 1. Literature Selection Process.

Table 1. First Phase Telephonic Interview Questions.

Sr. No.	Questions
1	Are Beacons really helpful in proximity marketing?
2	How is the performance of these devices?
3	How Beacons technology is used in retail sector?
4	How Beacons are changing the shopping experience?
5	Are customers really finding them useful?
6	How to motivate users to use Beacon technology?
7	What could be the future of this technology?

Source: Secondary data.

The second phase questionnaire was sent to 46 customers who had experienced this technology. Out of these, 15 fully filled responses were received. A content analysis was performed for this data too. Based on the results of the second phase data, a SWOT analysis was performed.

Literature Review

The buzz on Beacon technology started in September 2013 when the first Beacon product was announced by a company called Estimote (Newman, 2014a).

Table 2. Questions from Previous Literature to Conduct a SWOT Analysis.

Sr. No.	Questions
1	Are there any elements of Beacon technology that make it especially valuable to users?
2	Do Beacons have any special abilities?
3	What Beacons could do better than other location-based technologies?
4	Are there features of Beacons that give it a unique advantage?
5	Do Beacons lack certain abilities within location-based technology that other technologies have?
6	Are you asking for something which Beacons cannot provide?
7	What prevents Beacons from getting users?
8	Are other location-based technologies better than Beacons?
9	Are Beacons able to do something that other location-based technologies cannot?
10	Are there new trends that Beacons are in a position to jump on?
11	Do Beacons' strengths offer it the option of doing something else?
12	What feature of Beacons has not been shared with users?
13	Is the technology changing to make Beacons ability obsolete?
14	Is Beacon technology still relevant?
15	Are Beacons' weaknesses life-threatening?

Source: Primary data.

Academic work on Beacon can be divided into three areas. The first category of research work on Beacon technology was exploratory and focused on introduction and importance of this technology. In second category, more experimental research was conducted, which was focused more on working on this technology and architecture development in various places. The third category of work on Beacon was empirical, which discussed the implementation for various areas.

Exploratory Research on Beacon Technology

Beacons or BEL Beacons are typically super-small computers with Bluetooth radios which can emit a signal. These signals can be picked by any Bluetooth-enabled device within a close range (Dudhane & Pitambare, 2015; Newman, 2014b; Lin et al., 2022; Park & Choi, 2021). When a Beacon identifies a Bluetooth-enabled mobile device, it transmits location-aware signals to phone applications. The application then works on the data delivered. Programmed measures could range from offers and coupons to specific in-app experiences (Moody, 2015).

Beacon technology addressed various challenges that marketers were trying to solve for many years. It allows secure and proximity-based communication with customers, also a helpful and cost-effective solution for in-store location services (Daudov et al., 2020; Divya Lakshmi et al., 2022; Newman, 2014b). Beacons could be used in stadiums, hotels and resorts, museums, airports, retail stores, healthcare, fitness, and security and home entertainment industries (Abhishek & Hemchand, 2016). This technology could provide product information, personal local positioning, activate recommendations, navigate customers inside the store and start a conversation with customers at the point of purchase

(Daudov et al., 2020; Dudhane & Pitambare, 2015; Lin et al., 2022; Moody, 2015; Park & Choi, 2021). The increasing number of Smartphone users and BEL-supportive mobile technology shows a brighter future for Beacons.

Some researchers tried to explain the challenges associated with Beacons. The biggest challenge discussed was the readiness of various stakeholders in the adoption of the technology at a large stage. The infrastructure behind the technology, consumer behaviour and consumer's habit to switch off mobile apps for saving battery power were some other challenges discussed in previous researches (Abhishek & Hemchand, 2016; Yao et al., 2019). Apart from this, the privacy of a customer, balance between personalisation and privacy, and regulations on direct marketing were some other challenges (Sanden et al., 2019).

Experimental Research on Beacon Technology

Beacons have resolved a long-persisting problem with indoor retail. As they are affordable, it is feasible to deploy Beacons in large numbers. Each Beacon consists of three parts, CPU, battery and radio. The radio consistently transmits signals which are received by gadgets generally mobile devices. The broadcast signals can be detected by a mobile application in nearby location. Each signal has a unique ID and through this Beacons identify the location of each mobile device (Haines, 2020; Zhuang et al., 2022). When a Beacon sends a unique advertisement signal, it is received by the mobile app and this app automatically connects with the server. The server then shows the information and displays that product through the app. It is interesting to know that Beacons themselves do not collect any data (Parekh et al., 2019). Beacons could determine the approximate distance with the mobile device based on received signal strength (RSSI) (Triantafyllou et al., 2017).

Some researchers discussed the network specification for Beacons. Bluetooth networks could be arranged through three topologies named point-to-point, broadcast and mesh. Point-to-point topology is used for the audio exchange between phones and smartwatches or headphones. Broadcast topology is suitable for Beacon's solutions as it offers one-to-many device communication. Mesh topologies are best for sensor network applications, as it allows many-to-many device communication (Ng, 2015). Broadcast technology and mesh topology was combined and tested to extend the applicability of Beacons.

Placement and distance estimation for Beacons was also discussed in previous studies (Liu et al., 2021; Paek et al., 2016; Triantafyllou et al., 2017). For different vendors of Beacons and for different mobile device types, the signal propagation varies significantly. The installation height from the ground, physical obstacle types and indoor and outdoor environments vary among different vendors (Liu et al., 2021; Paek et al., 2016).

Empirical Research on Beacon Technology

Limited empirical work is available on Beacon technology. Moody (2015) conducted a survey to check customers' perceptions of location-based apps. Customers were asked questions based on age, the motivation behind access to location apps and

feeling towards location-based apps. The findings revealed that customers were not aware of this technology. Customers were in favour of location-based apps if they were developed to help them in shopping (Moody, 2015). Different age groups and education levels have different statuses towards usages of such technology. The older population, that is, those above 67 does not have concerns about Bluetooth-enabled technology. Tech-savvy, educated and young customers were more likely for such technologies. Customers with different professions show similar interest in Bluetooth technology (Phua et al., 2015). A study on users' behaviour analysis of Beacons was conducted and found users' performance could be improved with micro-positioning services. Users found the use of Beacon technology easy to use and it saves their time and effort. If users' attitude is positive towards Beacon then the possibility of using this technology will be higher and it will positively influence their behaviour intention (Liu & Hsu, 2018).

In recent years, few studies came out focused on the adoption of Beacon and its effect on customer satisfaction, loyalty and risk associated with Beacon (Alzoubi et al., 2022; Divya Lakshmi et al., 2022). Risk was a serious factor, studied in few other studies and found to have a negative impact on attitude, adoption intention and intention to use. Apart from risk, technology anxiety and social presence were also discussed and found to have an important role in customers' willingness to participate in relationship programmes given through the proximity BBT-based platform (Lin et al., 2022).

Schrage et al. (2022) applied technology acceptance (TAM) model for location-based retail apps. Results revealed that perceived usefulness and perceived enjoyment had a positive impact on customers' attitudes towards location-based retail apps while privacy concerns and fear of spam had a negative impact on attitudes. Customers' attitudes towards location-based retail apps and subjective norms had a positive effect on intention to use location-based retail apps. Similar kind of results came out from the study of for use of Beacon for library Information Services (Liu & Hsu, 2018).

Research Gap

The literature that is now accessible examines the usefulness of location-based technologies in various industries or concentrates on the technical elements of Beacon technology. There have been a few articles that have attempted to address the implementation side of location-based technologies, but they did not isolate any particular technology. We are unaware of any study that examines Indian consumers and provides a thorough grasp of the advantages and disadvantages of Beacon usage. It is also critical to comprehend what opportunities this technology will present in the future for retailers adopting Beacons.

SWOT Analysis of Beacon Technology

SWOT analysis is utilised across enterprises to quantify the Strengths, Weaknesses, Opportunities and Threats of a venture. SWOT analysis can be applied at various levels such as individual level, hierarchical level, public level and international

level. It is well utilised by educational establishments, non-profit associations, nations, ventures on multiculturalism, governments and so on (Gurel & Tat, 2017).

Strength

Beacon technology turned the way brick-and-mortar stores work. With the help of Beacons, it is possible to integrate online and offline retail to enhance customer experience and provide personalisation. The biggest advantage of Beacon is its short distance range of operation. They can sense users' spots accurately down to few centimetres while other location-based devices can detect device locations up to 5 meters. Beacons can work well indoors unlike GPS. They are cost-effective in comparison to GPS, Wi-Fi, Geofencing and RFID. Utilising Beacons businesses can communicate with customers by sending them highly personalised promotional notifications in-store or in proximity based on their previous purchase history, could navigate them inside the store and could generate huge data about consumers' behaviour. Businesses could identify the areas of stores that receive the highest or lowest traffic, employees' movements and levels of customer engagement with various categories, resource utilisation through the supply chain and information on new and repeat customers. This data help businesses to learn more about their customers, give them a whole different level of customer engagement and could help them to improve the layout and other touch points.

Weakness

Although Beacons are in the market since 2014, their popularity is still very limited. In the introduction phase, this technology was adopted by many stores; however, this hype soon subsided due to several problems. Before implementation, it must be understood to intend to resolve it. Retailers used Beacons in past, but they did not realise how to use them efficiently and they were not able to tell customers how this technology will help them.

The corrections were made in the technology and operations rebuild. Still few points of corrections are there like the signals of Beacons can be easily absorbed by other proximity Beacons. The timing of notifications due to fluctuation in Bluetooth signal strength is also a concern. Whenever any signal is sent by Beacon, retailers need to make sure the customers have your app and Bluetooth of the device must on. Another concern is meeting the need for safety and security. All customers are not comfortable with accessing their preferences and information. Bluetooth-connected devices are not battery friendly, and very few customers keep their Bluetooth activated all the time.

Opportunity

The world is shifting towards mobile-first and Beacons will play a significant role for bricks and mortar retailers. Beacons could be extremely useful as they can collect users' data. Beacons could be integrated with the CRM systems and can

track footfalls, a past purchase, customer loyalty, revisit, queuing behaviour and results of marketing efforts. All this data could be used for improving marketing efforts and improving customer experience. Beacons could be used for directing customers inside the store to help them find products.

Beacons could be used in other industries apart from retail. It could be used in the airline industry, hotel industry, sports stadiums, amusement parks, libraries and museums. In future, we could see the use of Beacons in home automation such as users could operate lights, operate appliances and open doors or window shades with the tap of the mobile screen.

Threats

Although the marketers are very hopeful for IoT and its future implications like Beacon, some manufacturers are still having no security of any kind. Spoofing and sniffing a Beacon allows you to clone it and employ your Beacon profile and apply it in their app. Apart from security, there are very few service providers offering services like set up Beacons, consistent monitoring, measurement and managing them. The placement of Beacons is also a concern as they are inaccurate at close distances and cancel signals from each other.

Every technology has its limited time and could be absolute with the emergence of advanced and modified technology. More and more businesses are turning to Wi-Fi-based technology solutions as they need a Wi-Fi network and customers need permission to log in through their web page. No additional apps, complicated methods and costly hardware are required for it.

Managerial Implications

Beacon innovation is ready to change how customers communicate with brands, making devices more adaptable and reforming the way retail advertisers measure the effectiveness of online promotions during offline trade. The SWOT analysis of Beacons indicates that practitioners must clearly and concisely explain the value offered to customers (Gazley et al., 2015; Sanden et al., 2019). They should inform people that a Beacon may assist with their everyday shopping, that it is simple to use, and that it has no technological issues. Also, retailers must encourage customers to download technology-supporting apps and have their mobile Bluetooth and location settings active while shopping (Parikh et al., 2015). Data loss and misuse are issues that practitioners need to address. Additionally, consumers need to be reassured about financial hazards and privacy risks (Lin et al., 2022). Customers have excellent reason to be worried since they might value their mobile device more than the advantages of a retail app.

Conclusion

Beacons have the potential to revive brick and mortar retail model, as it is capable to integrate your offline operations into the online world (Foroudi et al., 2018).

It allows understanding users via their data and allows retailers to serve them better with superior personalised experiences, customised notifications and loyalty benefits (Lin et al., 2022). Simultaneously, Beacons give an understanding of the relationship between advertising endeavours and customer conversions.

Surely, Beacon technology is not the magic bullet and there are some security concerns with it (Lin et al., 2022; Schrage et al., 2022). To overcome them, retailers should try to adopt a personalisation strategy that shows they are not pushy and disturbing. Customers were not very well informed about Beacons (Yao et al., 2019), so retailers need to educate them and tell them about the benefit of using Beacon apps. As the adoption rate will increase, users' security concerns automatically will come down. Manufacturers and retailers need to be confident about their Beacon strategies to develop strong customer relationships both online and offline world.

Scope of Future Research

The work in the future might be expanded in a way that integrates offline data gathered by Beacons with online shopping behaviour, or the other way around. Some models for measuring the relationship between variables such as risk, engagement, acceptance and awareness could be introduced. With these models, it is also possible to examine the impact of demographic variables. In addition, future research could examine the direct relationship between the variables discussed.

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How Corruption Distance Affects FDI Inflows in India?

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Abstract

As firms invest in foreign countries, they face additional costs of doing business in the form of liabilities of foreignness. The liabilities of foreignness are aggravated by the distance in the institutional environment of the home country in which the firms are embedded and the host country in which they invest. Within this context, the aim of this research paper is to examine if a specific form of institutional distance, that is, corruption distance, affects the quantum of inward foreign direct investment (FDI) in India, which is a large emerging market and an important receiver of global FDI flows. Using country-wise FDI inflows data from 2008 to 2020, the results of panel autoregressive distributed lag (ARDL) method reveal the presence of a long-run relationship between FDI inflows and corruption distance between India and the home country of the investor firm. The disequilibrium in the long-run relationship, if any, gets adjusted at the rate of 38.1% per year. The findings also suggest that an improvement in the control of corruption is expected to lead to greater FDI inflows in the country, thereby providing an important policy implication. To attract FDI and to fully realise its benefits which are essential for an emerging country like India, policymakers need to make concerted efforts to control the level of corruption.

Keywords

FDI, corruption distance, panel ARDL, India, governance, institutional environment, liability of foreignness

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Introduction

Foreign direct investment (FDI) has been one of the important manifestations as well as drivers of globalisation (Pekarskiene & Susniene, 2015). Not just as a source of finance, but developing and emerging economies make considerable effort to attract FDI inflows that bring in with it advanced technological and managerial knowledge, increased employment opportunities and spillovers. The recognition of positive effects of FDI on the host economy has been instrumental in making countries adopt market based economic reforms, improve the quality of institutions and liberalise foreign investment policies (United Nations, 2021). These efforts are directed at reducing the cost of doing business abroad (CDBA) which foreign companies face on the top of local companies in the latter's home country (Eden & Miller, 2004). The CDBA refers to the social cost of doing business, manifested in the form of liability of foreignness that concerns the firms while investing abroad (Ramachandran & Pant, 2010). Existing research has suggested that the extent of liability of foreignness that investing firms (or MNEs) face in host countries may not only be the function of host's institutional quality but also that of the home country (Cuervo-Cazurra, 2006; Nayyar et al., 2021). Firms learn from the institutional environment that they are embedded in (Peng et al., 2008) and this affects their ability and willingness to invest in particular locations. Hence, studying the difference between the institutional quality of home and host countries can provide more nuanced insights on the determinants of quantum of FDI inflows.

An important aspect of institutions, especially in emerging economies, is the level of corruption (Ghosh et al., 2022; Malanski & Póvoa, 2021; Rodina, 2022). Corruption distance is expected to influence the FDI flows as investors from low-corruption countries would face greater liabilities of foreignness in the host countries with higher levels of corruption, thereby making them hesitant of making the investment. We test this proposition in the context of FDI inflows in India which is an important receiver of global FDI flows.

We examined the impact of corruption distance on the inward FDI flows in India over the period 2008 to 2020—time period considered according to accessibility to data. More particularly, we attempted to examine if there exists any long-term relationship between corruption distance and FDI inflows in India. The results of panel autoregressive distributed lag (ARDL) show the existence of a long-term relationship between FDI inflows in India and corruption distance with the host countries. The better the control of corruption, the more FDI is India expected to receive. The results have important suggestions for policymakers.

Review of Literature

FDI is one probable choice when the firms want to do international expansion (Harrison, 2003). 'FDI encourages the transfer of technology and know-how by creating direct, stable long-lasting links between countries' (OECD, 2014). FDI inflows are particularly important for developing and emerging economies. This is for the reason that as compared to domestic investment, FDI provides more

financial resources and contributes more significantly to nation's economic growth (Borenzstein et al., 1998). 'The transfer of intangible assets, such as knowledge, technology, skills and management know-how through FDI helps in boosting productivity and growth' (Wong & Adams, 2002). Alam and Ali Shah (2013) posited that factors such as market size, labour costs and the quality of infrastructure are important for attracting FDI.

Cost of Doing Business Abroad and the Liability of Foreignness

The theoretical concept of CDBA was first introduced by Professor Stephen Hymer in his 1970/1976 theses. Hymer defined CDBA as the additional cost faced by an MNE over local firms in the foreign market (Hymer, 1976). Depending on the industry and host country context, the liability of foreignness may be due to simple factors such as greater travelling and transportation costs, coordination costs, firm's lack of local market knowledge or because of more covert issues such as lack of information networks, political sway in the host nation or the foreign company's incapacity to appeal to nationalistic customers (Hymer, 1976; Zaheer, 1995). It could also arise in the form of lack of legitimacy for the foreign firms due to specific factors in the home country. Whatever the source, the liability of foreignness means that an MNE faces higher costs than local firms in the host market, which *ceteris paribus*, leads to lower profitability and lower chances of survival of the foreign firm in host country (Zaheer, 1995).

The terms 'CDBA' and 'liability of foreignness' are not the same, even though they have been used interchangeably (Zaheer, 2002). The cost of doing business is a broad notion that includes the cost of production, marketing and distribution, that is, economic activity-based costs because of the physical distance as well as the social cost of conducting business abroad known as the liability of foreignness. Liability of foreignness is therefore a key factor of the cost of doing business overseas that arises from the newness, relational and unfair dangers that multinationals face in the overseas market (Eden & Miller, 2004). As the economic activity-based cost is finite and can be measured and controlled for by the MNE, it is the social cost of doing business as represented by liability of foreignness that concerns the firms while investing abroad. This article, therefore, focused on the liability of foreignness faced by investors of FDI in India.

Institutional Theory

Institutions are well-defined as 'the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction' (North, 1990). Scott (1995) described institutions as 'cognitive, normative and regulative structures and activities that provide stability and meaning to human behaviour'. Organisations are a part of the larger institutional environment, and institutional theory emphasises how influential institutions can be in getting such organisations to adopt procedures, rules and structures that are in line with their preferences (Meyer & Rowan, 1977), thereby imposing isomorphic behaviour on foreign

firms (DiMaggio & Powell, 1983). The institutions differ between the countries and greater the institutional distance (defined as ‘the degree of difference/similarity between the regulatory, cognitive and normative institutions of two countries’ (Kostova, 1996), the greater is the pressure on MNE for local responsiveness (Doz, 1980; Prahalad & Doz, 1987) and higher the liability of foreignness (Zaheer, 2002). Higher institutional distance exerts greater pressure on MNEs to adapt their strategies to comply with local institutions (Kostova & Roth, 2002). Kostova and Zaheer (1999) argued that liability of foreignness was more affected by informal institutions in the form of normative and cognitive institutions than by formal regulatory institutions. The normative institutions imply ‘social norms, values, beliefs and assumptions about human nature and human behaviour that are socially shared and are carried by individuals’ (Kostova, 1996). An example of an informal normative institution is public sector corruption (Calhoun, 2002; El Said & McDonald, 2002). In this context, ‘corruption distance’ can be viewed as a unique aspect of normative institutional distance (Godinez & Ling, 2015).

Corruption Distance and Its Effect on FDI

Corruption is defined narrowly as the abuse of public office for personal gain (Roy & Oliver, 2009). Corruption in a host country may decrease a company’s expected profitability of an investment project. These costs of corruption can be seen as additional costs of doing business and are sometimes referred to as ‘additional tax on profits’. Hence, firms will take into account the level of corruption in the host country in consideration before investing there (Al-Sadig, 2009). It is an informal institutional constraint where bribery is socially acceptable. It is the social cost of doing business as represented by liability of foreignness that concerns the firms while investing abroad. This article, therefore, focuses on the liability of foreignness faced by investors of FDI in India.

Studies have shown that it is not solely the host nation’s institutional quality (Baniak et al., 2003; Chen et al., 2010; Kostova, 1996), but also that of home country that influences the decision of making an investment in a highly corrupt foreign location (Habib & Zurawicki, 2002). Empirical studies on level of corruption in a country and FDI have not found consistent results—with some authors reporting that high level of corruption deterred the flow of FDI into country (Cuervo-Cazurra, 2006; Smarzynska & Wei, 2000; Woo & Heo, 2009) while others have reported that it can have a positive impact as it enabled speedy transactions in countries with stringent and time-consuming regulations (Egger & Winner, 2005; Huntington, 1968; Leff, 1964). ‘One possible explanation for the inconsistency in these studies is that not all foreign investors are equal and therefore are not equally affected by corruption abroad’ (Cuervo-Cazurra, 2006). ‘Another explanation is that foreign investors are not affected by the level of corruption of the host country per se but by the difference in the levels of corruption between the home and host countries’ (Habib & Zurawicki, 2002). Depending on how corrupt their home nation is, investors may be affected differently by corruption in the host country. Firms that deal with domestic corruption might face less pressure from threats to their legitimacy because they have learnt to deal with this corruption (Cuervo-Cazurra, 2006). This implies that a home country with a lesser

level of corruption as compared to a more corrupt host country (negative corruption distance) would be affected by corruption in the host country, while a home country which has greater corruption levels than host location (positive corruption distance) would not be (Godinez & Ling, 2015). ‘Lower corruption distance (between parent home and host countries) and higher perceived corruption (in host country) are positively related, and mutually reinforcing, when considering a foreign subsidiary’s propensity to formally contract with government-sponsored financial institutions’ (White et al., 2022).

Habib and Zurawicki (2002) used ‘the corruption distance (CD) as a measure of the absolute difference in the corruption levels between the source and the host country’. Wu (2006) used this and according to him ‘it is CD which affects the behaviour of foreign investors rather than the level of corruption in the host country’. As per Wu (2006), ‘the negative effect of CD on a corrupt country seeking FDI from a less corrupt country is stronger than the effect would be for a transparent country looking for FDI from a more corrupt country’. Hence, we could say that there is an asymmetric impact of CD on FDI. Qian and Sandoval-Hernandez (2016), also, ‘found an asymmetric influence between corruption distance and FDI’. Adamoglou et al. (2022) found that

MNEs presence reduces the level of corruption in the seventeen emerging economies’ studied during 2012–2019. ‘The larger the corruption distance, more likely the firms will invest. Additionally, it was found that policy uncertainty has a negative moderating effect on the relationship between corruption distance and FDI location choice. (Rodina, 2022)

There is insufficient and inconclusive research on the impact of corruption on FDI flow. Al-Sadig (2009) and Hakkala et al. (2005) found a positive influence of corruption on FDI, while Cuervo-Cazurra (2008), Dahlström and Johnson (2007), Drabek and Payne (2002), Habib and Zurawicki (2002), Shleifer and Vishny (1993), Smarzynska and Wei (2000) and Wei (1997, 2000a, 2000b) suggested a negative influence of corruption on FDI.

Research Objective

The goal of the current study was to determine whether there is any long-term association between corruption distance and FDI inflows in India as the results on the relationship between corruption and FDI inflows in a country remain inconclusive.

Data and Methodology

Sample

We examined the relationship between corruption distance between the home country of the investing firm (or investor country) and India (which is the host country in this study), and FDI inflows in India for the period 2008–2020—time period because of accessibility to data on all the required variables. The cut-off

point of year 2020 was also suitable as the global FDI flows collapsed post 2020 as a result of the COVID-19 pandemic.

Inward FDI in India has shown consistent increase since the onset of economic reforms in the year 1991. From the moderate amount of USD 14 billion during the 1990s, inward FDI in India has grown remarkably to be recorded at USD 160 billion during the decade ending 2010 and USD 436 billion in the decade ending 2020 (UNCTADSTAT, n.d.). The third largest economy in PPP terms, India is an attractive investment destination for the market seeking FDI. This increasing FDI inflows in India despite the country's consistent low score on the control of corruption dimension published as part of the World Governance Indicator (WGI) by the World Bank, made it an interesting context to examine the research objective of this study.

Data Source and Description

1. Country-wise FDI inflows to India (in USD Millions) from 2008 to 2020 were obtained from the annual publications of the Reserve Bank of India (Reserve Bank of India, 2021). The consistent time series data available for the top 11 investing countries (Cyprus, France, Germany, Hong Kong SAR, Mauritius, Netherlands, Singapore, South Korea, United States of America, United Arab Emirates and United Kingdom) was included in this study.
2. Control of Corruption for all the countries in the data set was collected from the WGI database. The WGI was the most commonly used measure of institutional dimensions, including corruption (Kostova et al., 2020).

As per WGI, control of corruption explains the extent to which public power is exploited for private gain, covering both petty and grand forms of corruption, and 'capture' of the state by elites and private interests (World Bank, n.d.). The value of the variables ranges from -2.5 to 2.5 where higher values indicate better control of corruption in the country.

Using this data, we calculated the control of corruption distance using the following formulae:

Control of Corruption value in the home country of the investing firm (or investor country)_{it} – Control of Corruption value in India_t

where i refers to the home countries of the investing firms ($i = 1$ to 11) and t refers to 2008–2020.

Methods

The presence of a long-run relationship between the variables was tested by applying the Cointegration tests. Some conditions need to be fulfilled to use the panel

cointegration models. First, we have to examine the nature of stationarity of the panel variables. This was done with the help of unit root tests. There are various methods for panel unit root testing, including. Levin et al. (2002) test and Kyung et al. (2003) test, Fisher-ADF test (Maddala & Wu, 1999) and Fisher-PP test (Choi, 2001). Each of these presumes the presence of unit root in the null hypothesis. The acceptance of the null hypothesis means the data was non-stationary. In this study, we used the Fisher type Phillips–Perron Unit Root test that allowed for individual unit root processes.

Depending on the nature of stationarity of the variables, the appropriate cointegration tests were used to examine if there existed any long-term relationship between the considered variables. There are number of ways to test for panel cointegration, just as there are for panel unit root tests. These include the Johansen Fisher (Maddala & Wu, 1999), the Pedroni (1999) test and the Kao (1999) test. We used panel ARDL method in this study as our two variables were found to be integrated in different orders (as shown in the results section).

Results

Unit-root Test (Fisher Type Phillip–Perron Unit Root Testing)

As can be seen from Table 1, the null hypothesis of unit root for FDI inflows was rejected at its level ($p < .01$), suggesting that the variable was stationary. In other words, FDI inflows were integrated at its level, that is, I (0). The variable corruption distance, on the other hand, was found to be stationary only in its first difference. The null hypothesis of unit root could not be rejected at its level ($p > .10$) but was significantly rejected at the first difference of the variable ($p < .01$). In other words, the variable corruption distance is integrated of order 1, that is, I (1).

Test of Cointegration—Panel Autoregressive Distributed Lag

Since two variables are integrated of different orders, FDI-I (0) and Corruption distance-I (1), Panel ARDL, that is, ARDL method can be used to find out if the two variables are cointegrated with each other. We selected the optimal lag using automatic lag length selection based on Akaike Information Criteria. As per

Table 1. Results of Phillip–Perron Unit Root Test.

Variable	Model	PP–Fisher Chi-square Statistic	p Value	Result
FDI inflows (Level)	Trend and intercept	58.594	.000	No unit root
Corruption distance (Level)	Trend and intercept	16.359	.7977	Unit root
Corruption distance (First difference)	Trend and intercept	55.230	.000	No unit root

Source: Stata computations based on collected data.

Table 2. Results of Panel ARDL.

Variable	Coefficient	t-statistic	p Value
Long run equation			
Corruption distance	562.3128	15.20318	.000
Short run equation			
Cointeq01	−0.381146	−2.026657	.0451
D(FDI inflows USD millions (−1))	−0.231626	−1.238066	.2184
D(Corruption distance)	−3427.878	−1.889485	.0615

Source: Stata computations based on collected data.

the criteria, the selected model was ARDL (2,1). The findings are presented in Table 2. The *p* value of corruption distance was less than 0.01. The null hypothesis of no cointegration was rejected at 1% level of significance. This suggests that there exists a long-term relationship between FDI inflows in India and corruption distance.

The negative and significant coefficient of cointegration coefficient suggests that any short-term disequilibrium in the relationship adjusts at the rate of 38.1% per year.

Discussion of Findings

The results of panel ARDL revealed that there is a long-term relationship between FDI inflows in India and the corruption distance between India and the investor country. The greater (lesser) the control of corruption in the host country (India, in our case), the more (less) FDI inflows it is expected to receive. This suggests that the control of corruption, which is an important element of the institutional environment in a country, adds to the location advantages that a country has to offer. Investors, in general, are attracted to invest in countries having stronger institutions where the value of their investment is safe and the cost of doing business is less. While investing in such countries, it is easier for the foreign firms to deal with the liabilities of foreignness.

Policy Implications

Our findings provide a robust empirical support to the notion of institutional difference (or distance) as an important explanation of FDI decisions and therefore contribute to the institutional theory. We also contribute to the institutional theory by looking at often ignored, informal or normative pillars of institutions (Liedong et al., 2020).

As FDI constitutes a vital source of finance for developing and emerging economies, the findings provide a strong case for Indian policymakers to focus on devising effective checks and balances to combat corruption. Furthermore, the importance of FDI is restricted not only to the financial resources it brings in but

also to other benefits such as increased employment, advanced technological and managerial skills, and productivity benefits to the host countries. An increased level of corruption not only deters FDI inflows but also the confidence of the foreign direct investors to transfer advanced technological and managerial knowledge and skills to the host country. As a result of which, the potential benefits of FDI may be lost. Hence, better control of corruption can result in increased FDI inflows and the associated benefits.

Declaration of Conflicting Interests

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Identification of the Preferences Signals of Facebook Algorithm in Prioritising Page Posts on Users' Feeds

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Abstract

With an objective to deliver a relevant experience to its users, the social media platform Facebook employs a backend algorithm to select and identify the page posts, to further populate them on the user's newsfeeds. The algorithm receives indications or signals from the user activities/actions on the platform w.r.t the posts uploaded/ publicly communicated by the pages. In this article, the authors have studied the important user actions from the Facebook algorithm point of view through a systematic analysis of academic and industry-based literature to unearth the user action preferences of the secret and always-changing Facebook algorithm. Basis the findings, the authors have also suggested a conceptual model that drives higher user engagement for the pages. Results reveal that at the page level, 'Follow' and 'Share' are positive indicators for the algorithm, while 'Unfollow' and 'Page Block' are negative signals that impact a page's visibility on the users' newsfeed. At the post level, 'Share', 'Comments' and 'Reactions' are the positive signals of rankings whereas 'Unfollow', 'Hide' and 'Snooze' are a negative set of user actions. The findings of this article are extremely vital for the millions of Facebook page owners/marketers to optimise the overall results.

Keywords

Consumer marketing, social media, Facebook, e-marketing, internet, digital marketing

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Introduction

Among all social media platforms, Facebook is the largest; all thanks to its whopping 2.6 billion monthly active user base. Since brands follow the consumers (Ashley & Tuten, 2014) hence Facebook becomes a natural choice for marketers to explore the best use of the platform to leverage its popularity and establish a deeper relationship with the users that go beyond the purchase (Park & Kim, 2014). According to Facebook's 4th quarter financial results for the year 2019, around 90 million small businesses use Facebook (Martin, 2022). Through brand pages, Facebook allows businesses to connect and engage with the audience. These pages act as an identity for the businesses on the platform (Marrs, 2020). Use of Facebook brand pages is relevant for the marketers to build relation with the customers (de Silva, 2019). Users follow or connect with the brand pages by 'Liking' them (Jahn & Kunz, 2012). User's interaction with the brand page or its content is termed as 'user engagement' which originates out of certain actions taken by the users on the pages and its content. These actions can be in the form of liking, commenting or sharing a post, clicking on a link or even tagging or checking-in on a page (Heiss et al., 2018). User engagement is considered a benchmark to define success for a brand page on Facebook (Tafesse & Wien, 2017). Earlier, marketers used to believe that boosting the number of 'Like', 'Comment' and 'Share' is an indicator of a successful marketing strategy on Facebook (Lipsman et al., 2012), while every user action on Facebook is an indicator of a unique behaviour (Lou & Koh, 2017); as a result Facebook algorithm treats and weighs all user actions distinctly and prioritise brand posts on user newsfeed accordingly (Kim & Yang, 2017). Therefore, it is important to understand user actions and their distinctiveness from the Facebook algorithm perspective. Previous studies such as Alhabash et al. (2015), Kaur et al. (2019) and Obamiro et al. (2020) have studied user actions such as Like, Comment and Share, particularly at the content level. In this article, authors have attempted to study user-driven actions holistically, that is, at the page as well as at the post or content level considering their impact on Facebook algorithm through a systematic review of academic and industry literature.

The article is further organised as follows. At the onset, literature identification criteria have been discussed. Using the defined criteria, further, the review of four relevant streams of literature has been done. These streams are Facebook brand pages, types of pages, Facebook algorithm, user engagement and its importance on Facebook and various user actions on the platform. The next sections talk about the user action preferences of the Facebook algorithm which is the result part of the study and then the proposed conceptual framework both at the page and post level. Post the framework, the theoretical bonding of the findings and theoretical contribution of the study has been discussed. Lastly, the managerial implications of the study have been mentioned along with the opportunities for future research.

Literature Identification

In this study, a systematic review of the extant literature in the domain of Facebook algorithms, user actions and user engagement has been conducted. The systematic

literature review (SLR) is a unique and organised method of reviewing literature that focuses on the 'specific and practice-relevant questions' (Briner & Walshe, 2014).

This study has explicit goals to explore the rapidly changing Facebook algorithms and to find out its subsequent impacts in terms of user actions and user engagement. With this precise agenda, the study puts down the grounds for contributing to this field of study and then provides the possible directions for future research. SLR adopts a structured approach with a set of broad principles for selecting themes and journals. The authors have collected academic, industry and peer-reviewed journal articles that addressed Facebook algorithms, user actions and user engagement. First, an orderly electronic search using several databases including ABI/INFORM Global (ProQuest), Elsevier, Social Science Citation Index, Science Citation Index, Science Direct, Springer and Emerald has been carried out. Literature based on relevant keywords such as 'Facebook', 'Facebook algorithm', 'user action', 'user engagement' and 'priority signals' has also been explored. Second, the authors have manually reviewed the journals dealing with management information systems, consumer psychology and marketing management (e.g., *Information, Communication & Society*; *Journal of Product & Brand Management*; *Applied Cognitive Psychology*; *Journal of Consumer Psychology*; *Computers in Human Behavior*; *Journal of Interactive Marketing*; *Journal of Business Research*) to ensure covering all the significant articles on Facebook and its algorithms.

Following the rules of SLR, inclusion and exclusion criteria have been set for the group of studies that are considered for analysis. The inclusion criteria ensured that the publications should be academic, industry and peer-reviewed with prime focus on Facebook algorithms and their related user actions. The studies without the proper academic background/structure or deep analysis of the usage of Facebook have been excluded. Using the criteria, 61 articles related to the Facebook algorithm and user actions published in the last 18 years, that is, between 2002 and 2020, have been identified for the study.

Results of SLR

Facebook Brand Pages

Many companies use brand pages to communicate and interact with their customers (Palazon et al., 2019; Pöyry et al., 2013) and have described Facebook brand pages as a 'social network-based online brand community'. According to Luarn et al. (2015), Facebook brand pages facilitate communication between businesses and customers, hence they are an extremely popular channel of social media marketing. Facebook brand pages enable relationship building between businesses and prospective customers (Popa et al., 2016) and enhance the probability of purchase (Lee & Hong, 2016). Facebook brand pages trigger a sense of belongingness among its users and enable them to express their sentiments about the brand to other users and thus eliminating the mental separation between users and brand (Kudeshia et al., 2016). Facebook pages help in the creation of user-generated content (UGC) for brands (Mukherjee, 2019).

Types of Facebook Pages

Facebook classifies pages into two broad categories, namely ‘business or brand pages’ and ‘community or public figures’ (Facebook Help Centre, n.d.). By default, Facebook offers similar features and tools to all the pages. These features are mainly core and custom in nature. Core features are the ones that come mandatory with the pages such as Like, Follow, Share and Messaging. Core features cannot be disabled by page admins. While, the custom features on the pages can be activated or enabled by the page admins, based on the nature and business requirements. For example, appointment scheduling, events posting, jobs and groups. This study majorly focuses on the core user actions related to the business or brand pages.

Facebook Algorithm

Algorithms are the set of instructions programmed to make certain judgments (Usher-Layser, 2016) while Knuth (2014) termed algorithms as ‘the instructions those are planned carefully to follow a sequence’.

According to Barnhart (2022), the ordering and sequencing of Facebook posts are controlled by its algorithm as a result users only see the most relevant posts, while to Cooper (2022), marketers who do not pay attention to Facebook algorithm often struggle to reach a larger audience for their branded content which ultimately results into fewer user engagement. The Facebook algorithm has gone through major changes in recent years to improve the newsfeed of the users by prioritising quality content (Boyd, 2019). The Facebook algorithm selects posts on user newsfeed based on certain ‘ranking signals’ and these signals are based on user actions on the posts (Lua, 2017). Posts on a Facebook newsfeed depend on the actions of multiple stakeholders (Thorson, 2019). Gollin (2021) in his study has mentioned that Facebook algorithm changes reflect the platform’s endeavour to counter biased and fake news. After 2018, the algorithm started considering multiple user actions to judge authentic posts and prioritise them.

User Engagement and Its Significance on Facebook

With the emergence of Web 2.0, the term engagement has evolved as a non-transactional construct that is employed to explain the specific interactions and/or interactive experiences of the participants (Pletikosa Cvijikj & Michahelles, 2013; Vivek et al., 2012) have defined engagement as the intensity of an individual’s participation with business offerings and activities. Brodie et al. (2013) in their study have mentioned that in an online community user engagement is the ‘interactive experiences between community members and the brand, and/or among the other members of the community’. The study has also indicated that engagement is supremely context-dependant and dynamic in nature which changes over time and situation. For McAlexander et al. (2002), the role of user engagement is crucial in online brand communities. User engagement impacts organic or unpaid reach for a Facebook page and its content (De Vries et al., 2012; Sabate et al., 2014).

Various terms such as ‘participation’, ‘interaction’ and ‘involvement’ are often used to talk about ‘engagement’ (Poorrezaei & Heinze, 2014). For marketers, engaging users with the page and its content on the platform is quite a challenge (Swani & Milne, 2017) and thus ‘user engagement’ has emerged as a science.

Table 1. User Actions on Facebook.

Page Level		
Sr. No.	Action Type	Description
1	Like	Primary action for users to connect with a page
2	Follow	When a user likes a page it also follows it by default. Further, a user can unfollow the page without unliking it.
3	Share	The share button allows the users to share a page on their timeline, in groups or with their friends via a Facebook message.
4	Save	Action to save a page link for later use
5	Suggest edits	This action enables users to suggest page information that might be missing or incorrect, such as phone number, email, address or even the page category to page admins.
6	Invite friends	This action help the users to invite their friends to Like or Follow a particular page
7	Block page	Blocking a page stops its interaction with the users, i.e., replying to a comment or posts. This action automatically unlike and unfollow the page
8	Find support or report page	This action is for users to report the page which they feel is inappropriate in nature.
9	Call to action	CTA button drives the user's action as per the business need. For example, website visits, sign-ups, calls, bookings, app downloads, watch video. Generally, this action is used to fulfil a macro business objective
10	Send message	Page messaging helps businesses conveniently and privately connect with the users about multiple topics such as customer services, information on products and services.
Post Level		
1	Reactions	Action that enables the users to express their feelings on the posts
2	Like	Like shows user's agreement for a post/content
3	Comment	Comment allows users to respond to a post
4	Share	Through this action, a user can share a particular post among Facebook friends
5	Hide post	This action allows users to hide posts that they see on the newsfeed
6	Save post	Action to save a post link for later use
7	Report post	This action is for users to report the posts which they feel are inappropriate in nature.
8	Snooze	Action to temporarily hide posts from a page. Generally, a page can be snoozed for 30 days at once.
9	Unfollow the page	By this action, a user can choose to stop seeing posts from a page without unliking it.
10	Turning on the notifications	By turning the notification on for a post, a user can enable receiving all comments on it.

Source: Facebook Insights.

Facebook Algorithm and Its Preference

In this section, user actions deemed significant behavioural signals by the Facebook algorithm have been identified by studying the recent updates on the algorithms. Industry-based literature has been reviewed to uncover these actions (Table 1).

Page Level

The 'Liking' of a brand's Facebook page is a way to give positive feedback and connect the user with the brand (Halaszovich & Nel, 2017). For the Facebook algorithm, liking a page is the basic criterion to show page posts on the user's newsfeed (Maree & Heerden, 2020). According to Facebook, when a user likes a page, it reflects its support for the page. Whereas when a user follows a page, it shows the intent to receive updates from the Page in the newsfeed. Users who like a page will automatically follow it. A page can be unfollowed even without disliking the page to stop getting updates from the page. Similarly, a page can be followed, even if it is not liked by the users.

The Facebook algorithm considers page 'unfollow' as an important signal of user intention (Kirkbride, 2021) and weighs more than 'follow' as the latter comes as a default feature for all the users liking a page. For users, a page 'share' is a way to recommend a page to a larger audience by sharing it on their own timeline, groups events or as a message whereas 'invite a friend' enable users as well as page owners/admins to invite specific friends to Like or Follow the page (Yalove, 2020). Both page 'share' and 'invite a friend' helps in the organic growth of the page. 'Save' and 'Suggest Edits' for a page are similar to that on the posts which allow users to visit a page later in the future and suggest edits to the page information, respectively. There is no evidence of any weightage given to these two actions by the Facebook algorithm. Blocking a page is a strong signal of negative user behaviour and automatically dislikes and unfollows the page for the users thus restricting any interaction between the user and the page (Delfino, 2019).

Call to action (or CTA) is an important user action to fulfil business objectives but Facebook considers it very seriously. If the Facebook algorithm detects any attempt to mislead the users through the CTA action like driving traffic to a low-quality website or web page having more bounce rate then the page can get penalised by getting lower reach and ultimately the user engagement. Using the 'send message' action, users can privately communicate with the pages. This action counts as an interaction but does not impact ranking signals. Page Check-in and Page Tagging are a set of user actions that positively impact page organic growth and are treated as a vital sign of user engagement by the Facebook algorithm. These two features are custom in nature and can be activated as per nature and the need of the business. 'Check-in' is significant for businesses with physical locations only while tagging can be done for all page types.

Post Level

In 2020, Facebook's focus was to make its platform transparent by giving more power to the users to decide what to see (Cooper, 2022). To rank posts on user's

newsfeed, Facebook employs a backend logic called 'ranking signals'. These signals consider multiple factors to decide on the rankings and are divided into two classes 'active signals' and 'passive signals'. Active signals get generated through user actions while passive signals are based on user behaviour.

'Likes', 'Share', 'Comment' and 'Reactions' have been considered as vital behaviour as it indicates the level of user engagement with the branded content (Antoniadis et al., 2019). The 'Like' feature on Facebook is a vital indicator of positive feelings (Hossain et al., 2019). According to Teehan (2016), everything on Facebook is not likeable hence the role of reactions becomes more important both for the users and the platform. Facebook algorithms give more weightage to Reactions than a simple 'Like' and consider them prominent user behaviour. In April 2020, Facebook added 'care' emoji reactions (an emoji with a heart) to let users show their support during the COVID-19 crisis for their loved ones (Lunden, 2020). Through 'Reactions', Facebook endeavours to map user behaviour more specifically.

According to Piolat et al. (2005), the creation of a message on social media needs more cognitive effort than consuming a message and thus manifests a higher level of psychological effort. On Facebook, comments are the equivalent of electronic word of mouth (eWOM) which shows users' opinions of the brand post (Lee et al., 2020). User comments on a post are another important factor that impacts ranking signals. Multiple comments on a particular post are considered a sign of a 'meaningful interaction' (Gollin, 2021) and the algorithm prioritise such posts (Montti, 2019). Also, with the recent update on the Facebook algorithm, now the emphasis is more on the personal relationships or affinity audience and thus post by friends gets priority in ranking over those posted by the brands (Cote, 2021) which underline the importance of post share and thus making it a vital ranking signal. A post share is considered a recommendation that does not just appear on the newsfeed of the friends but also on the profile of the users who share it. Hence, it shows the strategic behaviour of self-presentation that needs more effort (Ng, 2016; Van Dijck, 2013). From the algorithm point of view, a post share is the most important signal of user engagement.

Turning on the notification for a post is a way to receive a notification when other users comment on that post. Users would not get notified when someone replies to a comment. This action has no significant weightage on ranking signals whereas 'Save' a post allows users to visit the post later. External webpage links on the posts are also a vital signal for Facebook algorithm and lower the reach of posts containing links to low-quality web pages (Montells, 2017).

There are many negative actions that users can perform on the posts. These actions negatively impact ranking signals:

1. Hide a post: Action to hide a particular post to disable its appearance on the newsfeed
2. Snooze the page for 30 days: This action allows users to temporarily stop seeing posts from a page for the next 30 days
3. Unfollow the page: Through this action, users can tell Facebook to stop showing posts from a particular page.
4. Report the post: Users can flag post inappropriateness by reporting it.

Conceptual Framework for Page-level and Post-level User Actions

Based on the above review of literature, we propose conceptual frameworks for user actions at page (refer to Figure 1) and post (refer to Figure 2) levels respectively.

The Facebook algorithm treats user actions basis the intention. These actions are positive and negative in nature. At page level positive user actions, namely ‘Follow’ and ‘Share’ are treated significantly by the Facebook algorithm which impacts organic reach for the page and its posts whereas the negative set of actions such as ‘Unfollow’ and ‘Page Block’ are the important indicators of the user’s preferences.

On the post front, ‘Share’ followed by ‘comments’ and ‘reactions’ are positive indicators for the algorithm.

Negative user actions on the post such as ‘Hide’, ‘Snooze’ and ‘Unfollow’ help algorithm to understand about users disliking. The literature review has also highlighted that posts shared by friends hold greater importance for the algorithm than posted by the pages.

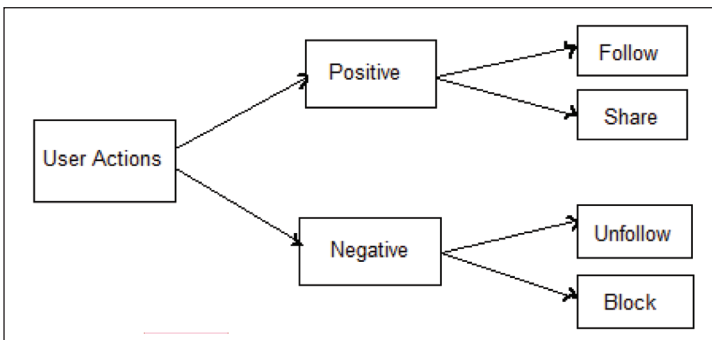


Figure 1. Page Level User Actions.

Source: Facebook Insights.

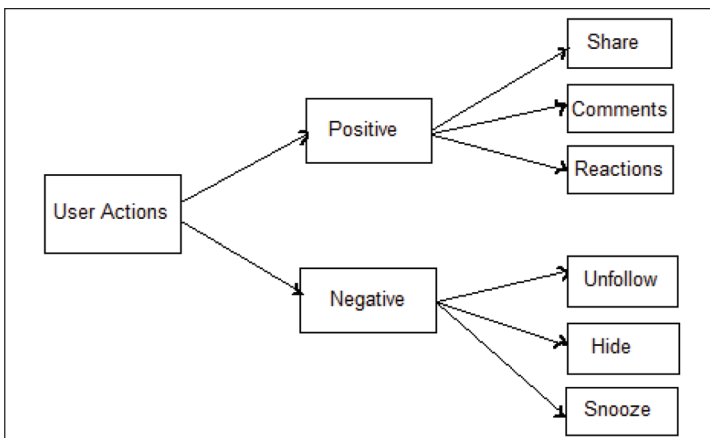


Figure 2. Post-level User Actions.

Source: Facebook Insights.

Theoretical Bonding of Significant User Actions

In this section, the authors have mapped user actions and their behaviour discussed at the page and post level with multiple behavioural theories. The next few paragraphs discuss all those theories.

The social identity theory explains multiple user actions w.r.t online communities. According to this theory, people construct their own identity by getting affiliated with group identity (social identity). This social identity contributes to brand attachment and a result of a sense of belongingness for the brand community. This belongingness triggers interaction among its members (Thomson et al., 2005). This argument validates 'comments' as an important indicator of user behaviour on an online community like the Facebook page. This theory, further proposes that people like to maintain a positive social identity to boost self-esteem and in the event of an unsatisfactory identity people may seek to leave the group (Brown, 2014). This proposition explains about 'following' and 'unfollowing' of brand pages by the users.

The theory of planned behaviour suggests that an individual's attitude influences their behaviour (Maxian et al., 2013). In a Facebook brand page context, 'attitude' can be seen as a user's feeling or bonding about the brand which may influence the consumption of the branded content and action on it.

According to the self-expansion theory (Sprecher et al., 1988), individuals seek to expand their selves by acquiring perspectives, resources and identities to enhance their ability to achieve goals. From a Facebook brand page perspective, this argument also highlights 'interaction' and 'sharing' as significant user behaviour.

Theoretical Contribution

This study as a pioneering effort has explored the likings and disliking of the Facebook algorithm that directly impacts user engagement rate for millions of brand pages and their content on Facebook. Based on the literature review the authors have concluded that Facebook advocates for better user experience within its platform and hence uses a backend algorithm to decide about the posts to be shown on the user's newsfeed. This algorithm gets signals from the user actions and thus decides upon the ranking and priority for the posts.

All user actions are not equally weighted by the algorithm. Actions that represent user intention and behaviour are considered indicators of significance whether positive or negative in nature. Thus, it can be underlined that user action is the first step towards user engagement on a Facebook page. Without having an understanding of significant user actions all efforts towards generating engagement can be a futile exercise.

Managerial Implications

The business objective of using Facebook pages is to engage with prospective and current customers. The significance of 'user engagement on Facebook' can be realised by the outcome of the Google search engine results that reflect over 657 million listings for the search query 'how to get higher user engagement on Facebook'. In this quest to attain significant user engagement with branded content,

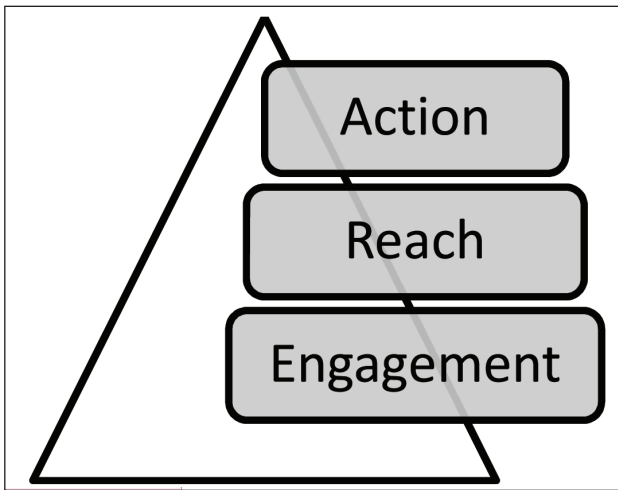


Figure 3. Steps of User Engagement.

Source: Result of SLR.

millions of businesses across the globe spend billions of dollars every year along with huge investments in tools and technologies. But on the other hand, for Facebook, as a platform user experience, is 'supreme' which defines its usability and ultimately its existence (Figure 3). Through its data-driven backend algorithm, Facebook decides on the page's/post's visibility and priority on the user's feed. The information source for the sophisticated algorithm is the user actions which particularly reflect intentions of the users on the platform. This study is significant for Facebook business page owners/admins to understand important user actions from the Facebook algorithm perspective. Generally, the numbers of 'Likes' are considered an indicator of post popularity. This study has shown that the Facebook algorithm prefers 'Reactions' over 'Likes'. User engagement on a Facebook page defines its success but the engagement is the outcome of user actions. By focussing on the important user actions, the organic reach of the page and its posts can be increased, that is, visibility for the branded content on the newsfeed of the users. Since user engagement is the function of reach hence the probability of a post's consumption and interaction with the users becomes much higher. Also, by enabling custom page features such as 'Page Check-ins' and 'Page Tagging', new followers can be organically acquired.

The COVID-19 pandemic has compelled most businesses to go online and explore economical ways for customer outreach. Channels like Facebook pages can be a vital source for product/service exhibition and customer interaction. But to cut the clutter in the large Facebook page ecosystem, page admins need to focus on the important user actions to organically enhance page's/post's visibility among the target audience present on the platform.

Limitations and Future Scope of Study

This study has examined the extant literature in detail to study Facebook algorithms and develop conceptual frameworks for user actions which can provide a direction

for future researchers. However, this study has adopted the SLR approach which is qualitative in nature. Hence, it has provided a base for researchers to empirically test the findings to establish their analytical validity.

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Investigation of Relationship Between Selected Criteria of e-Governance Services with Satisfaction of e-Governance Service Users

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Abstract

The implementation of e-governance for various government schemes and projects is considered a positive movement for effective and transparent governance around the globe. India as an emerging economy is developing a strong governance network. According to figures from the Statista website, there are approximately 3,870 services of the government of India being included on the e-governance platform as on date 25 January 2022 and this is ever-increasing. The present study was done to evaluate the relationship between various selected criteria of e-governance services, namely benefits, integrity, accessibility, extensibility, problems faced and perceived usefulness with satisfaction of e-governance service users. The study was conducted among 100 users of e-governance applications/websites collected from Google Forms, by selected users of Vadodara city of State of Gujarat. The research study yielded major findings that hover around the dimension of integrity and perceived usefulness of e-governance schemes. It can be inferred that the e-governance schemes display the highest preferences of beneficiaries for integrity and perceived usefulness dimensions.

Keywords

Accessibility, benefits, electronic governance, extensibility, government and governance

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Introduction

Electronic Governance is the application of Information and Communication Technologies (ICTs) for delivering Government services through integration of various stand-alone systems between Government-to-Citizens (G2C), Government-to-Business (G2B), and Government-to-Government (G2G) services. It is often linked with back-office processes and interactions within the entire government framework. Through e-governance, the Government services are made available to the citizens in a convenient, efficient, and transparent manner. (IGI Global, n.d.)

e-Governance is considered a system through which the government department works and informs the citizens to disseminate the schemes/application-related details for their benefit, in turn automating the government process. The government harnesses information technologies such as internet, WAN, WWW and wide usage of mobile applications to enable e-governance users, and other deliverables of the government to enable transparency in their work. e-Governance enables efficiency, transparency and usefulness in working of various departments of the government, to offer their citizen-centric services (Bhatnagar & Singh, 2010).

There are researchers who have worked on the e-governance areas and the illustrative list of authors, namely Mufeed et al. (2013) have worked on e-governance delivery; Magele (2012) has worked on the introduction of new technology in the e-governance domains; and Pundhir and Sharma (2017) have worked on increasing the policy framework, governmental reforms and institutional framework in the country. Also, Hussain et al. (2022) have done extensive research on integrity of services from the information security. On the subject, many more authors have done extensive research, which is available in the references.

Considering the research gap, the research was conducted to comprehend and assess the effect of various schemes and related selected attributes related to the use of selected e-governance initiatives of the Government of Gujarat, namely 'benefits, integrity, accessibility, extensibility, problems faced and perceived usefulness' with satisfaction of users of e-governance services from Vadodara city of Gujarat. The researcher has showcased the relationship between the selected attributes and satisfaction of e-governance users through the Structural Equation Model (SEM) to visualise the detailed manifestation of the user/citizen's behaviour towards the use of e-governance practices offered by the government.

Manifestations of e-Governance in India

Total online services of the Government of India from FY 2016–2021 are presented in Figure 1.

In the year 2006, when the government at Central Level launched its NeGP, few Departments/Ministries of Centre & State Governments had already initiated a few projects on e-governance platform. It is pertinent to pinpoint a few key e-governance

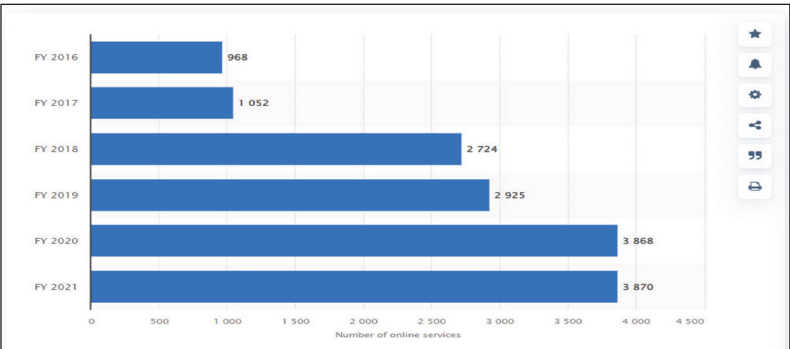


Figure 1. Total Online-services of the Government in India from FY 2016–2021.
Source: www.Statista.com.

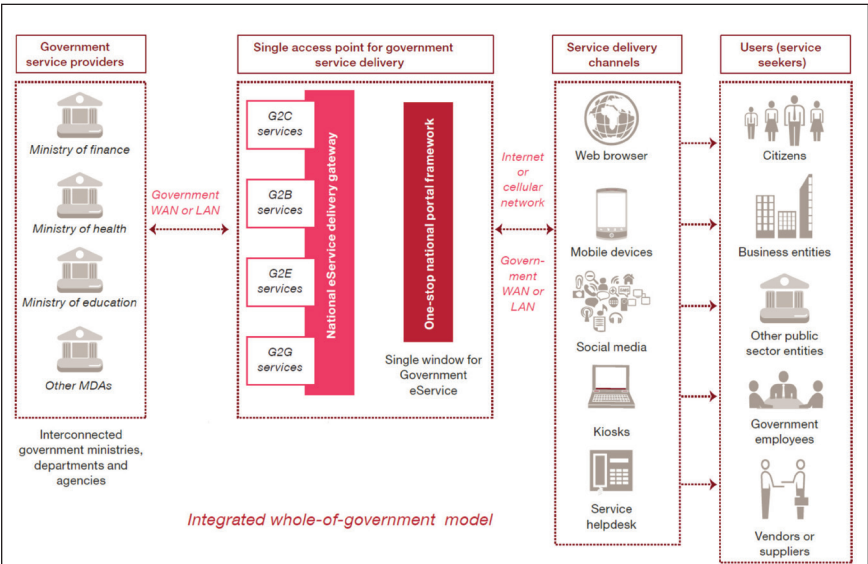


Figure 2. e-Governance Model.
Source: PwC report on Smart Governance & Technology, 2013, p. 17.

schemes and applications conceived by the governments at both levels, evaluate their pros and cons and evaluate the conclusions and learnings from these schemes and applications. These few schemes and applications were taken up and categorised into three groups, namely ‘government to citizen (G2C) initiatives’, ‘government to business (G2B) initiatives’ and ‘government to government (G2G)’. The e-governance model presented in Figure 2 gives an overall idea about how e-governance service is integrated and reaches the community.

Review of Literature

The researcher has presented the review of literature in two parts, the first is a generic review of e-governance, and the second is on selected criteria-based review of the literature. The generic review of the literature is as follows.

Hamid et al. (2016) concluded relationships between the predictor's variable and criterion variable to use e-governance in schools in Malaysia; here e-governance is considered a robust tool to curb corruption. The Indian government has a broader vision of converting all interactions between the citizens and the government to be in electronic mode by the year 2020 (Saini, 2016).

The article also mentions the different initiatives being taken in India and the associated challenges with them. Mukamurenzi et al. (2019) studied e-governance and problems faced in Rwanda on e-governance portal Irembo. According to Gohin (2015), the absence of knowledge and experience in developing available e-governance schemes/applications/websites in India echoes inadequate familiarity and knowledge about user interfaces (UI) and lack of strong understanding of e-governance scheme accessibility procedures within the e-Governance Project Team. This negatively impacts the accessibility of schemes/applications/websites in the Indian e-governance domain.

As per the United Nations e-Government Survey 2022, India has implemented the Digital India initiative with the sole aim of developing a people-centric ecosystem for the poor section of the society within the country. Further, the report mentions that the countries of Rwanda, Ecuador and India have a poorly developed telecommunications infrastructure network; in spite of the lack of network, the country has advanced its presence in the citizen-centric and inclusive online e-governance services (United Nations, 2022).

The Criteria-based Review of Literature

Mufeed et al. (2013) have focussed on the use of ICT in e-governance that supports improving the quality of governance and delivery mechanism. Magele (2012) has enumerated that the councils have to adapt to new technology overlooking the current basic local e-government, into more inclusive governance. The benefits of the e-governance in India, as per the author, has recommended that e-governance could be used for effective policy framework, enhancing governmental reforms and balancing the institutional framework of the country (Pundhir & Sharma, 2017). Hussain et al. (2022) have researched on the integrity of services being launched on the e-governance platform in the current scenario. The increase in cyber-attacks and citizens compromising their data and loss of money on payment gateways are a few of the research topics by the researcher. Rana (2013) has focussed on extending the e-governance services by putting emphasis on the management of various areas, namely information management, identity and access management, content management and standards management. Horst et al. (2007) have highlighted the perceived usefulness of digital services as the key for the government to offer e-government services. The risk, individual experience,

and individual behaviour are significant attributes to identify the perceived usefulness of digitised services of the government.

Hamid et al. (2016) have explicitly considered the technology acceptance model, wherein the linkage between perceived usefulness and perceived ease of use were the key determinants for intention to use the e-governance services.

Shareef et al. (2011) have also studied the influence of models of Technological Adoption Model (TAM), Diffusion of Innovation Theory (DOI) and Theory of Planned Behaviour (TPB) on adoption of e-governance and found that these models are unable to capture the actual essence of the behavioural pattern of the user/citizens but would differ considering the different service maturity levels which are a result of organisational, technological, economical and social viewpoint (Abbas & Hamdy, 2015; Hamid et al., 2016). Belanche et al. (2012) have highlighted that the adoption of e-governance services depends on the trust and personal value orientation of the user/citizens of e-governance services offered. Rana and Dwivedi (2015) have experimented with and derived the Social Cognitive Theory (SCT) and considered attributes of anxiety, self-efficacy, social impact and deriving an online public grievance redressal system (OPGRS) in the Indian context.

The researcher has displayed various insights on variety of e-governance-related work being done in different domains and its perceived usefulness.

Research Gap

Earlier researchers in India and other countries had conducted research in the field of e-governance and have addressed several aspects, namely 'A Survey of Acceptance of e-Government Services in the UK' (Adeshara et al. (2004); 'e-Governance Website Accessibility Evaluation by End User's Perspective' (Gohin, 2015); 'The Effects of Perceived Usefulness and Perceived Ease of Use on Continuance Intention to Use e-Government' (Hamid et al., 2016); 'e-Government: Study of Factors Significantly Affects Adoption and Acceptance in State of Punjab' (Kaur & Singh, 2015); 'A Critical Study of Implication of e-Governance Services for Effective Communication with Special Reference to Citizens in Pune City' (Kumbhar, 2012); 'e-Governance Initiatives in India: A Review' (Saini, 2016); Assessing the Impact of e-Government: A Study of Projects in India (Bhatnagar & Singh, 2010); 'The Future of Digital Government. Department of Economic and Social Affairs, United Nations' (United Nations, 2022) and 'Benefits of e-Governance in India' (Pundhir & Sharma, 2017).

There appears to be a practical-knowledge gap (Miles, 2017) in the prior research and a lack of rigorous research in the prior literature, some of these unexplored criteria and dimensions/variables of e-governance services appear to be lacking in the planning and implementation of e-governance app/websites offering services.

The researcher has found very few research studies, reports and articles in the research journals on selected attributes of e-governance and several unexplored dimensions that lately have engrossed research attention, namely benefits, integrity, accessibility, extensibility, problems faced and perceived usefulness.

To overcome the gap in existing literature related to e-governance, especially in the state of Gujarat, the researcher attempted to investigate the relationship

between selected criteria of e-governance services and with the satisfaction of e-governance service users.

However, there are very few practical studies or action research in the field of evaluating the experience of users of e-governance services to offer meaningful suggestions for policy reforms as well as for improving the state of e-governance services functioning in various domains of e-governance service delivery in the Vadodara city of Gujarat state

Basic Terms of Research Study

There is an endeavour by researcher to explain various key terms. Wixom and Todd (2005) defined 'accessibility as access to the information, expertise, and users with the ease within the user-generated content websites'. The term 'Social Accessibility' defined as: 'having the ability to access social resources for the purpose of engaging' (Di Gang, 2010). Kumar (2013) defined 'extensibility as use of existing functionalities in new ways by the users'. Adeshara et al. (2004) defined 'integration as using different types of sources to intermix the contents in order to reach more effectively to the other users of the network'. Kumbhar (2012) 'A critical study of implication of e-governance services for effective communication with special reference to citizens in Pune city and various problems faced by e-governance users'.

Research Methodology

The main purpose of this study is to assess schemes and applications offered by the Government of Gujarat related to e-governance and its adaptation in Vadodara city of Gujarat state. This research study aimed to assess the opinion of the e-governance users about aspects of benefits, integrity, accessibility, extensibility, problems faced and perceived usefulness of the e-governance initiatives. The researchers used 'exploratory and descriptive research design' to study primary data that were collected through structured questionnaires with the help of Google Forms from total number of 100 e-governance service users in Vadodara city from Gujarat state. The collected primary data thereafter were examined using descriptive statistics, and hypotheses were tested using chi-square. The SEM was also developed to study and examine the relationship between variables under study.

Scope of Research Study

The scope of research study is restricted to measuring effect of selected criteria on satisfaction from e-governance initiatives, namely benefits, integrity, accessibility, extensibility, problems faced and perceived usefulness of e-governance services offered by the Local Municipal Corporation and Government of Gujarat to the users of Vadodara city. The results and findings of the research study are restricted to 100 respondents selected for collecting the primary data using google forms.

Primary Data Analysis

The analysis was done using descriptive statistics, for testing the hypotheses chi-square was used. The reliability and validity were measured for the research instrument.

Data Analysis and Interpretation

The researcher has conducted data analysis using descriptive statistics. The reliability and validity were also measured to validate the research instrument used for this research study.

Reliability and Validity of the Structured Non-disguised Questionnaire

The researcher tested the reliability and validity considering the content of the research instrument, using Cronbach’s Coefficient Alpha.

As per Table 1, the ‘Cronbach’s Alpha score’ (Cronbach, 1951) concluded that the result of test conducted for measuring of judgement of selected factors of e-governance initiatives eventually led to the perceived usefulness of e-governance users and the various values generated from the applications/websites had a wide range from 0.917 to 0.954 for Local Municipal Corporation e-governance initiatives and from 0.913 to 0.957 for Government of Gujarat e-governance initiatives that displayed ‘internal reliability of the scale’ and represents relationships among designated statements (Malhotra, 2007; Nunnally, 1981).

The study compared the mean values to arrive at a score that reflects validity of the content of the research instrument. The conclusion of the validity is displayed in Table 2. The result shows very less variance between the content of research instruments considering the different criteria and score of ‘average satisfaction’. Most of the users’ conclusions were found between ‘highly satisfied’ to ‘neutral’. Thus, different sets of questions fulfil the condition of validity.

Table 1. Reliability of Opinion Towards e-Governance Services on Selected Criteria.

Sr. No.	Selected Criteria	Cronbach's Alpha	Cronbach's Alpha
		Co-efficient (Local Municipal Corporation)	Co-efficient (Gujarat Government)
1	Accessibility	0.934	0.940
2	Extensibility	0.917	0.917
3	Integration	0.925	0.924
4	Perceived usefulness	0.922	0.924
5	Benefits	0.954	0.957
6	Problems faced	0.935	0.913
	Overall reliability of all criteria	0.995	

Table 2. Comparison of Mean Scores of Experience/Satisfaction from e-Governance.

Users Considering Criteria Rating Scale I [Very Poor] to 5 [Excellent]		Users Considering Criteria Rating Scale I [Very Poor] to 5 [Excellent]		Difference in Mean Count [Column B – Column D]	
Average Score	Mean Score	Average Score	Mean Score	Mean Score	Mean Score
(Q-7 – I to 80)	(Rank)	(Q-9 – I to 10)	(Rank)	(Rank)	(Rank)
A	B	C	D	B – D	
Accessibility	3.50	Accessibility	4.12		-0.62
Extensibility	3.41	Extensibility	3.99		-0.58
Integration	3.51	Integration	4.19		-0.68
Perceived usefulness	3.57	Perceived usefulness	4.34		-0.77
Benefits	3.50	Benefits	4.24		-0.74
Problems faced	3.20	Problems faced	3.93		-0.73
Overall average	3.44	Overall average	4.14		-0.7

Respondents' Profiles

The respondents' profiles are presented in Table 3. Most of the respondents are in the age bracket of 31–45 years, with males forming a majority, with a maximum of them being graduates and with an annual income of ₹12 lacs and above.

As shown in Table 4, 76% of respondents are aware of the e-governance schemes offered by Municipal Corporation and 80% of respondents are aware of the e-governance schemes offered by Gujarat state.

Awareness About e-Governance Services Offered by Local Municipal Corporation

The awareness about e-governance services offered by Local Municipal Corporation of Vadodara city is shown in Table 5.

Table 5 reveals that the selected municipality e-governance services considered during the audit, conclude that a high percentage of respondents are aware of services and using the same too, however 24% of users have not heard about public grievance redressal and 32% of respondents are not aware of building sanction from town planning department being done online.

Table 3. Profile of Selected Users of e-Governance Schemes/Applications/Websites.

Sr. No.	Selected Background Variables of Selected Users of e-Governance Schemes/Applications/Websites		Percentages of e-Governance Users
1	Age group	18–30	12
		31–45	41
		46–60	34
		60 and above	13
2	Gender	Males	78
		Females	22
3	Marital status	Unmarried	12
		Married	83
		Single (divorcee/widow/widower)	05
4	Educational qualifications	Less than graduate	01
		Graduation	32
		Postgraduation	42
		Professional degree	25
5	Occupation	Homemaker	03
		Businessman/woman	11
		Self employed	08
		Service	50
		Professional	21
6	Annual family income [in ₹]	Retired	07
		Less than ₹4 lakhs	19
		₹4–8 lakhs	22
		₹8–12 lakhs	17
		₹12 lakhs and above	42

Table 4. Overall Awareness of e-Governance Services in Gujarat State.

Sr. No.	Description	Local Municipal Corporation		Government of Gujarat	
		Yes	No	Yes	No
1	The awareness about e-governance services offered by Government of Gujarat by respondents	76%	24%	80%	20%

Table 5. Awareness of Local Municipal e-Governance Services in Vadodara City.

Sr. No.	Local Municipal Corporation	I Know	I Use	I Do Not Know
1	Property tax (billing & collection)	51%	42%	7%
2	Birth certificate (registration & issue of certificate)	66%	28%	6%
3	Death certificate (registration & issue of certificate)	71%	21%	8%
4	Water bill (billing & collection)	53%	39%	8%
5	Grievance redressal (public grievance redressal)	62%	14%	24%
6	Piped natural gas bill (billing & collection)	38%	54%	8%
7	Building sanction	56%	12%	32%

Awareness About e-Governance Services Offered by Government of Gujarat

The awareness among the e-governance users of Vadodara city about e-governance services offered by the Government of Gujarat is shown in Table 6.

As shown in Table 6, it can be inferred that the selected e-governance schemes and services offered by the Government of Gujarat signify that the awareness about the schemes is high, though the respondents may not have used the same. The scheme of e-Gram Vishwagram is still not popular among the rural population as 58% of respondents have responded about their ignorance about the scheme.

Comparison of e-Governance Services Versus the Manual Services

Table 7 signifies the responses from respondents that, the number of visits to a government office has reduced with the introduction of e-governance platforms for the same services. The respondents have also responded that the cost of availing the service and time required for availing the service has come down with introduction of e-governance platforms.

Table 8 depicts the responses from respondents, wherein the experience of using selected e-governance services has been taken vis-à-vis the behavioural intention and attitude of the user.

Table 6. Awareness of State Government e-Governance Services in Vadodara City.

Sr. No.	Government of Gujarat	I Know	I Use	I Do Not Know
1	Road Transport Office (RTO) (driving license issue & renewal)	47%	48%	5%
2	e-Dhara (land records) (registration, transfer, buying)	48%	17%	35%
3	e-City (Jan Seva Kendra)	52%	20%	28%
4	Tele-Fariyad (CM's call centre on 1505)	38%	9%	53%
5	108 emergency service	60%	38%	2%
6	Crime and Criminal Tracking Network and Systems (CCTNS)	51%	4%	45%
7	Public distribution system (iPDS): Ration card	53%	13%	34%
8	Gujarat Hospital Management Information System (GHMIS)	42%	7%	51%
9	Mukhya Mantri Amrutam (MA)	55%	11%	34%
10	e-Gram Vishwagram	37%	5%	58%

Table 7. Response from e-Governance Users about Manual Services and e-Governance Services.

Sr. No	Description	Mode of Services			
		Manual		e-Governance	
1	Frequency of visits required to government office for getting e-governance services	Good-56%	Bad-44%	Good-82%	Bad-18%
2	What is the cost burden incurred for availing e-governance services (₹)	High-59%	Low-41%	High-28%	Low-72%
3	What is the time required for availing e-governance services (Hrs)	High-61%	Low-39%	High-19%	Low-81%

Experience of e-governance services for local municipal corporation and Government of Gujarat (Very Poor = 1, Poor = 2, Fair = 3, Good = 4 and Excellent = 5).

Findings and Implications of the Research Study

The researcher offered findings of implementation of various statistical tools and techniques that were put to use to conclude meaningful economic and social implications of this research study. The relationships of variables, namely 'accessibility, extensibility, integration, perceived usefulness, benefits, problems faced', with selected demographic variables are tested using the chi-square test.

The researcher attempted to present overall implications considering the results and evaluations of the primary data collected.

Table 8. Response of e-Governance Users about Behavioural Intention and Attitude.

Sr. No	Selected Items	Experience in e-Governance Services														
		Government of Gujarat (Figure in %)					Local Municipal Corporation (Figure in %)									
	Behavioural Intention	1	2	3	4	5	1	2	3	4	5					
1	The use of e-governance app/website develops positive beliefs towards all government schemes and services	5	6	24	51	14	5	8	25	53	9					
2	Using of e-governance app/website is an enjoyable experience	4	1	50	33	12	4	1	46	35	14					
3	With successful usage of e-governance app/website, I continue to use all the available schemes of the government	4	6	38	37	15	6	5	44	34	11					
4	With successful usage of e-governance app/website, I recommend others to use the same	5	2	29	48	16	4	2	28	51	15					
5	Overall, satisfaction with the use of apps	6	2	31	49	12	4	5	33	45	13					
	Attitude															
6	I am ready to use current and future e-governance app/website services offered to citizens by the government	4	3	24	50	19	5	2	23	54	16					
7	The e-governance app/website is reliable for all citizens to use for all services	5	2	31	41	21	5	5	30	41	19					
8	I may use the e-governance app/website services offered to citizens by the government if I perceive it as useful	5	5	32	46	12	2	3	35	43	17					
9	I will not use the e-governance app/website services offered, due to unfavourable experience in the past	9	19	46	22	4	8	17	49	20	6					
10	I will not use the e-governance app/website services offered and shall not allow other citizens to use too	9	23	40	28	4	10	27	38	23	2					

The Findings of the Chi-square Test Are as Follows

Hypothesis 1. There is no association between selected variables of e-governance services related to accessibility of e-governance services used by selected respondents of Vadodara city vis-à-vis selected e-governance service users' selected background variables, namely 'Age [A], Gender [G], Educational Qualifications [EQ] and Income [I]'.

The chi-square results as given in Table 9 revealed non-significant results for association between selected variables related to accessibility of e-governance services, except the criteria, namely 'accessibility to a strong and robust application/website'; 'e-governance applications/websites are accessible 24×7'; 'easy to navigate website'; for Age group. Similarly, the criteria, namely 'easy to navigate website' is significant for the Gender and Income group. The criteria 'e-governance apps/website is user friendly' and other criteria, namely 'instant answer to my actions (clicks)', are significant for educational qualifications.

Hypothesis 2. There is no association between selected variables of e-governance services related to extensibility of e-governance services used by selected respondents of Vadodara city vis-à-vis selected e-governance service users selected 'background variables, namely Age [A], Gender [G], Educational Qualifications [EQ] and Income [I]'.

Considering Table 10, the chi-square results show non-significant results for association between selected variables related to extensibility of e-governance services, except the criteria, namely 'e-governance app/website provides detailed information about the service offered', for the Age group. Similarly, the criteria, namely 'e-governance app/website administrator/backend technical team are quick to resolve the issues' is significant for the Income group. The criteria 'e-governance app/website provides detailed information and description of the e-governance service offered' and other criteria, namely 'the information provided by website is easy to comprehend', are significant for the Income group.

Hypothesis 3. There is no association between selected variables of e-governance services related to Integration of e-governance services used by selected respondents of Vadodara city vis-à-vis selected e-governance service users selected 'background variables, namely Age [A], Gender [G], Educational Qualifications [EQ] and Income [I]'.

The results of chi-square displayed in Table 11 show non-significant results for association between selected variables related to Integration of e-governance services, except the criteria, namely 'app/websites integrates different services offered for a particular service on one dashboard', for Age and Gender group.

Table 9. Selected e-Governance Users' Opinion on Selected Variables of Accessibility vis-à-vis Selected Background Variables of e-Governance Service of Vadodara City.

Sr. No.	Selected Criteria	'p' Value of χ^2			
		Age [A]	Gender [G]	Educational Qualifications [EQ]	Income [I]
1	Accessibility to a strong and robust application/website	S(.040)	NS(.329)	NS(.642)	NS(.431)
2	Apps/websites are user friendly	NS(.162)	NS(.443)	S(.026)	NS(.272)
3	Applications/websites are accessible 24x7	S(.038)	NS(.325)	NS(.292)	NS(.488)
4	Application/website can be accessed from anywhere	NS(.068)	NS(.858)	NS(.346)	NS(.298)
5	Easy to upload and download relevant documents	NS(.220)	NS(.113)	NS(.447)	NS(.220)
6	Hassle-free integration of e-governance website/app with payment gateway	NS(.000)	NS(.118)	NS(.350)	NS(.422)
7	Need to spend less time gathering information on e-government services	NS(.131)	NS(.199)	NS(.440)	NS(.181)
8	Simple and easy-to-navigate website	S(.005)	S(.050)	NS(.291)	S(.048)
9	Quick response to my actions(clicks) on website	NS(.110)	NS(.200)	S(.028)	NS(.191)

Note: The bold numbers are significant values depicted.

Table 10. Selected e-Governance Users' Opinion on Selected Variables of Extensibility vis-à-vis Selected Background Variables of e-Governance Service of Vadodara City.

Sr. No.	Selected Criteria	'p' Value of χ^2			
		Age [A]	Gender [G]	Educational Qualifications [EQ]	Income [I]
1	App/website provides detailed information about service offered	S(.023)	NS(.516)	NS(.070)	NS(.474)
2	App/website administrator/ backend technical team are quick to resolve the issues	NS(.305)	NS(.507)	NS(.523)	S(.050)
3	App/website provides detailed information and description of e-governance service offered	NS(.368)	NS(.206)	NS(.134)	S(.030)
4	Information provided by website is easy to comprehend	NS(.516)	NS(.219)	NS(.520)	S(.020)

(Table 10 continued)

(Table 10 continued)

Sr. No.	Selected Criteria	'p' Value of χ^2			
		Age [A]	Gender [G]	Educational Qualifications [EQ]	Income [I]
5	e-Governance website provides information in concise format	NS(.363)	NS(.411)	NS(.086)	NS(.073)
6	Information provided by website is not easy to get otherwise from other sources	NS(.146)	NS(.534)	NS(.438)	NS(.128)

Note: The bold numbers are significant values depicted.

Table 11. Selected e-Governance Users' Opinion on Selected Variables of Integration vis-à-vis Selected Background Variables of e-Governance Service of Vadodara City.

Sr. No.	Selected Criteria	'p' Value of χ^2			
		Age [A]	Gender [G]	Educational Qualifications [EQ]	Income [I]
1	App/website integrates different services offered for a particular service on one dashboard	S(.003)	S(.045)	NS(.076)	NS(.149)
2	App/website displays a simplified process of a service to be availed	S(.050)	NS(.292)	NS(.107)	NS(.170)
3	App/website integrates different sub-processes of a service, making it a convenient hassle-free UI	S(.001)	S(.033)	NS(.785)	S(.014)
4	App/website displays simplified Payment gateways	S(.018)	NS(.515)	NS(.505)	S(.000)
5	App/website displays a transparent governance for service task completion to citizens	NS(.154)	NS(.707)	NS(.108)	NS(.247)
6	Website offers various payment options	S(.001)	NS(.381)	NS(.847)	NS(.375)
7	Website offers wide range of services through a single website	NS(.064)	S(.016)	NS(.594)	NS(.068)

Note: The bold numbers are significant values depicted.

Similarly, the criteria, namely 'app/website integrates different sub-processes of a service, making it a convenient hassle-free user-interface' is significant for age, Gender and Income group. The criteria 'app/website displays simplified payment gateways' is significant for Age and Income groups. The criteria, namely 'website offers various payment options', is significant for the age group.

Hypothesis 4. There is no association between selected variables of e-governance services related to 'Perceived Usefulness' for e-governance schemes used by selected users of Vadodara city vis-à-vis selected e-governance service users' selected 'background variables, namely Age [A], Gender [G], Educational Qualifications [EQ] and Income [I]'.

The results of chi-square test given in Table 12 results show the non-significant results for association between selected variables related to the Perceived Usefulness of e-governance services, except the criteria, namely 'using e-governance app/web saves time for avail services', for Gender and Income group. Similarly, the criteria, namely 'using e-governance app/web results in charging affordable fees for availing respective services of government by citizens' is significant for Age and Gender group. The criteria 'using e-governance app/web provides flexibility to citizens in using services as per convenience' is significant for age and educational qualification group.

Table 12. Selected e-Governance Users' Opinion on Selected Variables of Perceived Usefulness vis-à-vis Selected Background Variables of e-Governance Service of Vadodara City.

Sr. No.	Selected Criteria	'p' Value of χ^2			
		Age [A]	Gender [G]	Educational Qualifications [EQ]	Income [I]
1	Using e-governance app/web reduces cost of utilising service	NS(.211)	NS(.117)	NS(.097)	NS(.147)
2	Using e-governance app/web saves time for avail services	NS(.445)	S(.021)	NS(.275)	S(.033)
3	Using e-governance app/web gives a transparent perspective to citizens	NS(.392)	NS(.568)	NS(.652)	NS(.090)
4	Using e-governance app/web results in charging affordable fees for availing respective services of government by citizens	S(.008)	S(.017)	NS(.081)	NS(.092)
5	Using e-governance app/web implies answerability on respective government department to give service to citizen	NS(.067)	S(.033)	NS(.903)	NS(.094)
6	Using e-governance app/web provides flexibility to citizens in using services at per convenience	S(.000)	NS(.071)	S(.027)	NS(.525)
7	Notification of description of the failure of e-governance services is shared by website	S(.010)	NS(.280)	NS(.063)	S(.043)

Note: The bold numbers are significant values depicted.

The criteria, namely ‘notification of description of the failure of e-governance services, is shared by website’, is significant for Age and Income group.

Hypothesis 5. There is no association between selected variables of e-governance schemes related to the Advantages of using e-governance schemes by selected respondents of Vadodara city vis-à-vis selected e-governance service users selected ‘background variables, namely Age [A], Gender [G], Educational Qualifications [EQ] and Income [I]’.

Table 13 showcases the result of the chi-square test showing non-significant results for association between selected variables related to benefits of e-governance services, except the criteria’s, namely ‘services offered by app/web are transparent to use’; ‘services offered by app/web hassle free to use by citizens’ and ‘app/web are

Table 13. Selected e-Governance users’ Opinions on Selected Variables of Benefits vis-à-vis Selected Background Variables of e-Governance Service of Vadodara City.

		'p' Value of χ^2			
Sr. No.	Selected Criteria	Age [A]	Gender [G]	Educational Qualifications [EQ]	Income [I]
1	Use of e-governance services is user friendly	S(.001)	NS(.277)	NS(.185)	NS(.347)
2	Services offered by app/web is convenient to citizens	NS(.222)	S(.020)	NS(.102)	NS(.089)
3	App/websites are transparent	NS(.290)	NS(.088)	NS(.167)	NS(.082)
4	Services offered by app/web are transparent to use	S(.023)	S(.266)	NS(.087)	NS(.425)
5	Services offered by app/web are hassle-free to use by citizens	S(.035)	S(.050)	NS(.120)	S(.013)
6	App/web is economical/affordable to citizens for its usage	S(.031)	S(.028)	NS(.270)	NS(.130)
7	App/web usage saves time	NS(.288)	NS(.111)	S(.042)	NS(.284)
8	App/web is simple to use	S(.010)	NS(.478)	NS(.181)	NS(.521)
9	App/web is quick and fast to citizens for its usage	NS(.565)	NS(.150)	NS(.133)	NS(.592)
10	App/web facilitates auto record generation for reference of citizens	NS(.510)	NS(.077)	S(.036)	NS(.168)
11	App/web offers personalised services to citizens	S(.001)	NS(.131)	NS(.667)	NS(.068)
12	App/web offers flexibility to citizens in using services	NS(.205)	NS(.107)	NS(.672)	NS(.145)

Note: The bold numbers are significant values depicted.

economical/affordable to citizens for its usage' for Age and Gender group. Similarly, the criteria, namely 'app/web usage saves time' and 'app/web are simple to use' is significant for educational qualification and age group respectively. The criteria 'app/web facilitates in auto record generation for reference of citizens' and 'app/web offers personalised services to citizens' are significant for educational qualification and age group respectively.

Hypothesis 6. There is no association between selected variables of e-governance services related to Problems Faced by e-governance services used by selected respondents of Vadodara city vis-à-vis selected e-governance service users selected 'background variables, namely Age [A], Gender [G], Educational Qualifications [EQ] and Income [I]'.

The chi-square results shown in Table 14 portray non-significant results for the association between selected variables related to Benefits of e-governance services, except

Table 14. Selected e-Governance Users' Opinion on Selected Variables of Problems Faced vis-à-vis Selected Background Variables of e-Governance Service of Vadodara City.

Sr. No.	Selected Criteria	'p' Value of χ^2			
		Age [A]	Gender [G]	Educational Qualifications [EQ]	Income [I]
1	App/web has reduced cost of obtaining various civic and other services?	NS(.225)	NS(.141)	S(.009)	NS(.085)
2	Lack of monitoring of quality & efficiency of outsourced agencies by government bodies, for different e-governance services employed	S(.000)	NS(.447)	NS(.904)	S(.031)
3	e-Governance services are not user friendly	NS(.156)	NS(.486)	NS(.536)	NS(.779)
4	Fear of confidentiality in providing personal/business data, for e-governance services	NS(.301)	S(.003)	NS(.219)	NS(.729)
5	Outsourced team employees are an untrained workforce	S(.005)	NS(.349)	NS(.837)	NS(.573)
6	Government employees are an untrained workforce	S(.001)	NS(.272)	NS(.910)	NS(.236)
7	Enabled access to civic services for people with disabilities, digital divide & multi-lingual access	NS(.579)	NS(.186)	NS(.331)	S(.050)
8	e-Governance websites server hangs frequently during usage	S(.005)	NS(.353)	NS(.668)	NS(.713)
9	Process of usage of e-governance services is complex	S(.007)	NS(.157)	NS(.164)	NS(.112)

Note: The bold numbers are significant values depicted.

the criteria, namely ‘app/web has reduced cost of obtaining various civic and other services’ for Educational Qualifications group. The criteria, namely ‘lack of monitoring of quality & efficiency of outsourced agencies by government bodies, for different e-governance services employed’ is significant for Age and Income group. The criteria ‘fear of confidentiality in providing personal/business data, for e-governance services’ is significant for the Gender group. The criteria ‘Outsourced team employees are an untrained work force’; ‘government employees are an untrained work force’; ‘e-governance websites server hangs frequently during usage’ and ‘Process of usage of e-governance services is complex’ are significant for Age group.

Structural Equation Model

Figure 3 represents ‘Simple Regression Model’ which demonstrates the relationship between the observed variable, namely ‘overall satisfaction’ with selected criteria of e-governance. The variables other than selected 06 variables assume the error value as ‘01’, that predicts the relationship between overall satisfaction and selected criteria of e-governance.

The value shown against the two-side arrow reflects dual relationships between variables (0.87, 0.92, 0.76, 0.73, 0.90, 0.77, 0.89 and 0.88) indicates the correlation between them. The values shown against single side arrow, depict direct relationship (0.65, 0.64, 0.37, 0.35, 0.32 and 0.18) are ‘standardised regression weights’.

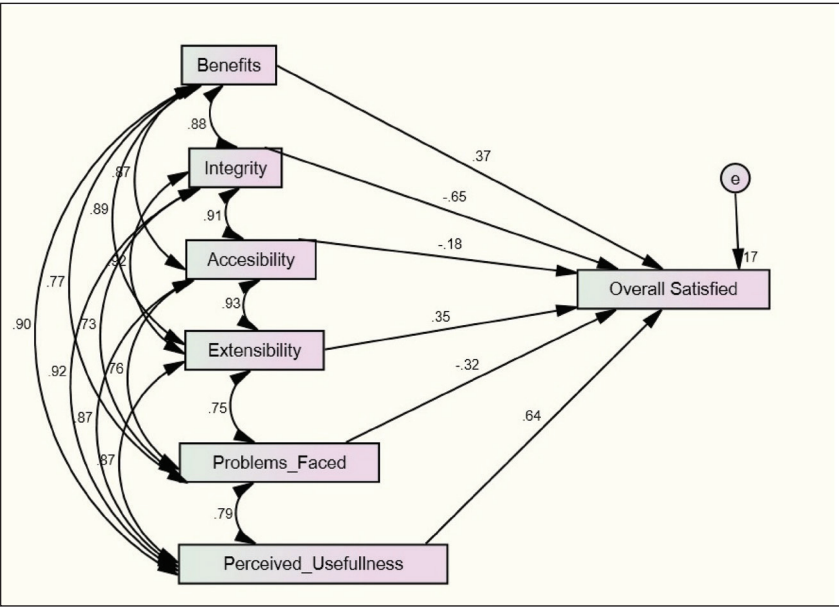


Figure 3. Structured Equation Model [SEM] Model Showing Relationship Between Selected Attributes of e-Governance and Overall Satisfaction of Users of e-Governance Services.

It meant that the 'overall satisfaction' with e-governance schemes/applications was found as mainly influenced by integrity (0.65), perceived usefulness (0.64), benefits (0.37), extensibility (0.35), problems faced (0.32) and accessibility (0.18).

Key Findings of the Research Study

The usage of mobile data and Wi-Fi, as well as awareness about various e-governance initiatives, have been found very high; the users access various e-governance schemes through mobile and Wi-Fi multiple times a day.

The respondents have validated their knowledge about Local Municipal Corporation schemes such as property tax billing and collection, birth and death certificate registration and issue, water bill payment, and PNG installation and billing. The knowledge and usage of local municipal corporation schemes such as public grievance redressal and building sanction are relatively low.

The Government of Gujarat's e-governance schemes such as RTO issue and renewal, land registration e-Dhara and 108 EMRI are very popular among the respondents, however, the knowledge and awareness about e-governance schemes such as e-City, Tele-Fariyad, CCTNS, iPDS, GHMIS, MA and e-Gram Vishwagram are either low or average.

Large number of respondents still believe in physically visiting the government office to avail the scheme, rather than using the scheme on the internet. The analysis shows that the physical visits to government offices have reduced with government schemes getting integrated with e-governance platforms. Also, physical visits to government offices incur high costs; by accessing e-governance schemes, users are able to reduce the overall cost. The time required to physically visit the government offices to access schemes is high.

For accessing e-governance schemes of Local Municipal Corporation, accessing e-governance schemes online develops positive belief among users instilling confidence in them for the schemes, users have had a fairly good experience in accessing the schemes online. The reach of government schemes has fairly increased among users, as a greater number of users are using the schemes.

For accessing e-governance schemes of the Government of Gujarat, certain of the e-governance portals are easy to access and manoeuvre but certain ones are difficult to access. Uploading and downloading documents are an issue at certain times. The integration with payment gateway is an issue at certain times. Most of the portals have navigation issues related to slow servers at the backend.

For extensibility, e-governance scheme users of Local Municipal Corporation, the schemes could be more detailed on the portals, the issues do take a very time to be responded to by the administrator of the website. The schemes on the website are surely explained in detail but a better and easy explanation could help.

For extensibility, e-governance scheme users of the Government of Gujarat, certain schemes are explained well, but certain schemes are not explained well on the portal, it is not easy to comprehend and understand. The web administrator of the scheme is unable to resolve the backend issues.

For integration-related findings of e-governance schemes of Local Municipal Corporations, most of the schemes can be seen on one portal, with ease to access the schemes and payment gateways integrate if there is a payment requirement.

For integration-related findings of e-governance schemes of Government of Gujarat, the schemes and applications are available on different sites and portals, certain ones from same department may be on one portal. The portals have a convenient payment gateway too, at times these sites do have a delay in accessing various pages on mouse clicks, as the backend servers hosting the sites may be slow.

For assessing the usefulness of the e-governance schemes at the Local Municipal Corporation, the respondents responded by mentioning that e-governance platforms have reduced the cost-of-service utilisation, with immense saving of time, giving transparency of service, responsibility and accountability of government departments.

For evaluating the 'benefits of e-governance schemes of Local Municipal Corporation', respondents have responded that the schemes are user-friendly and convenient to use, though there are hassles to understand the details of the scheme and usage of the portal, surely there is a saving of time, offer flexibility of usage and time of usage.

For evaluating the 'benefits of e-governance schemes of Gujarat government', the respondents have responded by mentioning that schemes are not user-friendly, the details of schemes are not understood well in most of the schemes, though they offer transparency post application. Not all the portals of the schemes are hassle-free, but they offer flexibility in time and use.

For problems evaluation of e-governance schemes of Local Municipal Corporation, the respondents have responded by mentioning that the cost of obtaining service has reduced, the users also agree that the quality of service offered by outsourced employees is not acceptable, also the government employees have a very shallow understanding of the e-governance portal, resulting into wastage of precious time of users. The servers which host the portals are also not equipped to take the requisite website load.

For problems evaluation of e-governance schemes of the Government of Gujarat, the respondents have responded by mentioning that the cost of obtaining the service has surely reduced but there is, at times, an issue with people from outsourced agencies and government officials unaware of the way the site works and benefits that can be acquired from the website. Certain schemes of the Government of Gujarat are not user-friendly, with complex processes.

For assessing the attitude of e-governance users in Local Municipal Corporation and Government of Gujarat, the respondents have responded by mentioning that they will use the websites of various e-governance schemes, as it is helpful.

For assessing the perceived importance of e-governance users in Local Municipal Corporation and Government of Gujarat, large percentage of respondents have responded by mentioning that though there are benefits of using e-governance applications on a positive note, there are certain respondents who are negative for specific schemes/websites.

For assessing the overall satisfaction of e-governance users in Local Municipal Corporation and Government of Gujarat, the respondents have responded by mentioning that they are satisfied with using the e-governance websites.

Significance of the Research Study

The findings of the research work are expected to be useful for e-governance users and governmental departments, as it will be identifying the impact of features of various schemes/applications on the perception of perceived usefulness impacting the behaviour intention and attitude, of the users. It would greatly impact for better understanding and utilisation of e-governance applications/websites. The research study would be expected to be utilised by various e-governance application/website developers for the design of varied strategies beneficial in growing the utilisation of various e-governance initiatives of the government.

Discussion and Implication of the Research Study

The researcher made an attempt to conduct a study from 100 respondents from Vadodara city and the implications of the study are as follows.

The study supports the evidence that people use the internet, looking into the IT boom, which is further expected to rise in the times to come and hence the usage of the internet is increasing day by day. Hence it can be inferred that the reach and success of e-governance programmes from the government could have a wider reach among users in the society. The awareness about e-governance being high, adaptation of various applications and initiatives could be successful.

There is evidence from the research study that the knowledge and utilisation of the e-governance initiative by users give confidence to introduce more initiatives on the e-governance platform by various departments of the government. Since the reach of e-governance is vast, other applications and e-governance initiatives could be introduced too.

The study has further highlighted that use of e-governance services such as e-Gram Vishwagram, iPDS, Mukhyamantri Amrutam and CM's Tele-Fariyad (1505) is poor in rural populations. Hence the study necessitates strengthening the e-governance schemes in the rural belt of Gujarat state as lot of rural schemes are offered by the government, which require a wider reach.

The study implies the favour of respondents, by endorsing that the overall cost of, accessing e-governance schemes goes down on e-governance websites, also convenience of time and place is flexible in using the e-governance schemes, giving added transparency and financial security in using the schemes.

The finding of the study insists on an urge to focus more on making the websites more user-friendly, with an easy language and easy manoeuvrability on the UI, so that e-governance user of each Age group, Gender, with varied Educational Qualifications, and vide Income group can access the same.

Recommendations

The key recommendations based on the research study are as follows:

- More user-centric e-governance schemes would be launched on the e-governance internet platform to offer varied services to different government departments.
- The e-governance schemes intended for the rural population have to be strengthened with more awareness creation with Village Computer Entrepreneur (VCE) at e-Gram Centres at the Gram Panchayat level.
- The e-governance websites/schemes have to be made more user friendly, with easy language and easy to manoeuvre on the UI.

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India's Quest for Achieving \$5 Trillion Economy: A Critical Review

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India @75 years of Independence is marching towards India@100. India should achieve its significant position in the international community and transition from a middle-income to a major economy during the next 25 years. This is possible by gearing up all the wheels and motors of the economic engine—investments, savings, productivity, consumer demand and exports, done collectively. There is a strong need to bring in big reforms along with incremental changes in all facets of the economy to attract fresh investments from both domestic and foreign sources. While India should leverage the opportunities provided by the global economy, it should also expand its goal of a truly independent India by implementing Aatmanirbhar Bharat. India's efforts to achieve an average 8%–9% GDP growth and reform towards Aatmanirbhar Bharat can be made easier by utilising the enormous potential of abundant natural resources, demographic dividend, qualified and talented workforce and extensive rural economy.

By 2024, Indian Prime Minister, Shri Narendra Modi aspires the country's GDP to be worth \$5 trillion. It took the Indian economy 8 years to double, reaching \$2 trillion in 2014, and another 7 years to reach its present level of little under \$3 trillion. Against this backdrop, may appear formidable to achieve the Goal by 2024; however, the country has the drive and potential to bring it about as early as possible. To quote from Collins and Porras (1994), all stakeholders must adopt this vision and implement it by acting and thinking BIG. The BHAG or Big Hairy Audacious Goal of an organisation is a captivating and potent endeavour (Collins & Porras, 1994).

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Despite this appearing as a challenging goal, our drive for advancement makes us believe we can accomplish it. It is assumed that both the Centre and the states will adopt structural reforms, a strategic plan and a strong emphasis on exports, among other things.

Except for FY2016 and FY2017, when it showed growth rates of 8.0% and 8.3%, respectively, India's GDP growth rates were on the decline. Only 3.7% GDP growth was recorded in FY2020, much below COVID-19s rate of growth. Additionally, the nominal growth rates have sharply decreased, falling from 19.9% in FY2011 to 7.8% in FY2020. India's GDP varied from 7.9% in 2003–2008 to 3.1% in 2008–2009 to 8.2% in 2009–2011 to 5.7% in 2011–2017 to 5.7% in 2018–2019 (Reserve Bank of India [RBI], 2022a, Table I.1).

Due to COVID-19, India had to declare lockdown in FY2021, which caused a contraction of 24% in the first quarter and a contraction in GDP growth of –6.6% and nominal growth of 3.0% for the entire year.

According to the RBI (2022b), India can be expected to recover from the COVID-19 losses only in the years 2034–2035, taking into account the actual growth rates of 6.6% for FY2021, 8.9% for FY2022 and 7.2% (estimated by RBI in the recent April 2022 Credit Policy). In order to cover the annual losses, the RBI will need to raise the sums of 19.1 lakh crore (for FY2021), 17.1 lakh crore (for FY2022), and 16.4 crore (for FY2023). Budget 2022–2023 estimates that India's GDP will expand by 8%–8.5% in FY2023.

However, due to the rising prices of commodities around the world, particularly food, oil and natural gas, as well as the high inflation projection internationally and in India, different agencies have reduced India's GDP growth for FY2023 downward. The RBI has cut the figure to 7.2%. To reach its goal of a \$5 trillion economy, India must have an average growth rate of at least 8%–9% during the ensuing years. With recurrent waves of COVID-19 and their associated output losses and effects on GDP, as well as recent developments on the geopolitical front, the challenges to India's aim of a \$5 trillion economy have increased.

Government and RBI Actions During COVID-19

Both the RBI and the central government have taken numerous actions to mitigate the effects of the first and second waves of COVID-19 to ameliorate the situation. Along with many other regulatory and prudential measures, both conventional and non-conventional, to support growth by the RBI, the central government launched Aatmanirbhar Bharath Abhiyan programmes in various phases totalling ₹29.74 lakh crores, including RBI's ₹12 lakh crores. These measures included the injection of liquidity of ₹12 lakhs and the reduction of 115 basis points in interest rates to repo rate level of 4%. According to Aatmanirbhar Bharat Abhiyan, the central government made numerous significant reforms and transformational changes.

The five steppingstones of Aatmanirbhar Bharat are as follows (Government of India, 2020):

- Economy
- Infrastructure
- Vibrant demography
- Demand
- Structure

The five phases of Aatmanirbhar Bharat are (Government of India, 2020):

- Phase I–Business including MSME
- Phase II–Poor including migrants and farmers
- Phase III–Agriculture
- Phase IV–New horizons of growth
- Phase V–Government reforms and enablers

Some of the measures taken under Aatmanirbhar Bharat Abhiyan are as follows:

- Increasing the borrowing limits for state governments with the commitment of reforms and privatisation of public sector enterprises
- Collateral free loans for businesses (including MSMEs)
- Corpus for MSMEs
- Subordinate debt for MSMEs
- Schemes for NBFCs, for street vendors
- Expediting payment dues for MSMEs
- Prepack insolvency resolution framework for MSMEs
- Increasing the limit from ₹1 lakh to ₹1 crore for start of insolvency proceedings, increasing investment limit for MSMEs by changing the definition
- Facilities for corporate's easy way of doing business
- Concessional credit boost to farmers worth ₹2 lakh
- Creation of Agricultural Infrastructure Fund for the development of agriculture infrastructure projects
- Alternative working capital for farmers
- Assistance to fishermen
- Animal husbandry infrastructure development

Besides the above measures, the central government took three Agriculture Reforms Bills (subsequently withdrawn), Revised Labour Code, opening of commercial mining to private sector, bidding airports for long-term lease to private sector, the opening of partial areas of defence and air space to the private sector.

Some other far-reaching steps taken are as follows (Kumar, 2020):¹

- FDI limit has been increased from 49% to 74% in defence manufacturing and power distribution/utilities in union territories are privatised.
- Pressure removed on migrants, labourers, poor, as the government had enhanced the allocation substantially to MNREGA by giving free food grain and direct cash benefits transfers to the poor.

However, there were suggestions to further enhance the direct benefit transfer (DBT) in the form of cash as a percentage of GDP substantially as elsewhere in the world. It is to be noted and appreciated that both the Centre and states took emergency measures to put up additional hospitals and facilities to cope with the enhanced requirements for overcoming COVID-19.

In order to enhance the growth on a sustainable basis, structural reforms are needed which will have long-term and medium-term impacts on the Indian economy.

Highlights of Budget 2021–2022

The Budget 2021–2022 included reforms like the privatisation of strategic and non-strategic Central Public Sector Undertakings (CPSUs), two public sector banks and one general insurance company. Privatisation of IDBI Bank and LIC's maiden IPO (opened on 4 May 2022) are some of the significant reforms. The Budget 2021–2022 also included the creation of the National Infrastructure Financing Bank, an increase in the foreign direct investment (FDI) cap in insurance from 49% to 74%, the establishment of Asset Reconstruction Company (India) Limited and Asset Management Company, and a big push toward monetising assets by announcing the National Monetisation Pipeline (more than ₹6 lakh crores by 2024–2025; Ministry of Finance, 2021).

Production linked incentive (PLI) scheme was extended from 13 sectors to 15 sectors to boost manufacturing global champions for an Aatmanirbhar Bharat by allocating ₹1.97 lakh crores. The sectors are as follows:²

1. Mobile manufacturing and specified electronic components
2. Key starting materials, drug intermediates and active pharmaceutical ingredients
3. Manufacturing medical devices
4. Automobiles and auto components
5. Pharmaceutical drugs
6. Speciality steel
7. Telecom and networking products
8. Electronic and technology products
9. White goods (ACs and LEDs)
10. Food products
11. Textile products man made fibre segment and technical textiles
12. High efficiency solar PV modules
13. Advanced chemistry cell battery
14. Drones and drone components
15. Semiconductors

As per the CRISIL (2022) analysis, PLI scheme will lead to capital expenditure between ₹2.5–₹3 lakh crores and 13%–15% of average annual investment in major industrial sectors. PLI scheme can generate additional revenue between ₹35 lakh crore and ₹40 lakh crore over the next 5 years.

The manufacturing industry's quality improves as a result of the use of technology such as robotics and 3D printing, PLI and champion manufacturing hubs. According to the government's plan, the manufacturing sector's GDP share would increase by 20%–25% (PTI, 2021a, 2022a).

The contribution of the service sector is highest in India as compared to other sectors having ₹96.54 lakhs crores of gross value added (GVA) in 2020–2021. It accounts for ₹179.15 lakhs crores of GVA, which is 54% of the total Indian GVA. Agriculture sector is at the third place with 20.19 % contribution (Ministry of Statistics and Programme Implementation, 2021; World Bank, n.d.).

According to a draft Department for Promotion of Industry and Internal Trade (DPIIT) report, the manufacturing sector should contribute \$1 trillion in GVA by 2024–2025, increasing its present 17% share of GDP to 20% (PTI, 2019).

National Infrastructure Pipeline

PM Narendra Modi in 2019 announced the National Infrastructure Pipeline (NIP) programme, with an initial capital of ₹102 lakh crores. However, its 6,835 projects have been expanded to 9,335 projects with total envisaged investments of almost ₹108 trillion between FY2020 and FY2025.

The main objective was to cover the fiscal years between 2019 and 2025 for both economic and social infrastructure projects. Total 70% of the projected capital expenditure in infrastructure in India from 2020 to 2025 is included in the NIP programme, mainly focusing on four sectors that are railways, urban, energy and roads, with 13%, 16% 24% and 19% expenditure, respectively.

In Budget 2022–2023 too, the government has allocated more funds for highways, roads corridors urban and rural infrastructure, shipping, expressways and so on. Apart from the infrastructure, the budget also focuses on the major priorities of opportunities that support sustainability (Sunrise), productivity enhancement and investment, and energy, transition, and climate action (Department of Economic Affairs, 2020). However, out of 9,335 projects, only 2,441 projects are under development (India Investment Grid, n.d.).

Public–Private Partnership (PPP)

Public–private partnerships (PPP) have played a key role in infrastructure investment and are responsible for the second highest number of projects. The PPP Appraisal Committee has approved 66 PPP projects between the years of 2014–2015 and 2020–2021, with a total project cost of roughly ₹137,210 crores (NITI Aayog, n.d.; also see, <https://www.pppindia.gov.in>).

Viability Gap Funding

The Viability Gap Funding (VGF) scheme was established to offer financial support to infrastructure PPP projects. In order to make infrastructure projects,

including PPPs, commercially viable, the government provides financial assistance in the form of one-time lump sum grants or deferred grants. When it comes to social projects such as education, wastewater, solid waste management and water supply, VGF contributes up to 39% of the total project cost (TPC) and 20% of the TPC, respectively. The programme has a funding window of 2024–2025 with a price tag of approximately ₹8,000 crores (Cabinet Committee on Economic Affairs, 2020).

Enhanced Capital Expenditure allocation and Incurred:

The central and state governments have been more focused on capital expenditure. With a sharp rise of 34.5% over the ₹4.12 lakh crore allotted in FY2020–2021, the central government earmarked ₹5.54 lakh crore for capital expenditures in Budget 2021–22. States and autonomous organisations would receive an additional ₹2 lakh crore for capital expenditures. The government increased capital expenditure in the 2022–2023 budget to ₹7.5 lakh crores from ₹5.54 lakh crores, a growth of 35.4%, with an outlay of 2.9% of GDP.

The central government's effective capital expenditure is projected to be ₹10.68 lakh crore in 2022–2023, or roughly 4.1% of GDP. Giving states more fiscal room through the allocation of ₹1 lakh crore in FY2022–2023 to help states spur overall economic investment and 50-year interest-free loans above and beyond regular borrowing (Ministry of Finance, 2021, 2022).

Asset Monetisation Plan

The government has set a target of ₹6 lakh crore through asset monetisation in FY2022–2025 with FY2023 target pegged at ₹1.67 lakh crore. The government has exceeded the FY2022 target by ₹96,000 crore as against the target of ₹88,000 crore because of transactions by central and state governments. Roads and highways, the power industry, coal mining and mineral mining make up the majority of the major sector monetisation at ₹2,300,000 crore, ₹40,000 crore and ₹18,700 crore, respectively (NITI Aayog, 2021).

Disinvestment

In order to raise money and close the budget deficit, the government has been disinvesting by selling all or a portion of its interests in Central Public Sector Enterprises. However, it is also true that PSU performance will be more transparent and efficient if CPSU shares are listed on the stock market. The government introduced a strategy of public sector enterprises in the most recent budget for FY2021–2022, which restricts its presence to just strategic areas such as banking, insurance and financial services, as well as atomic energy, space and defence, transportation and telecommunications. Additionally, the government wants to close or privatise PSUs in non-priority sectors while reducing the number of PSUs in strategic areas.

For FY2023, the government plans to disinvest ₹65,000 crore. The primary public issue of the LIC's first-ever IPO, which was finalised and opened on 4 May 2022, was for \$21,000 crore, and it was successful in raising the desired sum. Recently, there was a report advising against privatising Bharat Petroleum Corp Ltd right now. However, no final decision has been made on timetables. The other two key companies lined up are Container Corporation of India Ltd (CONCORD) and Shipping Corp of India (SCI). Additionally, the government announced the privatisation of IDBI Bank, two public sector banks and General Insurance Company. Last year, the government was successful in selling Tata the rights to Air India. The government dramatically cut the disinvestment receipts planned for last year from ₹1.75 lakh crore to ₹78 thousand crore. However, the government has only collected ₹12,030 crore (Chakrabarty, 2021).

India's Foreign Trade

India achieved its milestone merchandise exports of over \$400 billion to nearly at \$417.81 billion in FY2022. India has achieved service exports of \$250 billion for FY2022 showing a positive growth of 21.31% over the fiscal year 2020–2021. Total exports of goods and services showed positive growth of 34.5% and reached an all-time high of \$669.65 billion in April–March 2021–2022. The goal of exporting \$1 trillion worth of goods by 2028 and \$700 billion worth of services has been set by Government of India. Similar to exports, imports have increased by 47.80% in 2021–2022, reaching an anticipated \$756.68 billion.

There is a decline by 3.5% to 27.8% in India's total export and import of goods to GDP in 2020 from 2019. In a recent study, the Parliamentary Standing Committee on Commerce stated that although India met its goal of \$400 billion in merchandise exports for FY2021–2022, there is still more catching up to do in order to increase the merchandise exports to GDP ratio. Exports as a percentage of GDP (including both goods and services) were 18.7% in 2020–2021, down from 18.6% in 2019–2020 and 19.91% in 2018–2019. The GDP share of services exports in India decreased from 7.7% in 2018–2019 to 7.53% in 2019–2020, then increased to 7.7% in 2020–2021. As a proportion of GDP, imports of goods and services are 21.14%. The ratio of total exports and imports to GDP, which was at 38.2% in FY2015, was expected to drop to 27.8% in FY2020.

In comparison to the previous fiscal year, India's trade deficit increased by 87.5% to \$192.41 billion in FY2021–2022 (PTI, 2022b). Given the current spike in commodity prices, notably for oil and natural gas, this is expected to widen much further. Because so much crude oil—roughly 86% of the nation's overall needs—is imported, the trade deficit will widen. This raises the import bill by \$60 billion, according to Credit Suisse (PTI, 2021b).

FDI and Foreign Portfolio Investment

FDI serves as a strong complement to domestic investment and savings, which are trending downward, and it fosters business competition, fosters innovation and

boosts productivity. It also increases the currency reserves. India attracted the most FDI, worth \$74.01 billion, in FY2021 as compared to \$87.55 billion in calendar year 2020. The amount of FDI received in the last 5 years has increased significantly, totalling \$319 billion, or 50% of the \$729.8 billion in FDI received in the previous 20 years.

This has been made possible by the opening of numerous industries to FDI, the development of the business environment, and numerous changes like the GST, tax reforms, and the decrease of corporate taxes, among others. Additional areas for development include labour changes, exit policies and state-level enhancements to the ease of doing business on a local level. We will also require more FDI in the future in order to realise our major manufacturing hub with PLI, NIP of ₹111 lakh crores, asset monetisation of ₹6 lakh crores, aggressive privatisation, and disinvestment. By 2025, CII and EY estimates predict that FDI would range from \$120 to \$160 billion annually. Massive efforts are required from the federal government, the states and the private sector (Kapadia, 2020).

FDI inflows decreased in India from \$87.55 billion the year before to \$74.01 billion in 2021, a 15% decrease. By 2023, the Industry Chamber PHDCCI projects \$100 billion in FDI. The volume of FDI inflows is a crucial factor in helping India grow its economy to \$5 trillion (PTI, 2022c). Net inflows were estimated as 2.4194% of India's GDP in 2020, according to the FDI collection of development indicators maintained by the World Bank (<https://tradingeconomics.com>India>).

Foreign Portfolio Investment

There has been large foreign portfolio investments in the Indian stock market and the following data gives the extent of such investment:

- 2021 YTD: ₹44,778 crores (\$6.28 billion)
- 2020: ₹170,262 crore (\$23 billion)
- 2019: ₹101,122 crore (\$14.36 billion)
- 2018 (net outflow): ₹33,014 crore (\$4.39 billion)
- 2017: ₹51,252 crore (\$7.76 billion)

As of 29 April 2022, there have been inflows of equity totalling ₹127,162 crore and debt of ₹7,950 crore in the 2022 calendar year. There appears to be more outflows that will affect the country's foreign exchange reserves due to the inflation surge, global unpredictability brought on by the geopolitical situation, the recent interest rate increase of 25 basis points by the US Federal Reserve, the subsequent increase of 50 basis points, and likely future aggressive rate increases.³

Forex Reserves of India

According to figures released by the RBI, India's foreign exchange reserves have decreased by 30% since March 2021 and currently stand at about \$600 billion, or

about 99% of the country's outstanding external debt as of the end of December 2021 or 12 months' worth of imports of goods in 2021–2022. India's foreign exchange reserves were sufficient to cover imports for 17.4 months a year ago. In October 2021, India's foreign exchange holdings reached a height of \$642 billion. Geopolitical concerns, the Federal Reserve's monetary policy normalisation and other factors will have an influence on FDI and FPI inflows, all of which have been trending downward in recent months along with significant increases in oil import costs. Nevertheless, we can still consider our current foreign exchange reserves to be sufficient and comfortable. To retain our foreign exchange reserves at a sufficient level to cover any unexpected withdrawals, we must make every effort to increase exports, NRI remittance, FDI and FPI (Nayak, 2022).

Enhancing Private Sector Investment

Both the central and state governments have increased their capital spending budgets in recent years, especially during COVID-19, to assist the recovery and expansion of the Indian economy. Nevertheless, despite the tax decrease to 15% for new manufacturing units, fresh capital investment from the private sector was not occurring to the amount required. Additionally, capacity use decreased significantly during COVID-19 and has now recovered to its pre-covid level. Greater prospects for private sector investment have been created by recent government programmes such as PLI, infrastructure focus, asset monetisation, disinvestment and privatisation. Additionally, we are hearing signs of life in new Capex and Greenfield projects.

PM Modi has appreciated the contribution the private sector has made to the nation's economic prosperity. We need significant private sector participation in addition to the government's push for investments and infrastructure if we are to realise the aim of crossing the \$5 trillion economy and then the \$10 trillion economy.

In 2021, India's investment reported a ratio of around 29% of its nominal GDP, down from 34% in the preceding quarter. A record high of 41.2% was reached in September 2011 while a record low of 20.7% was reached in June 2020 (CEIC, n.d.a).

Enhanced Savings Both Public and Private

According to a set of development indicators compiled by the World Bank, gross domestic savings (% of GDP) was estimated at 29.92% in 2020. Unfortunately, India's gross savings have been trending downward. From 36% in 2007–2008 to 34.6% in 2012 to 30.1% in the 2019 fiscal year, it has been decreasing. As a proportion of GDP, household savings decreased from 23% in 2012 to 18% in 2019. For the \$5 trillion economy to flourish, we need a significant increase in both private household savings and public sector savings (CEIC, n.d.b; Trading Economics, n.d.).

India's Per Capita Income

India's GDP per capita was estimated to be \$1,797.76 in 2020, or 14% of the global average.⁴ International Monetary Fund (IMF) *World Economic Outlook* projects that India's GDP (nominal) per capita will be \$6,118.36 and \$2,191 at current prices, respectively, in 2021 (*Statistics Times*, 2021).

Improving the per capita income is one of the goals of high growth. India needs to catch up significantly in this area. India's GDP per capita increased in 2019 from 6.45% to 18.4% of the world GDP per capita. For nominal per capita, India is in the middle. It is 8 times greater than the poorest nation in the world and 60 times less than the richest nation. India is now ranked number 128 in terms of GDP per capita and number 33 among Asian nations. India's GDP per capita was anticipated to reach \$7,333 in 2021.

India's Fiscal deficit

Due to the effects of COVID-19, India's fiscal deficit for 2020–2021 was 9.3% of GDP. For the fiscal year 2021–2022, a fiscal deficit of 6.9% of GDP has been projected during budget 2021–2021. In addition, the budget deficit for FY2023 is projected to be larger than the target of 4.5% of GDP by 2026, at 6.4% of GDP. As a result, the gross borrowings of the central government increased and are now expected to reach around ₹15 lakh crores this year. Contrary to the Finance Commission's suggestion, the amount of borrowings by the centre is currently higher than 80% of GDP and is expected to drop to 56.7% in 2025–2026.

These elevated borrowings from both centre and states have reduced the fiscal space for the government for developmental expenditures. With the enhanced growth in economy, it is expected that there will be buoyancy in tax collections which will gradually allow the government to cut the fiscal deficit to 3% as per FRBM Act.

The GST's economic implementation has altered how taxes are seen in India. GST unifies all domestic indirect taxes under one heading, with two or three exclusions like those for alcohol, gasoline and other products. The tax share of GDP increased from 10.3% in 2020–2021 to 11.7%, the highest level since 1999. India's gross tax receipts climbed by 34% to exceed ₹27 lakh crore in 2021–2022, raising the tax-to-GDP ratio from 10.3% to 11.7%, the highest level in 23 years.

It is encouraging to learn that GST revenues reached an all-time high in April 2022 of ₹1.68 lakh crore, compared to ₹1.42 lakh crore in March 2022. This bodes well for the current fiscal year and suggests that the improved trend in GST revenues will likely persist, assisting the government in reducing its reliance on the fiscal deficit.

India collected ₹9.45 lakh crore in direct taxes and ₹10.71 lakh crore in indirect taxes for the year 2021. The overall tax revenue collected by the union government increased by 34% to ₹27.07 lakh crore in 2021–2022, exceeding the goal by

₹5 lakh crore. Direct tax revenue increased by 49% to ₹14.10 lakh crore and indirect tax revenue increased by 20% to ₹12.90 lakh crore.

Analysis and Conclusion

This analysis demonstrates how the government and RBI, in particular the central government, took advantage of opportunities for great enablers by policy reforms and opening more sectors to the private sector to ensure that the Indian economy will quickly make up for output losses and concentrate on a substantial revival of the Indian economy and take forward with its pursuit of achieving \$5 trillion. The Chief Economic Adviser, V. Anantha Nageswaran, recently expressed confidence that India would soon resume sustained growth of 8%–9% and would become a \$5 trillion economy by FY2026. India today has one of the largest economies that is expanding the fastest (PTI, 2022d).

The IMF lowered its prediction for global growth from 6.1% in 2021 to 3.6% in 2022 and 2023 in the *World Economic Outlook*, published in April 2022. The ongoing conflicts, rising commodity prices, supply disruptions, the COVID-19 and the lockdown of some of China's major industrial cities, high inflation and the prospect of rising interest rates, the winding down of asset purchases and excess liquidity by major economies will all contribute to a reduction in global growth in the year 2022 and 2023 (IMF, 2022).

The aforementioned elements could have a significant effect on the Indian economy. In its most recent policy, the RBI hinted at reversing its accommodative approach. For the purpose of reaching the future economic path, price stability in monetary policy needs to be prioritised more, according to the RBI's most recent Report on Currency and Finance. The RBI also emphasised that the government debt is outpacing expectations and exerting pressure on the long-term premium, which is causing growth to slow. Fiscal consolidation does not impede growth once the economy is stabilised. Unless strategic policy initiatives spanning both taxes and expenditures aim at targeted consolidation, the debt trajectory might significantly restrict fiscal flexibility (RBI, 2022, pp. 23–41).

In contrast to the prior projection of 4.5%, inflation is now expected to be 5.7% during 2022–2023, according to the RBI's April 2022 Monetary Policy. The RBI has substantially reduced its expectations for economic growth in the current fiscal year, pegged at 7.2%, while sharply increasing its projections for inflation, which is a big challenge to India's effort to reach a \$5 trillion economy. The RBI raised the repo rate by 40 basis points and boosted the cash reserve ratio by 50 basis points at its monetary policy meeting on May 4, 2022, in an effort to reduce inflation, which was 6.95% at the end of March. In April 2022, India's inflation rate reached 7.79%, above the tolerance level of 2% above 4%. It is expected that there will be further increase in interest rates to tame the inflation in India (RBI, 2022c, 2022d).

The government's 'Digital India' initiative could raise the GDP to \$1 trillion. In fact, in 5 years, the government intends to boost the share of the digital sector

in the GDP to 20%. The success of UPI by National Payments Corporation of India is one of India's digital achievements to display to the world. The payment platform's volume and value of transactions reached their highest levels since its introduction in April with 558 crore transactions totalling ₹9.83 lakh core. The notable projects driving to Digital India are as follows:

1. JAM (Jan Dhan-Aadhar-Mobile) initiative
2. DBT, initiative to connect panchayats

India can also emphasise on additional sustainable prospects like environmental, social, and governance (ESG) and climate change. In India, the emphasis has now shifted from profitability to ethical investing and ESG challenges. Though ESG is still in its infancy in the Indian market compared to the industrialised nations, it has begun to catch on. Institutional investors, venture capitalists, private equity players and high network individuals have begun investing in ESG funds. This is seen in the corporates' efforts to raise finance, which resulted in the issuance of approximately \$9.4 billion in ESG bonds in India in 2021.

Another area of climate action is that India has voluntarily agreed to reduce the intensity of greenhouse gas emissions by 30%–35% by 2030.

Finally, India must make the most of the new commercial prospects presented by the epidemic, the geopolitical environment and other factors in order to maintain its rapid economic growth and eventually reach an economy size of \$5 trillion and then \$10 trillion. Our government's policies and enablers are going in the right direction, and we're dedicated to pursuing this further.

Therefore, it is crucial for all stakeholders to step up and make the dream of a \$5 trillion economy a reality at the earliest. It is hoped that this will enable equity in addition to growth to provide job opportunities, increase per capita income and improve the standard of living for all Indians.

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Notes

1. Also see, Aatmanirbhar Bharat Package. <https://www.indiabudget.gov.in/anbp/>
2. Production Linked Incentive (PLI) Schemes in India. <https://www.investindia.gov.in/production-linked-incentives-schemes-india>
3. See FDI statistics at <https://www.cdslindia.com/Publications/ForeignPortInvestor.html>
4. <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=IN>

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An Economic Analysis of the Performance of Public Service State Road Transport Undertaking of India: A Case Study of the Haryana Roadways

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Abstract

The main objective of public transport is to convey more people in much less space than individual automobiles and help in reducing traffic congestion as well as air pollution from vehicles. It also relieves riders of the stress that come from daily driving in congested areas. The present study took a case study of SRTUs (State Road Transport Undertakings) of Haryana Roadways and found out which factors affect their performance during study periods. It also analyses the performance of traffic and accidents rate in the state. To evaluate the physical and financial performance of the Haryana Roadways LGR (Linear growth rate) and ordinary least square techniques are adopted and the annual average growth of each variable during 2009–2010 to 2017–2018 with the help of SPSS is found. In the financial aspect, the result reveals that Haryana Roadways goes running into a loss environment. The physical aspects revealed that fleet utilisation, vehicle utilisation, or load factor are decreased and negatively affect the physical performance of Haryana Roadways, but Staff productivity or effective kilometre per day contributes to a positive trend. The findings suggest that appropriate policy initiatives or operational research are required for these undertakings to be transformed into profit-making SRTUs in India.

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Keywords

Haryana roadways, public transport, physical and financial performance

Introduction

The State Road Transport Undertaking (SRTUs) is a bus-based public transport under the Road Transport Act 1950. It has been providing bus services to passengers in rural, urban, and inter-city India. The SRTUs in India are managed into four different patterns of management, which are under the following—(a) Department management (under central or state government); (b) State road transport corporation; (c) Government company; and (d) Municipal form (Bell et al., 1983). The present study takes the case study of Haryana Roadways to analyse the performance of SRTUs. Haryana state provides the public bus services under the state government transport department (Government of Haryana, 2019b).

In 1966, Haryana Roadways became the public state transport of the Government of Haryana in India (Government of Haryana, 2018). It is a major part of the Transport Department of Haryana, which provides better, efficient, cheap, or affordable passenger services within the state or neighbouring states. The Director-General of State Transport is responsible for providing well-managed or coordinated, economical, safe, and efficient transportation services to the public in the state. Haryana Roadways' progress is reflected better based on some indicators like average ages of buses, vehicles, and staff; effective kilometre operated; decreased accident rate; and fuel efficiency (Government of Haryana, 2019a). According to the Transport Department record, Haryana Roadways has a fleet of about 4,104 (buses) operated under 24 depots and 13 sub depots, which carried approx. 10.85 Lacs passengers per day. In this staff strength is 16,433, daily kilometre operated by buses is 11.82 lacs, the annual turnover is 1,906 crore. The central workshops Haryana Roadways Engineering Corporation (HREC) designs, manufactures, and manages bus bodies (Government of Haryana, 2019c). In Haryana Roadways 24 Bus Stands namely are Ambala, Bhiwani, Jind, Jhajjar, Hisar, Faridabad, Fatehabad, Gurugram, Kaithal, Karnal, Kurukshetra, Mahendragarh, Panipat, Panchkula, Rohtak, Rewari, Sonapat, Sirsa, Yamunanagar, Delhi, Chandigarh, Charkhi Dadri, Mewat (Nuh) and Palwal.

Haryana Roadways also adopted more new initiatives to provide amenities to the passenger by introducing the 'Haryana Gaurav' bus with deluxe facilities and ordinary fare, which is mainly known as 'Aam Aadmi Ki Khas Bus' about 200 buses operating on different routes. New Volvo AC bus service 'Saarathi' has been introduced on the Chandigarh–Delhi–Gurugram or Chandigarh–Delhi–Faridabad routes, and so on, or CNG bus service 'Haryana Uday' in the National Capital Region (NCR) of New Delhi. Haryana Roadways won the 'Better Transport Utility' title from the Association of State Road Transport Undertakings (ASRTU) in India (Government of Haryana, 2018).

Before the road transportation act 1950, bus services were provided by the private sector. After that in 1965 state road transport undertakings (SRTUs) came into existence and took command of bus services facilitator through public transport over the country with state-oriented authority.

Table 1 represents data on SRTUs' progress in various indicators from 1960 to 2017. In which SRTUs no., employment or buses held increased continuously. Here,

Table 1. Progress of SRTUs in India.

Indicators	1960–1961	1970–1971	1980–1981	1990–1991	2000–2001	2010–2011	2014–2015	2015–2016	2016–2017
Number of STUs	28	32	54	64	63	52	54	47*	62(56)*
Total employment (lakhs)	1.4	2.8	5.7	7.5	7.4	7.0	7.0	7.6	7.4
Number of buses held	18,000	37,000	78,000	104,000	115,000	131,000	135,000	142,855	149,095
% of total buses in the country	32	39	55	33	18	8	7	8	8
Passenger traffic handled (Billion passenger kms BPKm)	26	81	NA	363	343	582	541	570	566
Passenger kilometres per unit of labour	87	288		484	587	831	773		

Source: Review of the Performance of State Road Transport Undertakings 2017; Government of India (2017).

Note: * Number of SRTUs examined in the Report.

SRTU's role in traffic handling also increased from 26 billion passenger kms in 1960–1961 to 566 billion passenger kms in 2016–2017, which shows the efficiency and importance of public transport in congested areas and traffic management.

The main objective of this study is to analyse the factors that affect the physical and financial performance of Haryana Roadways SRTUs in India. The study also shows the accident rate, road safety status, and profit analysis of SRTUs. Only a few studies are available that analyse the performance of SRTUs in systematic ways, that is, SWOT analysis of UPSRTC (Devi, 2015). This study contributes to an existing review of the literature on this particular problem. The survey is necessary because of the current issue of the privatisation of public transportation under the PPP model (public–private partnership) to strengthen transportation infrastructure, handle rapidly increasing population and migration in metropolitan cities, and bear long-term financial constraints. This study will assist the operator by analysing the undertaking's performance and, as a result, improving its management and economic condition. The study also provides some suggestions for further improvement based on existing research done by field experts and well-known organisations.

Review of Literature

Here, the literature review evaluates the empirical analysis of transport undertakings and specifically public transport providers and their performance evaluating techniques which clearly mentioned the affecting variables of physical and financial aspects like fleet utilisation, load factor, expenditure or revenue, and so on. A few studies have been conducted at the regional, national, and international levels by researchers, academicians, planners, and private institutions on the perspectives of performance evaluation of public passenger transport undertakings. The results of relevant studies are the following.

In the series of literature, Perry and Babitsky (1986) described the cost and benefits of privatisation in the context of urban bus transit in New York–New Jersey areas during 1980–1981 while using secondary data which reported that privately owned or managed transit system performed significantly better on output per dollar than four other types of organisations but contract managed system was not more efficient than publicly managed system with regard to output per dollar and vehicle or maintains efficiency. The researcher also suggests that organisation form reflects an increase in upper and middle management with respect to transportation.

In their research paper Vijayaraghavan (1995) examines the strength and weaknesses of SRTUs, through a questionnaire of 20 respondents in India. The observed data revealed that the major weaknesses are lack of marketing approach and involvement of the private sector in passenger transport and besides that good strategic management approach is needed for better performance.

Alexandersson et al. (1997) studied the cost-effectiveness of tendering with pool time–services data of 168 observations in Sweden during 1987 to 1993. They subject local and regional bus services to competitive bidding, which changes the market structure and increases seller concentration for both private and state-owned companies. Companies gaining from the municipally owned companies and deregulated (Private) Swedish bus services attain gain. Sriraman's (1999) study

found that the recovery cost ratio, load factors, and private sectors impose adverse effects on the SRTUs. The study also suggested that the recovery cost rises due to increased load factor system (LFS) and fare in urban-based SRTUs as compared to rural SRTUs or city-based SRTUs. Singh (2000) analysed the growth rate and level of total factor productivity (TFP) of 21 STUs in India for the period 1983–1984 to 1996–1997 using the Index Number Approach based on secondary data. The study reveals that the major productive STUs is Pattukkottotai Azagiri Transport corporation Limited (PATC) or least is Bombay Electricity Supply and Transport Undertaking (BEST) and also finds the TFP difference due to managerial efficiency of STUs. TFP was positively related to output and load factor.

Pucher et al. (2005) examined the public transport reform of Seoul in 2004 and throughout it restructured the bus system addressing the network of Bus Rapid Transport (BRT) route the schedule with median bus lane and the semi-operating system, improved bus services, and better coordinated with the metro rail system, which improved the performance of Seoul's Public Transport system. Here another study of Kaur and Kaur (2012) analysed the growth in numbers of buses held by Punjab Roadways, Pepsu Road Transport Corporation (PRTC), and the private sector in Punjab state during 1999–2000 to 2009–2010 through data ratio analysis (DRA) technique. The study found that the share of Punjab roadways has declined and private operators share are increasing with passenger demand. Arora (2016) analysed the how positive correlation between customer satisfaction and employee satisfaction affects organisation success based on Primary data in the form of questionnaires through Principal Component Analysis tools with SPSS in 5 districts namely Ambala, Hisar, Rewari, Panipat, and Rohtak in Haryana state. Jain and Dhiman (2018) examines how the performance of state road transport has declined due to increasing competition with private corporations, changing behaviour, or the demand of consumers for public transport in Haryana Roadways. They also suggested the use of Simon's four-level model to implement in a control system for better performance analysis.

Useche et al. (2018) analysed the correlation between job strain and professional drivers of public transport with 720 samples in Colombia and found a positive correlation between them through multiple regression analysis. It was also found that job stress increased due to high traffic and accident issues in the state.

The above literature review reveals that stress of high competition of public SRTUs with private public transport providers and positive correlation between job satisfaction and customer satisfaction motivate SRTUs to give better bus service facilities to passengers. Hence, the need to develop the better performance analysis techniques to evaluate deterministic factors which affect the undertakings' performance.

Research Methodology

An analysis of data for evaluation of the physical and financial performance assessed through the linear growth rate (LGR) formula and Profitability ratio technique implement in operation during the study period 2009–2010 to 2017–2018 for Haryana Roadways is conducted. Here the Ordinary Least Square (OLS) technique and LGR formula have been adopted to analyse the data.

Data collection: The study is based on secondary data, which has been collected from different government publications at Haryana and Centre levels and mainly data collected from Haryana Roadways official website like Haryana Roadways State Transport, Statistical Abstract of Haryana.

The methodology is built around the concept of simple growth rate and its definition: when a variable's time series data displays a fairly constant increase or decrease trend, it is said to grow or fall at a simple growth rate. Using time series data and a LGR obtained by fitting a linear function to available data, the annual growth rate of physical and financial variable performance is determined in this study (Aggarwal et al., 2015). A linear trend equation is defined as follows:

$$Y = \alpha + \beta t$$

Where,

Y = Dependent variable under consideration

α = Constant term, that is, intercept of Y

β = Constant term (denotes slope of the trend line)

t = Independent variable (time factor)

The following efficiency indicators (dependent variable) are used, for physical performance

Y1 = Percentage of fleet utilisation

Y2 = Vehicle utilisation

Y3 = Staff productivity

Y4 = Effective kilometre (per bus per day)

Y5 = Load factor or occupation ratio

The following efficiency indicators (dependent variable) are used, for financial performance

Y1 = Total Revenue (₹ Lac)

Y2 = Revenue per kilometre (Ps/km)

Y3 = Total Expenditure (₹ Lac)

Y4 = Expenditure per kilometre (Ps/km)

Y5 = Total Profit/Loss (₹ Lac)

Y6 = Effective kilometre operated (Lac KMs)

Here, Ordinary Least Square (OLS) is applied for estimating $\hat{\alpha}$, $\hat{\beta}$ parameters values from it (Madanani, 1988). The linear growth rate (LGR) is computed by using the following formula—

$$\text{LGR(g \%)} = \frac{\hat{\beta}}{\bar{y}} \times 100$$

Where $\hat{\beta}$ = Estimated regression coefficient of Y on t
 $\bar{y}$ = Average value of Y

On the basis of this formula, the evaluated the data relating to financial variable shows constant, increasing and decreasing growth rate. It is supposed to grow or decrease at a simple rate. The growth rate is called simple growth rate.

Analysis and Findings

The performance analysis of Haryana Roadways is based on the following aspects:

1. Financial aspects
2. Physical aspects

The study explains both aspects with the modified Least Square Technique and used LGR to evaluate the average annual growth rate of Haryana Roadways during the study period 2009–2010 to 2017–2018 (Aggarwal et al., 2009). First, the article attempts the financial performance aspects.

Financial Performance

The financial performance of any operational organisation should be investigated using a number of indicators, such as profit rate, revenue structure, expenditure structure, and tax or cost-related aspects. In the case of evaluating the performance of Haryana Roadways the section is divided into two sub-sections. The first section examines the profit rate, while the second section empirically evaluates the growth rate concerning financial indicators such as total revenue, revenue per effective kilometre, total expenditure, expenditure per effective kilometre, total profit/loss, and effective kilometre operated for Haryana Roadways. First, the profit rate of Haryana Roadways with table and figure representation may be analysed.

Profit Rate

The study examined the profit rate of Haryana Roadways during the period 2009–2010 to 2017–2018 with the help of the following formula:

$$\text{Total Profit} = \text{Total Revenue} - \text{Total Expenditure}$$

Table 2 and Figure 1 reveal that the total revenue of Haryana Roadways has increased from ₹69,957.03 Lacs in 2009–2010 and ₹73,277.01 Lacs in 2017–2018. Similarly, a rising trend follows in the context of expenditure cases. These were ₹93,972 Lacs in 2009–2010 and rise ₹111,174.24 Lacs. The table shows that the total profit (losses) decreased rapidly because the total expenditure was greater than the total revenue, that is why total losses have increased from ₹–24,014.97 Lacs in 2009–2010 to ₹–37,897.23 Lacs in the year 2017–2018.

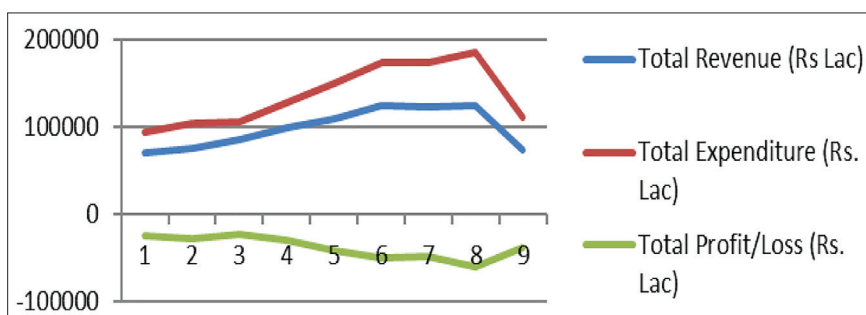
Empirical Results of Financial Performance

This section evaluates the financial performance of Haryana Roadways based on empirical verification through the OLS and LGR formula with financial variables like total revenue, revenue per effective kilometre, total expenditure, expenditure

Table 2. Profit Rates of Haryana Roadways.

Years	Total Revenue (₹ Lac)	Total Expenditure (₹ Lac)	Total Profit/Loss (₹ Lac)
2009–2010	69,957.03	93,972	–24,014.97
2010–2011	76,165.57	103,899.26	–27,733.69
2011–2012	85,499.21	107,092.58	–21,593.37
2012–2013	100,076.56	128,557.75	–28,481.19
2013–2014	109,899.99	150,579.38	–40,679.39
2014–2015	125,553.81	173,802.1	–50,270.29
2015–2016	123,531.81	174,062.51	–48,661.13
2016–2017	125,401.38	186,286.11	–5,977,304
2017–2018	73,277.01	111,174.24	–37,897.23

Source: Department of State Transport, Haryana.(www.trans.gov.in).

**Figure 1.** Total Profit/Loss of Haryana Roadways.

Source: The authors.

per effective kilometre, total profit/loss and effective kilometre operated, and so on, during the study period 2009–2010 to 2017–2018.

Table 3 represents the results of the estimated value of financial performance from 2009–2010 to 2017–2018 for Haryana Roadways.

First, y1 variable is Total Revenue which shows the increasing annual average growth rate of 4.428% during the study period.

Second, y2 variable is Revenue per kilometre in Lac which shows the increasing annual average growth rate is 51.892% in the study period.

Third, y3 variable is the Total Expenditure which reveals the increasing growth rate of 6.041% during the study period.

Fourth, y4 variable is Expenditure per kilometre shows the increasing annual average growth rate of 6.807% during the study period.

Fifth, y5 variable is Total profit/loss, in which total losses reflect the increasing annual average growth rate of 43.106% during the study period.

Table 3. Linear Growth Rate of Financial Variable in Haryana Roadways.

Sr. No.	Variable	Y	$\hat{\beta}$	$\bar{y}$	LGR (g %)
1	Total revenue (₹ Lac)	y1	4,375.497 (1.589)*	98,818.041	4.428
2	Revenue per km (Ps)	y2	128.148 (8.833)*	246.9461	51.892
3	Total expenditure (₹ Lac)	y3	8,252.562 (2.214)*	136,602.88	6.041
4	Expenditure per km (Ps/Km)	y4	232.154 (16.816)*	3,410.633	6.807
5	Total profit/loss (₹ Lac)	y5	-299,669 (0.574)*	-695,181.695	43.106
6	Effective kms operated (Lac Kms)	y6	-11.886 (-0.130)*	4,024.762	-0.295

Source: The authors (compilation through SPSS software).

Note: *Show the t-test value of $\hat{\beta}$ Coefficients.

Sixth, y6 variable is an Effective kilometre operated reveals the decreasing annual average growth rate of -0.295% during the study period.

The above variables' value concluded that the y5 variable total profit/loss rapidly increase (43.106%) in the financial account and the y6 variable, effective kilometre operated, has been decreasing (-0.295%) or became the most affected factor responsible for the poor performance of Haryana Roadways.

Physical Performance

To analyse the managerial or technical efficiency of an undertaking, physical performance becomes the most applicable tool. The physical performance of a transport undertaking depends on various indicators, including the percentage of fleet utilisation, vehicle utilisation in kilometre per bus per day, effective kilometre (Lac) per day, staff productivity in effective kilometre per person per day, and percentage of load factor.

Empirical Results of Physical Performance

Table 4 represents the estimated value of physical performance variables to assess the results from the period of 2009–2010 to 2017–2018 for Haryana Roadways.

First, y1 variable is Fleet utilisation which shows the decreasing annual average growth rate of -0.726% during the study period.

Second, y2 variable is Vehicle utilisation which shows a decreasing annual average growth rate of -1.098% in the study period.

Third, y3 variable is Staff productivity which reflects the increasing annual average growth rate of 2.687% in the study period.

Table 4. Linear Growth Rate of Physical Variable in Haryana Roadways.

Sr. No.	Variables	Y	$\hat{\beta}$	$\bar{y}$	LGR (g %)
1	Fleet utilisation (% age)	y1	-0.667 (-3.908)*	91.888	-0.726
2	Vehicle utilisation (km/ bus/day)	y2	-3.389 (-3.789)*	308.547	-1.098
3	Staff productivity (effective kms/person/day)	y3	1.810 (5.234)*	67.355	2.687
4	Effective kms/day (lac kms)	y4	0.293 (3.785)*	11.566	2.533
5	Load factor/occupancy ratio (% age)	y5	-0.392 (-1.012)*	73.215	-0.535

Source: The authors (compilation through SPSS software).

Note: *Show the t-test value of $\hat{\beta}$ coefficients.

Fourth, y4 variable is the effective kilometre per day which reflects the increasing annual average growth rate of 2.533% assess in the study period.

Fifth, y5 variable is the load factor/occupancy ratio which shows the decreasing annual average growth rate of -0.535% during the study period.

The underlying explanation of results to the estimated value of physical performance reveals that y1 fleet utilisation, y2 vehicle utilisation, and y5 load factor are negative impacts and affect the performance of the undertaking. On the other hand, y3 staff productivity or y4 effective kilometre per day is positively contributed to the progress of Haryana Roadways. Both factors grow faster and contribute to the improvement or better running of the performance of the operation in the future.

Road Safety and Accidents Rate

Road safety has become the main motto of Haryana Roadways. It strictly follows and implements all measures of road safety to decrease the accidents rate in the state. The concerned efforts rapidly declined the accident rate on the Haryana Roadways. Accidents are divided into fatal, major and minor, and so on. Accidents rate on Haryana Roadways is presented in Table 5.

Figure 2 represents the declining trend of accidents rate on Haryana Roadways during the period 2009–2010 to 2017–2018. The accident rate recorded in terms of numbers was 321 in the year 2009–2010 and 152 in 2017–2018 decreases.

Haryana Roadways Performance Within SRTUs of India

One may analyse the performance of Haryana Roadways within the SRTUs of India with the help of the performance report displayed by the Ministry of Road Transport and Highways of India.

Table 5. Accidents Rate of Haryana Roadways.

Sr. No.	Year	No. of Accidents	Accidents/Lac Kms.
1	2009–2010	321	0.0822
2	2010–2011	296	0.0766
3	2011–2012	259	0.0675
4	2012–2013	295	0.0685
5	2013–2014	241	0.0561
6	2014–2015	259	0.0545
7	2015–2016	263	0.0564
8	2016–2017	284	0.0607
9	2017–2018	152	0.0591

Source: Department of State Transport, Haryana.

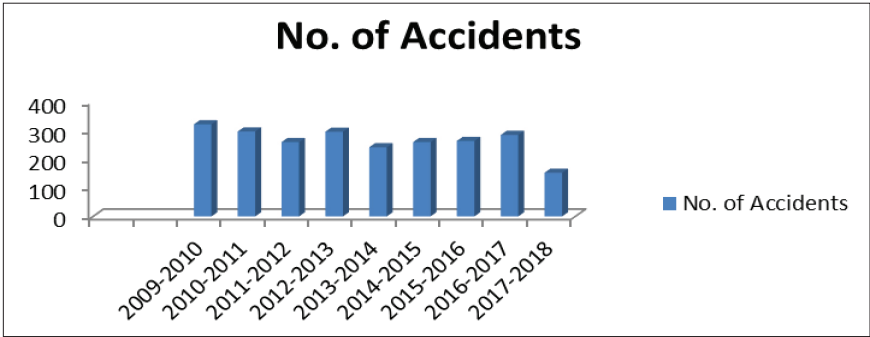


Figure 2. Accidents Rate of Haryana Roadways.

Source: The authors.

The data in Table 6 represents the financial performance of India’s five most loss-leading SRTUs. Haryana Roadways has also shown poor financial performance by contributing to loss-making undertakings. The data reflects that revenue increment is much increased along with a slight increment in total cost.

Discussion

The economic analysis of the physical and financial performance of a unit of SRTUs in India is evaluated in this article using the simple growth rate with the LGR formula, and the results are analysed using SPSS. The results and findings section is divided into three sections; the first examines Haryana Roadways’ financial performance with a profit rate and empirical results of financial variables, revealing that Haryana Roadways is a loss-making undertaking due to factors such as effective kilometre operated which has been decreasing (–0.295%), and total expenditure (₹ lac) is 6.807% greater than total revenue (₹ lac) (4.428%). It is clear from the physical performance section that low fleet utilisation (–0.726%) and vehicle utilisation (km/bus/day) (–1.098%) contribute to poor performance,

Table 6. Top Five Loss-making SRTUs of India.

Name of SRTUs	Total Revenue (TR) in 2016–2017	% Change Over Previous yr in Total Revenue	Total Cost (TC) in 2016–2017	% change Over Previous yr in Staff Costs	TR as a % of TC in 2016–2017
Delhi TC	2,471.1	13.3	6,303.22	10.5	39.20
Kerala SRTC	1,861.11	2.5	3,631.73	19.7	51.25
Telangana SRTC	4,245.71	-2.0	5,044.68	-2.3	85.15
Haryana ST	1,436.02	1.5	2,033.75	7.0	70.61
BEST undertaking	1,295.54	-10.9	2,385.62	-9.1	56.68

Source: Review of the Performance of State Road Transport Undertakings 2017.

whereas staff productivity (effective kms/person/day) (2.687%) plays a significant role in better performance and indicates that further improvement in that specific factor made it a better-performing undertaking. The final section findings in this row show a decrease in accidents during the study period, indicating Haryana Roadways' high road safety promise being fulfilled. Many factors contribute to loss-making ventures, including low fare charges, old model and equipment buses on the road, strikes by roadway employees, infrastructure loss in riots, such as burned buses, and the integration of welfare schemes and facilities, such as a free bus pass for female students, half-fare for the elderly, and free rides for MPs, MLAs, and soldiers. The other implication is that a lack of resources is also to blame for the management and implementation of advanced technology in the bus transportation industry.

Suggestions

The study found the many problems that affect the performance of Haryana Roadways. The suggestions are based on facts or such problems. Some reliable and easily implemented suggestions are included in the study. The given suggestions help to improve the efficiency, management, physical or financial performance, and quality of service of the Haryana Roadways. The suggestions are elaborated in two sections: the first, focus remains on the physical aspects, and second, upon the financial aspects.

Physical Aspects

In the aspect of physical improvement, Haryana Roadways extends the quality of physical indicators by taking the following initiatives:

1. From the evaluation of physical performance with empirical verification, staff productivity has positively grown. The staff productivity has risen continuously, and will rise further if the government of the state provides attractive or motivational amenities to staff in the forms of giving awards for excellent performance, raise income, promotion in the field, and emoluments to staff.
2. The productivity of fleet size rises if; old or condemned buses are replaced with modern or well-equipped buses.
3. Increase in the fleet size in each depot concerning the congested places and providing well-managed services from time to time on each route.
4. The workshops of Haryana Roadways should be well equipped with modern or efficient technology.
5. The recruitment of allied staff like technical, clerical, management, Group IV, conductor, and drivers are recruits under the supervision of good experts or those specialised in the related field.
6. The load factor or occupancy ratio in Haryana Roadways has tremendously decreased due to poor bus services. That is why the State government

introduced some pleasant amenities that attract passengers to travel on Haryana Roadways.

7. The public works department (PWD) of the state of Haryana provides well-maintain road infrastructure. The metaled or better roads increase the productivity of fleet size.
8. The public passenger buses are covered under CCTV surveillance.

Financial Aspects

Haryana Roadways should take some effective steps to improve its financial performance. Some of which may be the following:

1. The fare structure is fixed by the management or operational staff to observe the cost and benefit aspects concerning Haryana Roadways. The fare structure is not influenced by political or internal power.
2. Social welfare facilities schemes are not undertaken by transport department. These facilities may be provided by the social welfare department and compensate through it.
3. Haryana Roadways increases the bus services at the time of fairs, special festivals, and tourist season to earn more revenue.
4. Haryana Roadways withdraws the concession and special subsidies to MP, MLA, EX-MLA, Police staff, and its related families because the government also gave allowances and dearness related to traveling purposes.
5. This sector needs large numbers of financial resources to recover the financial losses in the Haryana Roadways account. Therefore, the Transport Department of Haryana introduces attractive emolument and amenities to encourage private sector investment.

Conclusion

An accurate estimation of the physical, financial, and accident rate describes the performance of public transport, which plays a critical role in traffic handling or road safety. In India, SRTUs are in charge of providing safe, efficient, and passenger-oriented services. It also plays a role in reducing traffic congestion problems and giving an operational framework in regions.

Haryana Roadways recorded impressive progress in their service provided to the public passenger of the state. Along with it also faced private corporation competition. In the financial aspect, total profits reveal in decreasing order or Haryana Roadways goes running to losses environment. The effective kilometre operated or total profit/loss negatively affects the financial performance of Haryana Roadways. Despite this, total revenue, total expenditure, revenue per kilometre, or expenditure per kilometre positively affects the financial performance in increasing growth layout. The physical aspects reveal that fleet utilisation, vehicle utilisation, or load

factor are decreasing and negatively affect the physical performance of Haryana Roadways. But staff productivity, effective kilometre per day, or accidents rate decreased contribute a positive impact on Haryana Roadways. On the basis of the above performance analysis, any undertaking related to departments like public transport, traffic management, or other related organisation may take initiatives of policy implementation and adopt well-managed transportation system in a county. Moreover, the study also suggests that the cooperation of central and state governments in the review of financial concessions and physical aspects regarding public transport improves the managerial efficiency of the Haryana Roadways and other SRTUs of India. Finally, the above discussed suggestions become a relevant match between the organisational framework and traffic management.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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Book Review

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Mukund Rajan & Rajeev Kumar, *Outlast: How ESG Can Benefit Your Business*. HarperCollins Publishers, 2021, 368 pp., ₹799.

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Outlast: How ESG Can Benefit Your Business is a perfect guide for corporates to focus on the three major aspects of ‘sustainability’, that is, environmental, social and governance (ESG). It discusses the importance of ESG aspects for businesses and how companies can incorporate ESG principles in their business operations. This book guides companies to focus on the long-term vision of the company rather than short-term profits.

Chapter 1 delineates the significance of ESG in businesses and its positive impact on the financial performance of the companies. Firms with better sustainability performance perform better than their counterparts not only in accounting performance but also in the stock market. The favourable ESG reputation shields companies from a substantial decline in the stock market. Companies are facing pressure from various stakeholders to focus on environmental and social challenges in India and at global levels. This chapter presents the current status of ESG issues in India and the measures to improve its sustainability performance.

Chapter 2 discusses the importance of embracing ESG in the organisation. Companies that are concerned about their ESG practices believe that poor sustainability practices may lead to a bad reputation for the organisation and link the compensation of executives and employees to ESG goals. The authors presented the case of Marico Limited and how they have incorporated sustainability practices in their organisation and taken opportunities that emerged from a stronger ESG focus. Four drivers for the implementation of the ESG agenda in the organisation are mentioned, these are, the tone at the top; investment in human resources; walking the talk; established systems and processes, and continuous assessment of progress. Further, the authors listed international frameworks for sustainability reporting practices such as principles of the United Nations Global Compact (UNGC), the Global Reporting



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Initiative (GRI), the Sustainability Accounting Standards Board (SASB), the International Integrated Reporting Council (IIRC) and International Standards Organization (ISO). Additionally, the concept of materiality has been explained, i.e., how the materiality of an ESG issue varies across industries.

Chapter 3 outlines the impact of media, the fourth estate, on the attitude of businesses towards Corporate Social Responsibility (CSR). With the advent of the Internet, the role of media has become more crucial, now consumers are better aware of the company and its product and services and can provide feedback easily. Platforms like Change.org allows individuals to start a campaign and protest against various issues from climate change to companies' policy. Companies can collaborate with the media for social marketing campaigns to address various societal concerns. Media has a significant influence on the investor's sentiment, especially retail investors. Companies should accept constructive criticism from the media and work towards building a sustainable future for themselves.

Chapter 4 highlights the issues of corruption in the nation and its impact on Indian businesses. The pro-crony policies will hinder the economy's growth and its ability to create wealth. In the recent past, the Indian government has taken the steps to alleviate corruption with the introduction of the Goods and Service Tax in 2017 and the establishment of the Insolvency and Bankruptcy Code in 2016. The abrupt and unfair policy shifts of the successive governments have changed the fortunes of many companies. The authors outlined that anti-corruption campaigns of stakeholders and how the involvement of foreign stakeholders and institutional investors can play a crucial role in eliminating corruption. External pressure from foreign stakeholders and investors compels corporates for better disclosures, higher ethical standards, compliance and a code of conduct.

Chapter 5 addresses the crucial global issue of climate change. The authors discussed the risks of global warming and climate change to the humans and ecosystem and the actions that need to be taken to reduce the threat of global warming. The goal of net-zero emission to limit the global mean temperature to 1.5°C would affect a wide range of sectors including energy, construction, agriculture, transportation and other land-use sectors. Companies globally and nationally are taking steps to reduce the emission, at the COP26 event that was held in Glasgow in November 2021, India committed to achieving its net-zero status by 2070. Companies are facing increasing pressure from institutional investors and other stakeholders to act against climate change. Retail customers are also preferring to buy sustainability marketed products. Transitioning to a more environmentally friendly future may reduce revenues in the short run, but it will pay off in the long term, ensuring the survival and sustainability of operations.

Chapter 6 deals with the social issues in the organisation and the fundamental right of the employees to have dignity and respect in the workplace. Employees' dignity and respect at the workplace promote psychological well-being and create an environment free from discrimination, harassment, exclusion and bullying.

It leads to better employee engagement that further has a significant and positive impact on productivity, employee retention, customer satisfaction and financial returns. The authors outlined the issues related to inequality in compensation that exists between the senior executive pay and median pay of employees, labour working conditions, lack of women's participation in the workforce, women's safety from exploitation and harassment, and discrimination towards Scheduled Castes and Scheduled Tribes in Indian organisation. They highlighted the international standards, government and organisational policies to improve the labour working conditions in the organisation and promote dignity in the workplace.

Chapter 7 describes the significance of the company's code of conduct in the long-term success of the firm. It represents the values of the organisation, rules of conduct and stakeholders' responsibilities. Authors suggested the four key components to strongly embed the code in the organisation: (a) The tone at the top, (b) Walking the talk, (c) Organisational systems and processes and (d) Continuous communication. They discussed the role of the whistle-blower policy in the effective implementation of code. The cases of Nike and child labour issues in its supply chain, whistle-blowing at Tata Motors Finance and Ranbaxy Pharmaceuticals and failure of code at Enron are illustrated. The authors highlighted that the code should be specific and does not have multiple interpretations. Codes should be based on the values of the company rather than simply fulfilling compliance to prevent it from failure.

Chapter 8 presents the evolution of corporate governance practices in India over the years. SEBI has been continuously refining the rules and regulations governing the market and strengthening the rights of shareholders. Clause 49 was a watershed moment in the development of India's corporate governance procedures, as it outlined the formation, composition and responsibilities of corporate boards. The authors highlighted the role of proxy advisory firms in guiding and assisting minority shareholders and portfolio investors to oppose majoritarian resolutions that are not in the best interest of the companies in the long term. Further, they underlined the role of activist funds in bringing changes required in investee companies. Independent directors also play a crucial role in ensuring that the company's affairs are conducted as per the law, particularly in companies that are dominated by promoters. Forward-looking companies will take note of these developments and proactively manage their ESG-related concerns.

This book magnificently presented the ESG issues in Indian corporates backed by multiple case studies explaining why incorporating ESG principles into the business operations is important for the organisations. The book concludes that the companies that will adopt the ESG principle will be able to remain resilient and successful in the long term and outlast their competitors. This book will be helpful for corporates to learn the intricacies of ESG and for academicians and researchers to understand the ESG framework in the Indian business context.

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