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From the Editor's Desk:

Dear Esteemed Readers,

It bestows upon me profound gratification to unveil Volume XVI, Issue II of Management Effigy; a venerable peer reviewed ISSN journal indexed with J-Gate. This publication remains steadfast in its mission to propel the dynamic discipline of management forward by disseminating original scholarly research papers that yield substantive theoretical contributions and pragmatic advancements.

Management Effigy embraces an expansive intellectual canvas, encompassing the manifold dimensions of management and cognate fields. Issued biannually, each volume is subjected to the rigors of a double-blind peer-review mechanism, thereby safeguarding the integrity and scholarly merit of the works we present. We are particularly solicitous of interdisciplinary manuscripts that interrogate intricate managerial and societal dilemmas, furnishing perspectives of both the academy and the professional sphere.

The research paper 'Measuring the Success of BHIM-UPI in Strengthening India's Digital Payment Infrastructure' discusses the nuances of the BHIM-UPI initiative by the Government of India. It is accelerating the nation's march toward a cashless society by making digital payments seamless and accessible for all. This transformative platform not only expands financial inclusion but also strengthens trust in the formal digital economy.

The Research paper 'A Study of Portfolio Management Model and Performance of the Equity Market' analyses the risk and return of selected stocks and to create a diversifying portfolio and construct a profitable portfolio in the equity market using Markowitz's theory & CAPM Model.

The Research paper 'Human Resources Management Practices in Banking Services in India' highlights banks' current HRM practices, methods, and results considering the nation's current economic situation. It is crucial for developing recommendation for the enacting the best HRM philosophy and practices in banks.

The Research paper 'A Study on HR Approaches to Monitoring and Managing Remote Workforces' explores how HR managers can effectively monitor remote workers by viewing existing literature, case studies, and best practices published between 2020 and 2025.

The Research paper on 'Artificial Intelligence and its Contribution to Achieving Sustainable Development Goals' points out that to truly make a lasting impact, ethical considerations and inclusive policies must be prioritised. By doing so, it can be ensured that AI benefits everyone, creating a fairer and more sustainable future for everyone. Sustained progress demands robust governance and ethical stewardship to ensure that the benefits of AI are equitably distributed and aligned with long-term sustainability.

Case Study 'Agility Tech novation's Strategic Decision-making and Financial Challenges in the Evolving SaaS Landscape' examines business model, strategic decisions, and the challenges the company faces in the global SaaS market, providing an in-depth analysis of key management decisions and financial strategies the company.



Book Review of the famous self-improvement book '**The 7 Habits of Highly Effective People**' by Stephen R. Covey talks about transforming thought process and empowering to navigate life challenges with clarity and confidence.

Book Review of the best seller 'The Power of Your Subconscious Mind' discusses understanding the power of the subconscious mind and how it can bring positive change to life. The book helps to improve life by combining science and spirituality.

A dedicated channel is key to a journal's success. As the chief editor I am grateful to the loyal readers, dedicated reviewers, and ingenious authors for their contribution. With a commitment to the body of knowledge and addressing societal issues the vision of Management Effigy is achieved.
Best wishes to the aspiring researchers/scholars/authors.

**With Warm Regards,
Dr. George Thomas
Director, SVIMS, Indore**

Measuring the Success of BHIM-UPI in Strengthening India's Digital Payment Infrastructure

*Komal Gupta **Shailendra Mishra

Abstract

One of the principal objectives of the Digital India initiative is to attain a status characterized by being "Faceless, Paperless, and Cashless." The GOI has assigned the utmost priority to the encouragement of digital payments with the aim of integrating every section of the nation into the formal framework of digital payment services. The idea is to provide all individuals of India with access to continuous digital payment environment in a manner that is convenient, accessible, affordable, swift, and secure. This research paper aims to assess the impact of the Bhim UPI initiative by the GOI in promoting digital payments and achieving a cashless economy. The study evaluates the adoption rate, contribution towards financial inclusion and overall effectiveness of the BHIM-UPI.

Keywords

Bhim UPI, Digital Payments, NCPI, Financial Inclusion.

Introduction

India has witnessed a technological transformation in the sphere of governance. Government services have been systematically integrated, allowing for efficient last-mile delivery at the mere click of a mouse within seconds. Transactions involving digital payments have experienced a consistent increase in recent years, in alignment with the Government of India's strategy to digitize the financial sector and the economy. Furthermore, considerable efforts have been made to promote financial inclusion as a significant national priority. Central to India's transformed digital payment ecosystem is the JAM Trinity—Jan Dhan, Aadhaar, and Mobile. The Pradhan Mantri Jan-Dhan Yojana (PMJDY), launched in August 2014, stands as one of the largest financial inclusion initiatives globally, aimed at providing universal banking services to every unbanked household. Aadhaar, the flagship initiative of the Unique Identification Authority of India, offers a straightforward yet effective means to verify individuals and beneficiaries utilizing their biometric information. The combination of Jan Dhan accounts, Aadhaar, and mobile connectivity has established the groundwork for a Digital India, where an extensive range of government services is made available directly to citizens, thereby enhancing accessibility without the need for intermediaries.

The Bharat Interface for Money (BHIM) is an application that enables users to conduct payment transactions in a straightforward, efficient, and expedient manner utilizing the Unified Payments Interface (UPI). It allows for immediate bank-to-bank transfers, as well as the ability to send and receive funds using either a mobile number or a Virtual Payment Address (UPI ID). The primary objective of the BHIM (Bharat Interface for Money) application is to offer a seamless and efficient platform for users to conduct financial transactions

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using the Unified Payments Interface (UPI).

BHIM is designed to facilitate straightforward, convenient, and rapid money transfers between individuals through direct bank payments, employing UPI IDs or QR codes. The application aims to enhance the overall convenience of financial transactions by providing a user-friendly interface that allows for easy navigation and quick access to various payment features.

Additionally, BHIM is committed to promoting digital financial inclusion and empowering users to engage in secure and hassle-free transactions within the evolving landscape of digital payments in India.

Literature Review

Dr. Virshree Tungare (2018) in her research paper “A Study on Customer Insight Towards UPI (Unified Payment Interface) - An Advancement of Mobile Payment System” described that in contrast to all of payment systems it can be said that UPI is the most advanced payment system in the world. UPI payment system allows money transfer between any two bank accounts by using a smartphone. It allows a customer to pay directly from a bank account to different merchants, both online and offline, without the hassle of typing credit card details, IFSC code, or net banking/wallet passwords. It aims to simplify and provide a single interface to money transfers easy, quick and hassle free. These features of UPI motivate the respondents of service sectors to adopt the tool and the above study revealed that there is also a significant difference found between the gender towards the adoption of UPI.

Borde, Ajit, Kumar and Borgave, Sachin. A. (2020) in their study “The BHIM Story: A Study on Bharat Interface for Money (BHIM) App 2020 And Beyond” The purpose of the study was to examine the existing landscape of the BHIM app and to assess whether it has successfully leveraged its first-mover advantage in the market, particularly considering the emergence of other competitors. The BHIM application possesses specific inherent unique selling propositions and advantages in comparison to other applications, such as its availability in various regional languages, as well as the support and active engagement of major banks and financial institutions, in conjunction with the Reserve Bank of India. The major finding BHIM UPI will explore the future trajectory of the app and the challenges it may face moving forward.

Kolte, Dinesh & Humbe, Veena. (2020) in research paper titled “Study of UPI/BHIM Payment System in India” aims to examine the beneficial effects of the Unified Payments Interface (UPI) and the Bharat Interface for Money (BHIM) application on the digital payment system. This study specifically investigates the utilization of UPI and the BHIM application by users. Primary data were collected from 200 students enrolled at Dr. Babasaheb Ambedkar Marathwada University in Aurangabad. It has also been noted that students utilizing UPI/BHIM are primarily identified through third-party applications. The study indicates that PhonePe has been the most widely used third-party application among its competitors, primarily due to its rapid settlement process. Additionally, it has been noted that cashback incentives, associated offers, and advertising play significant roles in the selection of UPI/BHIM applications for transactions. Furthermore, it has been observed that students tend to have multiple UPI/BHIM applications installed on their smartphones.

Sahu, Akshaya, Sahu, Dasarathi and Patra, Debananda (2023) in their study on “An Empirical study of Unified Payment Interface (UPI) in Indian Digital Payment System” focuses to investigate the prospective opportunities associated with the Unified Payment Interface and conduct a comparative analysis of the

performance of public and private sector banks in relation to UPI. The remarkable transformation of UPI can be attributed to several transformative factors, including the establishment of a strong infrastructure, changing customer expectations, proactive government initiatives, and technological advancements. The future may witness a reconfiguration of the roles of ecosystem participants and a consolidation of market actors aimed at enhancing financial literacy. The study concluded by mentioning the widespread adoption of Android and iOS smartphones, the accessibility of reputable online authentication methods, the availability of global banking services, and the integration of fingerprint technology in mobile devices would significantly encourage the utilization of electronic payment systems in India, leading to the development of a cashless society.

Sethi, M., & Bohra, N. S. (2022). from the book Digital Innovation for Pandemics based on the chapter “Impact Assessment of the Pandemic on India's Digital Payment Ecosystem” A theoretical model has been developed to analyse the evolution of India's digital payment ecosystem, highlighting key instruments such as card payments, NEFT, RTGS, IMPS, BHIM, and UPI. Among these, UPI has emerged as the leading channel, surpassing traditional methods in both transaction volume and value. Data indicates that between September 2020 and September 2021, UPI experienced a 103 percent increase in transaction volume and a 98.87 percent rise in transaction value, demonstrating its resilience and adaptability during the pandemic. The study identifies three interconnected factors influencing digital payment behaviour: health-driven behavioural change, rule and institutional support, and technological readiness and infrastructure. It is noteworthy that IMPS and UPI experienced temporary declines in their average annual growth rates—3.6 percent and 6.89 percent, respectively—during the post-COVID-19 period (2019–2020). Likewise, RTGS dealings saw a 19.5 percent decline in transaction value in FY 2020–21, primarily due to broader economic slowdowns. These findings challenge the common narrative of continuous digital payment progress throughout the pandemic. Instead, the authors stressed that while the pandemic accelerated adoption, macroeconomic reductions and supply-side commotions limited high-value commercial and interbank transactions. Subsequently, the flexibility observed in retail-oriented platforms such as UPI and BHIM contrasts with the provisional stagnation seen in institutional payment systems.

Vidani, Jignesh (2024) research paper titled “A Study on the Rise and Recent Development in Unified Payments Interface (UPI)”, explains the revolution of UPI in India's digital payments ecosystem by empowering instantaneous, secure and interoperable transactions across banks. The studies highlight the role of UPI in reducing cash requirement and encouraging financial inclusion, particularly between the unbanked and rural population which has resulted in transformation of banking operations, encouraging digital-first approaches and partnership with fintech firms. The research also focuses UPI's influence to transparency, financial growth and digital knowledge. The study stressed upon the importance of developing technologies like AI and blockchain are predictable to increase its efficiency and security. Nevertheless, challenges remain concerning over data confidentiality, governing balance, and long-term sustainability.

Objectives of the Study

1. To study the Features of Bhim UPI app.
2. To evaluate the effectiveness of Bhim UPI in increasing digital payment adoption
3. To analyse contribution Bhim UPI towards Financial Inclusion in terms of Digital Payment
4. To discuss the opportunities and challenges faced by user of Bhim UPI application.

Methodology

The study has been primarily conducted utilizing secondary data sources. The data employed for this study has been acquired from news articles, academic journals, magazines, research papers, the internet, and other publications. Statistical data pertinent to the research has been sourced from a variety of websites. Fundamental analytical techniques, including the calculation of percentages, have been utilized to analyse the data, which has been presented in graphical format.

Findings

Features of Bhim App

Send Money: Money can be sent to any Virtual Payment Address (UPI ID), mobile number, account number, or by scanning the QR code.

Request Money: Funds can be requested by sharing the personal Virtual Payment Address (UPI ID). Using BHIM App, users can transfer funds to a mobile number, only if the mobile number is registered with BHIM or *99#, and the account is linked.

Scan & Pay: Allows making payments by scanning the QR code using the QR scanner, and helps the user to display their QR code clicking on My QR Code to receive money.

Transactions: Helps the user to review the transaction history and in-progress UPI requests. If any transaction is declined, users have an option to file a complaint by choosing "UPI Help" inside the transactions section or to call the bank.

Profile: User can access their QR code and payment addresses connected with their account. The benefit of the QR code is that it can be shared via messaging applications like WhatsApp, Telegram, etc. it can also be Emailed, Printed, or downloaded as a soft-copy for future use.

Bank Account: Easily switch between several bank accounts that are linked to the user's BHIM App. Users can set or change their UPI PIN. BHIM also allows the users to check their overall account balance.

Language: The BHIM App presently supports 20 languages, which are English, Hindi, Bengali, Telegu, Marathi, Tamil, Urdu, Kannada, Gujarati, Bhojpuri, Odia, Malayalam, Punjabi, Assamese, Haryanvi, Marwari, Konkani, Manipuri, Khasi, and Mizo. So, users can change the language as per their convenience.

Block User: This is a very important feature that allows the user to block or report unknown users who keep sending requests or if undesired sources have gained access to the user's details. It also protects the users from financial frauds.

Privacy: The users can enable or disable their mobile-number@upi feature which is seen in the profile section when a secondary UPI ID is created. Hence, the QR code for the disabled UPI ID automatically gets deactivated.

Scan: The BHIM App can be used to scan any QR code sticker/print/image that has the UPI and BHARAT QR logos. This helps in instant funds transfer when the user is sending money to anyone.

IPO: This is a very helpful feature for users who trade in the Stock Market and use the BHIM App to make payments for any IPO they have applied, this is achieved by approving the funds request via the BHIM App.

e-RUPI: This feature helps for one time use for cashless transactions like Corporate gift Voucher, Donations etc.

Recharge and Bills section: The BHIM App supports an in-app payment feature that supports bill payments. Top categories often used are FASTag, Mobile Postpaid, Mobile Prepaid, DTH, Broadband Postpaid, Landline Postpaid, Cable TV, Metro Recharge, NCMC Recharge, Electricity, LPG Gas, and Gas. User has several other options under the Other Categories section and the most common ones are Credit Card, Insurance, Donations, Hospital, Rental, Water, etc. found under Bill Pay.

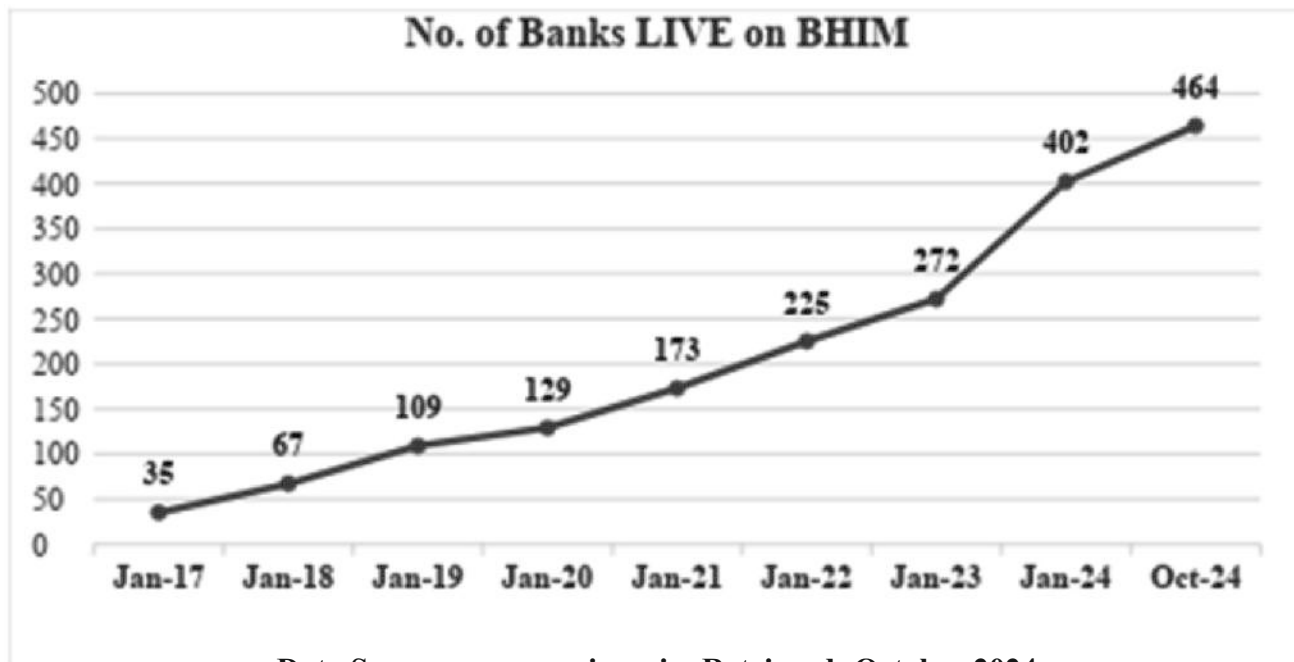
UPI AUTOPAY: This feature found in the BHIM UPI helps the users to setup recurring payments with ease, like water bill, credit card bill, broadband bill, insurance premiums, loan repayment, etc. The best part about Autopay feature is that users can create, pause, modify, and revoke the auto-debit mandates found under the mandate section. Autopay feature ensures that the payments are deducted automatically on the date which is set by the user. While creating or making any changes the user needs to authenticate the account by using their PIN.

Analysis

Effectiveness of Bhim UPI

The numbers of Banks getting linked with UPI has been increasing consistently. It indicates the number of banks joining BHIM app platform. Initially 35 banks have joined in the BHIM project, since commencement the numbers of banks joining BHIM platform has been increasing progressively and stands at 462 banks in October 2024 which is equal to 12.36 Times more compare to the starting point.

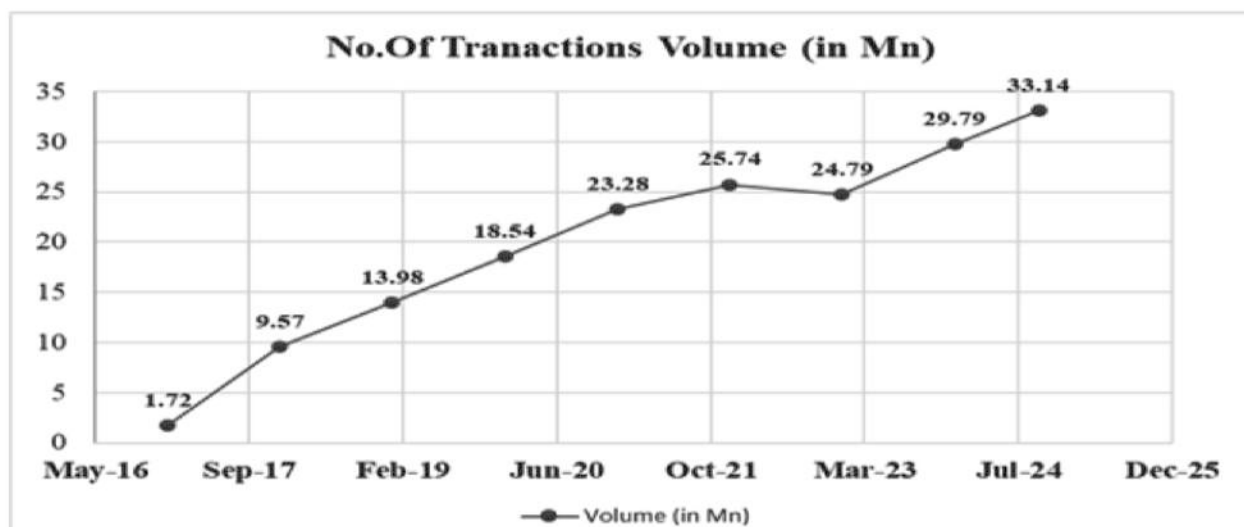
MonthYear	Jan-17	Jan-18	Jan-19	Jan-20	Jan-21	Jan-22	Jan-23	Jan-24	Oct-24
No. of Banks live on BHIM	35	67	109	129	173	225	272	402	464



Data Source: www.npci.org.in, Retrieved: October 2024

Interpretation: In terms of Adoption Rates of May 2024, there are approximately 350 million active users of the Unified Payments Interface (UPI) in India. UPI is the most widely utilized digital payment method in the country, facilitating over 75% of Retail digital transactions. As per NPCI the number of Android Bhim UPI installations as of 31st October 2024: 258.65 million. iOS installations as of 31st October 2024: 8.29 million indicates significant usage and adaptability of Bhim UPI application.

As per the NPCI report, the total number of volumes of transaction has been increased from 1.73 million in January 2017 to 33.14 million in October 2024 which shows a positive trend towards adoption of digital payment method. The transaction volume has grown 19.26 times over a period.



Data Source: www.npci.org.in, Retrieved: October 2024

Interpretation: The total volume of digital payments conducted through the Unified Payments Interface (UPI) in India during 2024 exceeded 131 billion. This represents a substantial increase from the approximate value of 83 billion recorded in the preceding financial year. As of October 2024, there are approximately INR 23,49,821.46 (Value in Cr.)

As per the NPCI report, the total amount of digital payment using Bhim UPI has been increased from 356.5 in January 2017 to 10,386.36 in October 2024 which shows an optimistic trend towards usability of digital payment method. The digital payment value has grown 29.23 times over a period.

MonthYear	Jan-17	Jan-18	Jan-19	Jan-20	Jan-21	Jan-22	Jan-23	Jan-24	Oct-24
Value (in Cr.)	356.5	3647.19	6202.51	6611.22	7448.38	8500.79	8145.17	8756.95	10386.4

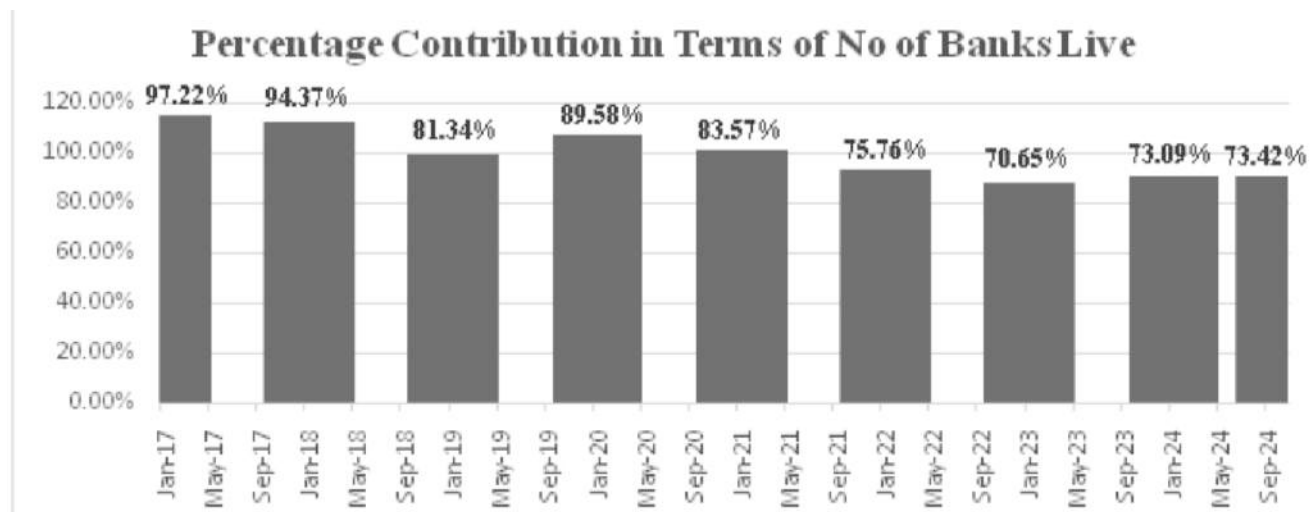


Data Source: www.npci.org.in, Retrieved: October 2024

Interpretation: Impact on Financial Inclusion Presentably India stands at 1st rank globally in terms of digital payment which indicates the effectiveness of digital payments methods and well build technological infrastructure. UPI Payments jumps 52% fuelling India's digital payment success has helped for financial inclusion. The adoption of UPI and its essential role in facilitating a diverse array of financial activities, ranging from microtransactions to substantial purchases. Bhim UPI Has Also continuously contributed towards financial inclusion in India.

Contribution of BHIM UPI towards a success journey for achieving financial inclusion via UPI Payment System. The below table shows the role of Bhim UPI in terms of no of bank live for digital payment. The incrementing figures indicate that majority of banks are live under Bhim shows the capability of technological infrastructure and synergy among banks.

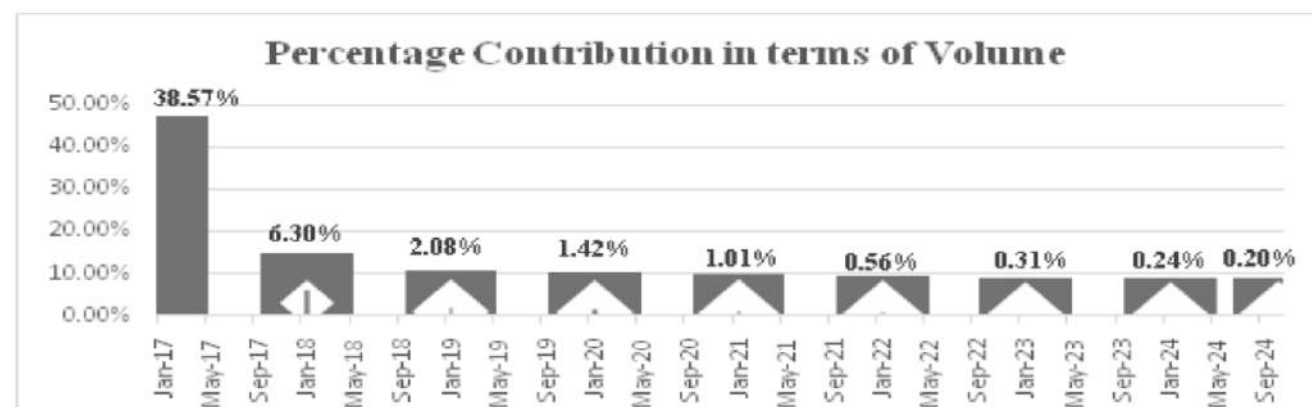
Month Year		Jan-17	Jan-18	Jan-19	Jan-20	Jan-21	Jan-22	Jan-23	Jan-24	Oct-24
No. of Banks Live on for Digital Payment	UPI	36	71	134	144	207	297	385	550	632
	Bhim UPI	35	67	109	129	173	225	272	402	464
Percentage Contribution		97.22%	94.37%	81.34%	89.58%	83.57%	75.76%	70.65%	73.09%	73.42%



Data Source: www.npci.org.in, Retrieved: October 2024

Interpretation: The Bhim UPI has contributed less compare to other UPI Payment methods in terms of Volume over a period. The Contribution of Bhim UPI has come down from 38.57% in January 2017 to 0.20% in October 2024 which shows that Bhim application is not used by many Users.

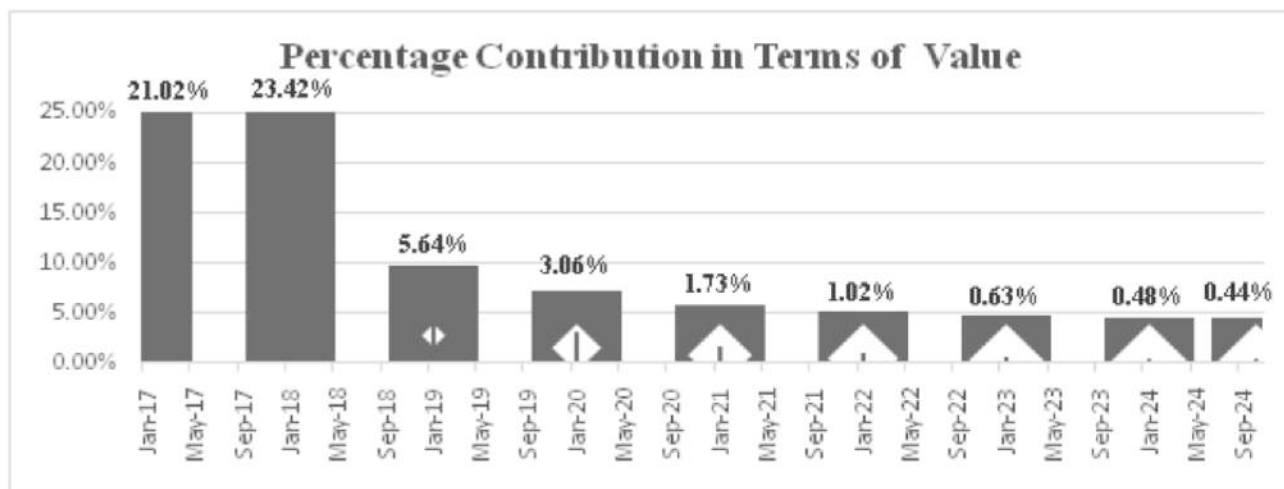
Month Year		Jan-17	Jan-18	Jan-19	Jan-20	Jan-21	Jan-22	Jan-23	Jan-24	Oct-24
Volume (in Mn)	UPI	4.46	151.83	672.75	1305.02	2302.73	4617.15	8036.89	12203	16585
	Bhim UPI	1.72	9.57	13.98	18.54	23.28	25.74	24.79	29.79	33.14
Percentage Contribution		38.57%	6.30%	2.08%	1.42%	1.01%	0.56%	0.31%	0.24%	0.20%



Data Source: www.npci.org.in, Retrieved: October 2024

Interpretation: The Bhim UPI has contributed less compare to other UPI Payment methods in terms of Value over a period. The Contribution of Bhim UPI has come down from 21.02% in January 2017 to 0.44% in October 2024 which shows that Bhim application is not used by many Users for digital payment.

Month Year		Jan-17	Jan-18	Jan-19	Jan-20	Jan-21	Jan-22	Jan-23	Jan-24	Oct-24
Value (in Cr.)	UPI	1696.22	15571.2	109932.43	216242.97	431181.89	831993.11	1298726.62	1841083.97	2349821.5
	Bhim UPI	356.5	3647.19	6202.51	6611.22	7448.38	8500.79	8145.17	8756.95	10386.36
Percentage Contribution		21.02%	23.42%	5.64%	3.06%	1.73%	1.02%	0.63%	0.48%	0.44%



Data Source: www.npci.org.in, Retrieved: October 2024

Opportunities and Challenges

The BHIM UPI application has been developed to cater to a diverse array of users in India who are in search of a dependable and user-friendly digital payment solution. Its intended user base comprises individuals seeking a convenient means of executing direct bank payments utilizing the UPI infrastructure. The user experiences many issues related to app when they use application for payment and money related transactions challenges like using the app, includes slow processing for detecting biometric unlock and transaction speeds relatively slower compare to other payment applications. The interface takes more time to load and displaying information and is perceived as laggy, as application takes more time to loads as other unnecessary information loads first then the important information with a lack of unevenness makes user that the application is very unsystematic giving discomfort to the users. Important notifications, such as pending payments, are not prominently displayed on the Home Page, and the small font size complicates readability. Furthermore, there is a noted absence of an option to share transaction screenshots with third parties. The user expresses a desire for the capability to download transaction records in both Excel and PDF formats, in addition to having access to a transaction trail and a communication service with other users to enhance trust and visibility in the recorded transaction history. Dissatisfaction is also evident concerning customer support, where the user experiences delayed responses and expresses a preference for the inclusion of a live chat option. Additionally, vague error messages contribute to user confusion, and the positioning of the profile is perceived as non-intuitive. Moreover, the application appears to provide fewer promotions and incentives in comparison to other applications. The numerous challenges faced by users render the BHIM UPI platform less user-friendly and inconvenient, leading to a diminished frequency of transactions and

overall value. Although there has been an increase in the total number of transactions, the contribution of BHIM UPI remains markedly inadequate over time.

There remains significant potential for enhancement, as identified issues can be addressed through technological support and expertise. It is recommended that the Government of India and the National Payments Corporation of India (NCPI) collaborate with the Reserve Bank of India (RBI) to promote an understanding of the BHIM UPI system. The NCPI should actively monitor the application and continuously update its features to meet the evolving needs of users. Furthermore, the NCPI should engage with technological experts to enhance the BHIM UPI platform, aiming to make the application more user-friendly and equipped with advanced technological infrastructure. The BHIM UPI should incorporate technology that allows for low internet speed compatibility, ensuring quick loading times and prompt responses with a single click. A comparative analysis of the BHIM UPI infrastructure against other UPI payment methods could provide insights for improving its features, ultimately leading to greater user-friendliness. Enhanced user-friendliness will likely result in increased usage and further financial inclusion.

Limitations

The study concentrated on the Bhim UPI as a digital payment method. It is important to note that this research does not encompass other digital initiatives implemented by the National Payments Corporation of India (NPCI) and the Government of India aimed at promoting financial inclusion. Additionally, this study does not address other payment applications such as Google Pay, Paytm, Amazon Pay, and various other payment methods, nor does it compare them with the Bhim UPI application. There exists further scope for investigating user perceptions and the stratification levels of users of the BHIM UPI application.

Recommendations

The development of Bhim UPI may prioritize enhancing user-friendliness by creating a more comprehensive user interface. The application should be designed with flexibility and adaptability to incorporate new technological interfaces. The National Payments Corporation of India (NPCI) and the Government of India should promote Bhim UPI by offering incentives, rewards, and special offers to users and retail merchants. It is essential to perform regular checks and updates on the application to meet user requirements while promptly diagnosing and resolving issues faced by users, ensuring both immediate and permanent fixes. Employing the appropriate technology and paying greater attention to user preferences can lead to increased usage and, ultimately, greater user confidence. With the right strategies, the NPCI has substantial potential for improvement and can develop a comprehensive roadmap for Bhim UPI.

Conclusion

The digital payment system represents a successful initiative undertaken by the Government of India and the National Payments Corporation of India (NPCI). The observed increase in the adoption of digital payment systems globally signifies a revolutionary shift in payment methodologies. However, BHIM UPI, as a government service provider, has encountered difficulties, resulting in private entities such as Google Pay, Paytm, PhonePe, and others capturing significant market share. This situation reflects shortcomings in planning and implementation strategies. Nonetheless, there remains potential for BHIM UPI to succeed, if it undergoes appropriate updates and the implementation of effective strategies that prioritize user preferences and optimize application design. Bhim UPI was initiated with the objective of promoting financial inclusion and empowering users to conduct secure and efficient transactions within the ever-evolving digital payments landscape in India. During the initial phase of UPI payment implementation, Bhim UPI significantly

contributed to the digital payment ecosystem. However, increased competition and reliance on outdated technology have contributed to a notable decline in its overall impact on financial inclusion. Users have encountered numerous issues, leading to a withdrawal from the application. The application has thus far failed to meet user expectations, resulting in a preference for alternative payment solutions. There is considerable concern regarding its sustainability, as it has not fulfilled its primary objectives. To regain relevance, Bhim UPI must enhance and adopt a more secure infrastructure for its users.

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A Study of Portfolio Management Model and Performance of the Equity Market

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Abstract

In the era of inflation, investment plays a vital role. Investing your money in single securities creates the risk of an optimal return. So, the portfolio plays the foremost role in investment. A portfolio is a combination of various stocks. It not only helps investors to minimize the risk but it also helps to enhance the optimal profit from risky investments. The principal goal of the paper is to understand various models of portfolio management, such as the Markowitz Mean-Variance Model and Capital Asset Pricing Model, theories that help to select the portfolio according to investor objectives and inflation rate. To develop a profitable portfolio, the top Nifty 50 funds have also been used for the study. The paper is based on descriptive and analytical research; also, secondary data are selected for the study. Data is extracted from Money Control, NSE, and the company's website. Three-year data from 2021 to 2024 are selected. This paper also utilizes a detailed analysis by comparing the analogies, differences, and respective downsides and benefits of the portfolio research models. The study used fundamental analysis of each stock to understand the risk and return of stocks. Also, for the stock return standard deviation, correlation, and covariance statistics, tools are used. After the detailed study of the portfolio model and using this model for the stock selection, it suggests to the investor to adopt portfolio management approaches that help to maximize the return and minimize the risk for investors.

Keywords

Portfolio Management, Equity Market, Markowitz Model, CAPM, Performance of Stocks.

Introduction

In India the equity market is a huge financial perspective where an investor invests their money into different segments such as shares, debentures, bonds, and ETFs. Shares are traded under two exchanges, called the Bombay Stock Exchange and the National Stock Exchange, under the regulatory guidelines of the Securities Exchange Board of India. An equity market or stock market is a volatile market where the price of stock changes every few seconds. The market gets volatile due to various market forces, and those forces directly affect the stock prices of companies, severely impacting either positively or negatively on the prices of stocks. An investor is always in a position of profit and loss in the held securities. To minimize the risk in shares, an investor prefers to invest in multiple securities rather than invest in a single share. A combination of securities is called a Portfolio. The market is forced by the macroeconomic factor, and it directly creates risk among the investors. There are two kinds of risk: unsystematic risk and systematic risk, SR or market risk depends on the macro factor, and this cannot be controlled. The causes of its economic downturns, geographical events, and natural disasters. It is more challenging to analyze, so it cannot be diversified. The

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unsystematic risk or internal risk varies from company to company and can be controlled through diversification.

The causes of the poor management system of a company, product failure, and sector downturn can be controlled through anticipation. With the help of unsystematic risk, an investor can create an optimum portfolio to minimize the risk and maximize the return. To select the correct assets in the portfolio, demographic factors are considered for investors, such as income, age, education, profession, and risk-taking capacity. According to the nature of demographic factors, one can analyze the securities and create a portfolio accordingly. There are also chances of getting higher returns if investors are willing to take higher risks.

Portfolio Management is a tool to achieve the expected market return; the current study's prior objective is to create the optimum portfolio. To make a profitable portfolio and reduce risk, the Markowitz portfolio, the CAPM Model, and the Arbitrage Pricing Model are used. Markowitz's model was developed by Dr. Harry Markowitz in 1952. It is a theoretical framework that uses mathematical programming and statistical analysis for risk and return choices to create an optimum portfolio. Markowitz also considered the variance from the expected return from the entire investment and the relation with each other for constructing portfolios. As per the assumption of Markowitz's model, portfolios are decided based on the efficient frontier. To build an efficient portfolio, investors have to select the expected level of return, and assets are substituted until the portfolio combination with the smallest variance at the return level is found. This process is repeated every time to generate an efficient portfolio

$$RP = IRF + (RM - IRF)\sigma P / \sigma M$$

RP = Expected Portfolio Return, RM = Market Portfolio Return, IRF = Risk-free Rate of Interest, σM = Market's Standard Deviation, σP = Standard Deviation of Portfolio

With the use of the above mathematical equation, investors can generate the optimum return from the portfolio

The capital asset pricing model (CAPM) is a systematic risk model that determines the relationship between risk and returns for an efficient portfolio. CAPM uses the risk-free rate of return, the market rate of return, and the sensitivity beta for expected return from an investment. Also, with the help of the CAPM model, an investor can create a well-diversified portfolio.

$$E(R_i) = R_f + \beta_i \cdot (E(R_m) - R_f)$$

$E(R_i)$ = expected return, R_f = Risk-free rate, β_i = Beta of an investment, R_m = Market rate of return

To create an optimum portfolio, eighteen stocks from different categories are selected, which helps to understand that diversified portfolios generate higher returns than investing in a single security. It also helps to understand the growth rate of each category, which helps investors select the correct categories according to their demographic factors and create a profitable portfolio. select the correct categories according to their demographic factors and create a profitable portfolio.

Literature Review

Debajit Rabha & Rajkumar Girdhari Singh (2021) The study's prime objective is to create an optimum

portfolio, to construct the optimum portfolio Markowitz portfolio model used. To create an optimum portfolio, two types of stocks are selected: equity stocks and risk-free assets, T-bills. The study is applied to fundamental analysis to select the best combination of assets in a portfolio. The study used Ivanovic, Baresa& Bogdan's 2013 methodology, which resulted in was effect of diversification helping to reduce the risk and generate good returns.

Viktor Oliinyka&Olga Kozmenko (2019).This study is about constructing a portfolio by a financial institution. Funds for generating a portfolio are taken from two sources: the enterprise's equity funds and borrowed funds. Optimization of the created portfolio is performed. For portfolio return maximization NPV of all the assets has been considered with a discounting method used on the measure of risk, which is specified in the form of a VaR indicator. Using optimization portfolio data, a model of portfolio asset management is being built. To satisfy the requirement of an investor's Pontryagin maximum principle, used. The optimal function of managing the investment portfolio in the form of a share of the income received is found.

Raju &Jambotkar (2018) focused on developing an optimal portfolio in the Indian stock market using selected 20 blue-chip stocks listed in the NSE. The study used daily closing prices of the stocks from 1st January 2007 to 31st October 2017. The stocks were ranked based on excess return, high to low, and then a distinctive cut-off rate (Ci) was used under which the highest Ci value stock was taken as the cut-off point C for stocks in constructing the portfolio. Only those stocks selected had higher excess return to beta ratio than C. The study found nine stocks from 20 stocks fulfilled the criteria for diversification and adding to the optimal portfolio.

Umair zuhair& Agha Amad Nabi (2015),according to the study, diversification plays a major role in an efficient portfolio. The study aims to analyze the performance of the Pakistani mutual fund industry from 2014 to 2017. A total of 233 mutual funds is operating in the mutual fund industry of Pakistan. Out of 233 mutual funds, a total of 45 mutual funds were selected for the study; 23 mutual funds were from equity, while only 22 mutual funds were selected from the money market. Sharpe ratio was used to measure the risk-adjusted performance of mutual funds.The Sharpe ratio in both equity funds and money market funds is positive, thus indicating that diversification investments decrease the risk.

Zhou et al. (2019) consider expanding the investment portfolio at risk of a bounce over time. It is shown that for the construction of the expanding portfolio, important indicators are: the initial intensity of the bounce and the dynamics and stability of the bounce. A former investment portfolio provides good out-of-sample performance.

Longsheng Cheng et al. (2023)Portfolio management is a crucial challenge for all investments, such as long-term term short-term terms and medium-term. The purpose of the study was to minimize the risk and maximize the return of investors. The two approaches employed in this study are time series data for predicting future stock movements and portfolio management. Although the market is uncertain and cannot be accurately probabilistic, the approach has also been used for future stock prediction and portfolio management. Also, probabilistic approach is also used in the Shanghai Stock Exchange in the form of a case study. This research is marked as a benchmark for researching other stock market data.

Raymundo Diaz et al. (2022). According to the study, constructing a profitable portfolio is a difficult task; usually, the common practice for the selection of stocks is fundamental study of stocks, such as financial

information, news of market news, and debt. of the company, with this view, consider that various approaches are used in the portfolio creation. Computational intelligence algorithms help to forecast stock prices, stock selection, and stock portfolio optimization while taking advantage of market downtrends. Stock price forecasting is carried out through an artificial neural network (ANN) trained by the extreme learning machine (ELM) algorithm. Also, Sharpe ratio and Sortino ratio are also used to compare the return with benchmarks.

Russell B. Gregory-Allen et al. (2012). The study examines the performance of investment through short selling. Short selling is the approach to sell securities in the hope of buying back in the future at a lower price. This study has investigated the 5500 short-selling portfolios from 2002 and 2009 and also compared the performance of the portfolio under the short-selling approach.

Rashi Agrawal et al. (2022). This study is descriptive in nature. According to the study, investment in securities, debentures, and bonds is risky; to bear the risk, scientific and rational knowledge is important. Investors do not invest their entire amount into a single security; they invest in a combination of securities. Two approaches are used while selecting the securities, such as the classical approach and Markowitz efficient frontier approach.

Objective of the Study

1. To analyze the risk and return of selected stocks and to create a diversifying portfolio.
2. To check the association between the various categories of stocks and analyze how much the return is generated if it is added to a portfolio.
3. To construct a profitable portfolio in the equity market using Markowitz's theory & CAPM Model.

Need for the Study

1. Investors are key players in the stock market who focus on improving their return margins with minimal risk. The study is of prime importance as its major objective is to analyze the risk-return relationship of stocks.
2. Creating awareness among investors about portfolios is the only option in the equity market for minimizing risk and maximizing return.
3. Most importantly, keeping the industry's growth rate in view helps investors invest accordingly.

Research Methodology

This methodology approached a structured framework for the study, helping to analyze how the research is carried out. It ensures that the study is conducted systematically and with a clear approach. The methodology also justifies why certain statistics were selected over others in the context of the research objectives.

Type of Research: This study is descriptive and analytical; it focuses on various stocks and their nature of fluctuation according to the macroeconomic and microeconomic factors. On the other hand, analytical research collected empirical data of stocks and analyzed the risk and return for an optimum portfolio.

Period of Study: Four-year data are used to study, i.e., from 2020 to 2024.

Data Collection and Type: This study uses secondary data, and data is collected from BSE, NSE, Money Control, Morningstar, and individual company sides.

Sample Type: The sample size of nine sectors of two stocks from each sector is selected for the study. The sectors are automobile, bank, FMCG, private bank, IT, Healthcare, oil and gas, real estate, telecom, and textile, selected to create an optimum portfolio

Tools and techniques of analysis: The collected data is analyzed with the help of MS Excel, and various statistical tools such as mean, standard deviation, covariance, coefficient of variance, and percentage are used to measure the risk associated with strokes and their return.

Data Analysis and Interpretation

Table 1: Financial Measures of Selected Stocks							
Stock	Market Cap	Dividend Yield	P/B Ratio	PE	ROE	EPS	Beta
Nifty Automobile							
Tata Motors	287164 Cr.	0.77	2.85	8.55	32.99	90.57	1.09
Maruti Suzuki	371563 Cr.	1.06	4.17	26.5	15.73	445.97	0.88
Nifty Bank							
SBI	688267 Cr.	1.78	1.58	9.62	17.64	80.18	1.43
Bank of India	44935 Cr.	2.84	0.67	5.75	11.67	17.16	1.41
Nifty FMCG							
ITC	563215 Cr.	3.05	7.48	27.41	27.29	16.42	0.7
Hindustan Unilever	572278 Cr.	1.72	11.27	55.74	20.22	43.7	0.3
Nifty Private Bank							
Axis	32568 Cr.	0.09	1.92	11.76	16.29	90.23	1.11
ICICI	891979 Cr.	0.79	3.24	18.82	17.2	67.09	0.95
Nifty IT							
TCS	1460495 Cr	1.81	14.42	29.95	46.74	134.78	0.6
Infosys	796322 Cr.	2.4	10.16	29.55	29.79	64.9	0.69

Nifty Healthcare							
CIPLA	120185 Cr	0.87	4.24	26.86	15.78	55.41	0.33
Max Healthcare	111742 Cr.	0.13	12.7	105.55	12.03	10.89	0.48
Nifty Oil Gas							
Indian Oil Corporation	186753 Cr.	8.85	1.03	10.65	9.67	12.42	1.51
Reliance Industries	1698312 Cr.	0.4	2.07	25	8.29	50.19	1.22
Nifty Reality							
Oberoi Reality	77322 Cr.	0.19	5.22	33.3	15.69	63.86	1.1
DLF	186168 Cr.	0.66	4.63	51.66	8.96	14.56	1.64
Nity Telecom							
Tata Communication	48989 Cr.	0.97	27.53	52.87	52.09	32.49	1.02
Bharti Airtel	919934 Cr.	0.5	10.55	74.98	16.32	21.54	0.89
Nifty Textile							
Siya ram Silk	3998 Cr.	1.25	3.34	20.7	16.11	42.57	1.1
Bombay Dyeing	3438 Cr.	0.72	1.37	0.97	-0.77	170.87	1.61

Sourced data is collected from Money Control and the company website.

As disclosed in Table 1, nine sectors are selected to build the diversified and profitable portfolio, such as Automobile, Public Bank, FMCG, Private Bank, IT, Healthcare, Oil Gas, Reality, Telecom, and Textile from each sector two stocks are selected to better understand for the investor where to invest and how to minimize the risk by creating a diversified portfolio, Table 1 is help for the investor to do fundamental analysis of company before to investing. As observed in the table, the market capitalization of SBI Bank, TCS, ICICI Bank, CIPLA, Reliance Industries, and Bharti Airtel is high. On the other side, Maruti Suzuki, Hindustan Unilever, Infosys, Max Healthcare, and Indian Oil Corporation are moderate. Siyaram Silk, Bombay Dyeing, Tata Telecommunication, Axis Bank, and Bank of India are low. It helps the investors to know the size and stability of the company in the market. investors usually prefer to invest in high-dividend companies because they generate steady income, as seen in Table 1. BOI, ITC, IOC, Infosys, and TCS dividends are high. SBI, MS, HU, and SS generate moderate dividends, and the rest give irregular or low dividends to the investor, which is generally not preferred by the investors. The PB value, or price to book value, helps to find the company value. As a result of Table 1, the PB value of Tata Motors, SBI, BOI, Axis Bank, IOC, RI, and BD is under 3, which is good for the investors, and the rest stocks' PB is overvalued; the company is charged a higher price for each share. The price to earnings or PE ratio of the company's share price is where the company's earnings per equity share. In a study of Max Healthcare, Bharti Airtel, and Tata Communications

stocks, PE is very high for all the stocks. The PE ratios of MH, BA & TC are 105.88, 74.98 & 52.87, respectively, which means investors are paying 105.88, 74.98 & 52.87 for 1 Rs. Extra profit. The PE ratio of BD is negative, i.e., -0.77, which means the company is currently losing money and investors will not be able to generate extra. The beta shows the volatility of stocks from their index value, from the study Tata Motors, SBI, BOI, Axis, IOC, RI, OR, DLF TC. beta is more than the means; they are more volatile from their index value or overall market value.

Table 2 - Sector Wise Yearly Return					
Stocks	2021	2022	2023	2024	2025
Tata Moter	36.20	-13.71	46.05	-24.41	-8.81
Maruti Suzuki	6.77	8.15	17.22	-3.92	32.26
SBI	19.50	15.39	18.41	3.75	8.88
BOI	-28.37	48.31	37.19	-29.48	17.43
ITC	-0.92	24.40	19.08	12.64	-20.45
HU	-1.65	18.86	2.28	6.14	7.46
Axis Bank	-5.08	17.59	24.49	2.44	5.91
ICICI	19.69	17.35	11.72	16.77	4.92
TCS	15.34	-17.04	14.23	3.02	-41.77
INFOSYS	26.62	-31.42	7.01	29.42	-30.39
CIPLA	13.32	5.68	27.75	0.96	-1.20
Max Healthcare	50.73	20.20	35.72	37.38	-1.21
ObroiRelaity	32.79	-13.55	41.62	56.91	-46.10
DLF	25.27	-2.92	50.89	-6.93	-15.69
Tata Communication	23.32	2.79	29.64	-14.76	-5.68
Bharti Airtel	35.66	5.90	28.43	34.24	15.47
Siyaram Silk	55.93	14.87	22.14	116.38	-32.71
Bombay Dyning	33.14	-32.53	64.56	13.51	-14.09

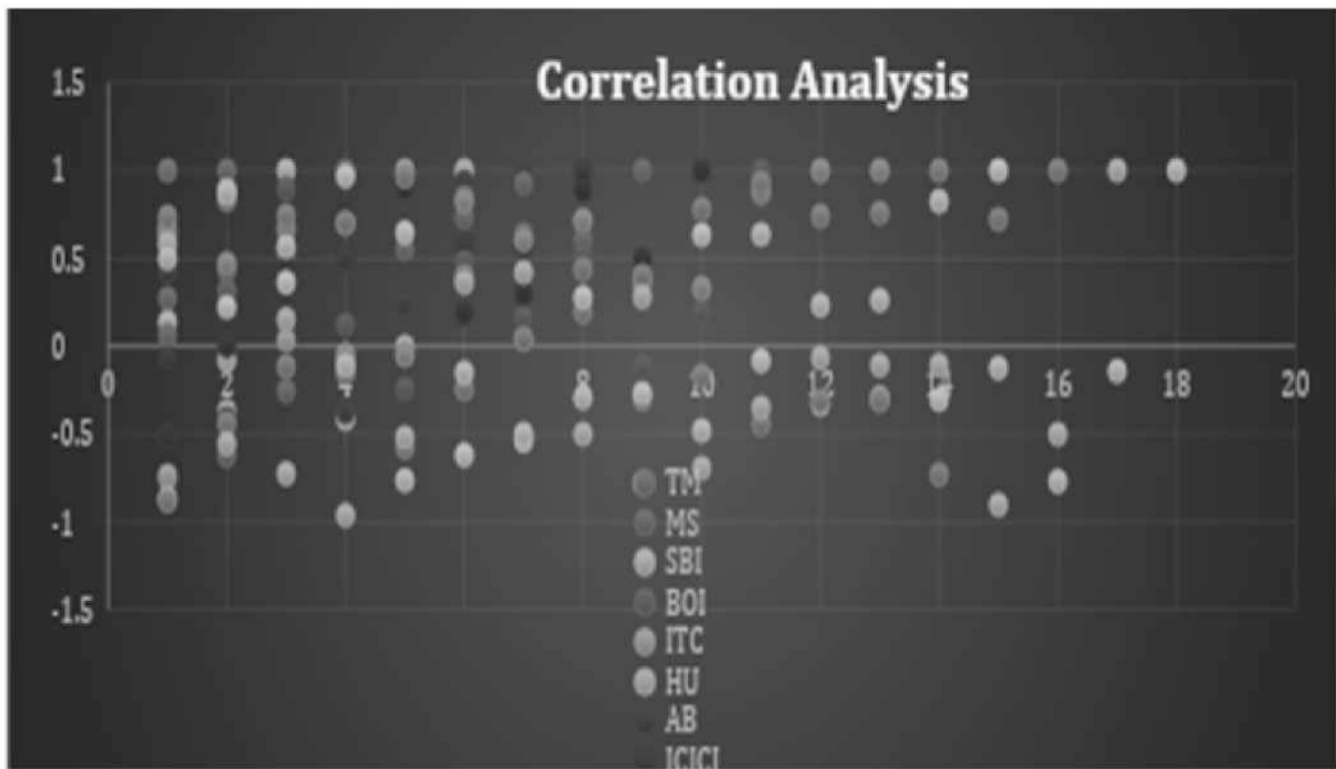
Table 2 shows the yearly return of each stock from 2021 to 2024 in percent.

Standard Deviation of All Stocks During 2021 -2024					
Stocks	2021	2022	2023	2024	2025
Tata Moter	0.24	0.02	0.18	0.14	0.11
Maruti Suzuki	0.07	0.07	0.12	0.05	13.76
SBI	0.16	0.16	0.20	0.08	0.02
BOI	0.49	0.79	0.63	0.44	0.03
ITC	0.29	0.35	0.25	0.27	0.18
HU	21.53	10.58	10.27	10.31	0.92
Axis Bank	1.14	0.64	0.36	0.61	0.82
ICICI	0.41	0.41	0.35	0.31	0.98
TCS	1.80	1.53	0.88	1.33	2.15
INFOSYS	0.38	0.62	0.22	0.08	0.96
CIPLA	0.43	0.37	0.44	0.33	0.33
Max Healthcare	0.58	0.42	0.47	0.35	1.70
ObroiRelaity	0.37	0.20	0.26	0.11	2.96
DLF	0.34	0.13	0.40	0.13	1.41
Tata Communication	0.12	0.28	0.21	0.15	0.95
Bharti Airtel	0.15	0.51	0.07	0.19	2.04
Siyaram Silk	0.63	0.40	0.47	0.71	0.53
Bombay Dyning	0.53	0.41	0.82	0.50	0.20

The standard deviation of the sourced data is calculated by MS Excel

TABLE 4 - CORRELATION MATRIX OF STOCKS

	TM	MS	SBI	BOI	ITC	HU	AB	ICICI	TCS	IS	CPL	MH	OG	DLF	TC	BA	SS	BD
TM	1																	
MS	0.27	1.00																
SBI	0.14	0.89	1.00															
BOI	-0.76	0.32	0.54	1.00														
ITC	-0.74	-0.37	0.03	0.70	1.00													
HU	0.67	-0.08	0.15	-	0.41	0.00	1.00											
AB	0.43	-0.42	-	-	0.12	0.37	0.24	0.93	1.00									
ICICI	-0.07	0.15	0.58	0.50	0.66	0.58	0.57	1.00										
TCS	0.06	-0.63	-	-	0.25	0.14	0.55	0.73	0.93	0.61	1.00							
IS	-0.51	0.01	0.44	0.78	0.90	0.19	0.30	0.89	0.49	1.00								
CP	0.55	0.83	0.90	0.12	-	0.24	0.48	0.16	0.52	-	0.11	0.20	1.00					
MH	0.64	0.43	0.64	-	-	0.08	0.05	0.85	0.64	0.71	0.40	0.32	0.86	1.00				
OR	0.63	0.47	0.68	-	-	0.05	0.05	0.83	0.60	0.72	0.36	0.33	0.88	1.00	1.00			
DLF	0.74	0.84	0.75	-	-	0.15	0.58	0.40	0.04	0.20	-	0.30	0.17	0.93	0.74	0.76	1.00	
TCS	-0.87	0.22	0.37	0.97	0.65	-	0.62	0.54	0.28	-	0.27	0.63	-	0.08	-	0.33	0.29	0.30
BA	-0.88	-0.44	-	0.11	0.71	0.96	0.24	0.04	0.44	0.40	0.78	-	0.44	-	0.31	0.31	0.73	0.72
SS	0.58	-0.55	-	0.73	0.96	-	0.52	0.36	0.42	-0.50	0.28	-	0.69	0.35	-	0.07	0.11	0.11
BD	0.50	0.87	0.57	-	-	-	0.11	0.76	0.15	0.50	-0.29	-	0.78	0.48	0.64	0.23	0.26	0.83



From Table 4 of the correlation matrix, it is found that all the stocks are positively correlated with each other, and it is also positive to create the portfolio, except BOI, ITC, ICICI, IS, TCS & BA.

Stocks	2021		2022		2023		2024		2025	
	Mean	CV (%)	Mean	CV (%)	Mean	CV (%)	Mean	CV (%)	Mean	CV (%)
TM	365.78	0.07	411.60	0.01	606.63	0.03	931.51	0.02	680.82	0.02
MS	7271.63	0.00	8316.20	0.00	9677.05	0.00	12266.59	0.00	13317.05	0.10
SBI	426.79	0.04	526.58	0.03	584.28	0.03	804.41	0.01	821.43	0.01
BOI	64.50	0.75	58.68	1.35	94.13	0.67	120.61	0.37	116.36	0.03
ITC	218.96	0.13	301.23	0.11	438.36	0.06	461.59	0.06	404.33	0.04
HU	2487.65	0.87	2404.50	0.44	2581.04	0.40	2517.24	0.41	2355.95	0.04
AB	727.59	0.16	772.90	0.08	1004.90	0.04	1152.36	0.05	1144.27	0.07

ICICI	666.79	0.06	798.24	0.05	939.36	0.04	1194.60	0.03	1380.75	0.07
TCS	3489.75	0.05	3322.49	0.05	3443.73	0.03	4085.77	0.03	3318.85	0.06
INFOSYS	1626.48	0.02	1571.80	0.04	1444.43	0.02	1750.60	0.00	1538.08	0.06
CIPLA	931.95	0.05	1038.76	0.04	1081.19	0.04	1535.35	0.02	1486.73	0.02
MH	319.04	0.18	389.40	0.11	573.55	0.08	970.43	0.04	1162.55	0.15
OR	740.10	0.05	878.35	0.02	1106.28	0.02	1863.56	0.01	1708.37	0.17
DLF	345.83	0.10	360.20	0.04	526.14	0.08	867.66	0.01	743.77	0.19
TC	1331.75	0.01	1149.68	0.02	1635.80	0.01	1926.23	0.01	1627.27	0.06
BA	695.38	0.02	759.49	0.07	900.19	0.01	1465.11	0.01	1873.80	0.11
SS	326.98	0.19	477.74	0.08	520.13	0.09	598.56	0.12	671.33	0.08
BD	90.09	0.59	92.25	0.44	119.68	0.69	200.51	0.25	154.03	0.13

From Table 5, there is less dispersion in the value of stocks from their mean value. This means all the stocks are less variable from their mean. To calculate the mean quarterly value of each stock are used, and then with the help of the mean and standard deviation, CV has been calculated

Conclusion

Investors are the risk averse and always try to minimize the risk for an optimum profit, moreover to minimize the risk it is not an easy task for an investor so portfolio play the vital role, to create the strong or optimum portfolio a proper diversification of an assets are required, to diversify the capital into different assets a proper study of market and to understand the future uncertainty based on fundamental study is needed to do.

The present study is based on the nine different indices of two stocks from each index used, with the main aim of constructing the optimum portfolio for investors, so they will be able to understand how the decisions are taken before investing in any stocks. The returns of all the stocks are higher in 2021, but a few stocks were lower in 2022 due to monetary policy and the war in Ukraine. In 2023 and 2024 the market started to grow again. Most of the funds generated low or negative returns in 2025 due to inflation, monetary policy, new tariff policy increase by US President Donald Trump, FII selling, and global crises. Also from the study, we found that stocks are less diversified from their mean value; it means returns are less volatile from their actual mean. A few stocks, such as ICICI, OR, SS, BD & DLF, did not generate the expected return, which an investor can avoid to create an optimum portfolio. From the study Markowitz portfolio model and the CAPM model help to understand how risk can be minimized and how a portfolio can be built. The study suggests favoring only portfolios can help to diversify the risk for a good return.

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Investment Analysis and Portfolio Management

Human Resources Management Practices in Banking Services in India

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Abstract

Since human resource management has been a key component of any management system, for an effective management of a bank effective human resource management is essential. Through development of human resources banks can manage their workforce, respond to changes, and operate efficiently. Thus, HRD allowed banks to be vigorous and responsive to changes in the environment while also facilitating their overall development. Understanding banks' current HRM philosophy, methods, and results in light of the nation's current economic situation is crucial for developing recommendation for the enacting the best HRM philosophy and practices in banks.

The new approach has put a variety of duties on banks, such as the required expansion of new branch into remote as well as unbanked non-urban areas to serve small businesses, rural and cottage industries, self-employed individuals, artisans, the weaker segments of society, small traders, and other individuals with limited resources. Every significant facet of bank HR development is included in the report. These topics include the fundamentals of HRM procedures, conceptual clarification on HRM in banks, and HRM subsystems such as performance evaluation, training, management development, career planning and development, and organization growth. Through discussions, interviews, reports, accounts, observations, and more, these key aspects of HR practices will be extensively examined to the greatest extent possible.

Keywords

Human Resources, Banking Services, Functions, HR Issues, Required Improvements.

Introduction

Through a reactive process, HRM practices in India's banking sector have developed over time. It becomes essential to peep into the historical history of the establishment of Human Resource Management exercises in order to comprehend their progress. In order to comprehend bank workers and their working conditions, one will have to understand that one's circumstances were worse than those of other middle-class and working-class workers in the early 1940s and 1950s. The sector's workers were unorganized, paid pitifully little, endured unrelenting hours of inhumane and unpleasant labor, without leave benefits and security of employment, and were subject to the hire-and-fire regime. Organizations face many issues as the outcome of the knowledge economy's rise, the workforce's shifting demographics and beliefs, the dramatic advancements in information technology and communication means, and growing worldwide competition. In today's fiercely competitive market, human resource development is considered the most crucial components for effectively overcoming the obstacles. HRM is significantly important in the context of a

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developing economy like India, where capital formation is urgently needed, industrial and bank management developments are dynamic, and financial crises that accompany economic growth are common. As a result, investigating the potential applications of HRM becomes a highly pertinent area of study and research.

HRM is a strategic approach to human resource management that encompasses all managerial choices and activities that impact the organization's relationship with its employees, according to Beardwell (1984).

HRM is the concept, rules, processes, and practices pertaining to the management of people inside a business, according to Beardwell. (2004).

Significance of the Study

The idea of HRM is expanding. It is extremely relevant to the banking industry and other service sectors. The single biggest input used in the banking services is human labor. The service quality that banks provide to their clients, and their eventual growth, productivity, and profitability, are all influenced by the efficiency and production level of this input. Therefore, banks today place a great emphasis on HRM functions.

Objectives of the Study

The objectives of the study are to know Human Resource Management practices of banking Sector in India.

- To analyze of HRM practices in Banks
- To identify the aspects of HRM practices

Review of Literature

Dr. P. Thanuja, Dr. Suja S. Nair and Ms. T. Nagalaxmi (March 2018) explored in their research “Relationship between HRM Practices among the Employees of Select Public and Private Sector Banks of Nellore Region” that in Scheduled Banks of Public Sector has moderate positive correlation between Selection, Training and Development whereas there is low positive correlation between Selection and performance appraisal, Employee Relation, Promotions and Transfers, Career Planning and Turnover, but there is no relation between Selection and Compensation. He also found that Private Sector Banks have high positive correlation between Performance Appraisal and Training and Development. But no relation between Performance Appraisal and Compensation also with Career Planning.

Tejukujur&Mushtaq Ahmad Shah (March 2016) in his research, paper title “Innovative Human Resource Practices in Indian Banks: A Study from HR Manager's Perspective” discusses about 7 innovative methods or ways to uplift the human resource practices in Indian Banks.

The 7 innovative HRM ways are suggested-

- (1) Innovative Recruitment & Selection Practices
- (2) Innovative Training & Development Practices
- (3) Innovative Performance Management practices
- (4) Innovative Compensation Management Practices
- (5) Innovative Career Development Practices
- (6) Innovative Employee Motivation Practice
- (7) Innovative Employee Security Practices

Dr. P. Chinnadurai (August 2014) explored in his research paper titled “HR Practices in Private Sector Banks – An Empirical Evidence” that the selected officials of private sector banks, nearly all of which are located in the Cuddalore district, adhere to HR procedures. Nonetheless, each bank has a different level of HR practice performance and efficiency. Additionally, the selected survey participants' degree of satisfaction with the HR procedures used by private sector banks varies. Additionally, he recommends that the following private sector banking organizations' policy makers assess their performance appraisal system by surveying their executives. Concerns regarding the Grievance Handling and Compensation Management processes were voiced by the selected bank officers. In order to resolve their complaints regarding compensation, the administrators of private sector banks should investigate the issues related to compensation and grievance handling procedures.

Dr. B. Mathivanan (Nov.-Dec. 2013) studied in his research title “A Study on HRM Practices in Public Sector Banks in Krishnagiri District” and found that the HRM tools such as PAS as well as possible development activities that support personal growth. The traditional role of unions in banks must be changed, and they must begin to concentrate on development responsibilities such as (A) HRM initiation (B) communication (C) education and training (D) bank employee welfare (E) and the role of family vocational advice. He recommended that banks form a corporate-level, high-power HRM committee. The Training Advisory Committee will meet at least once every three months to discuss alternatives, the committee's structure, and its scope. Every three years, banks should conduct HRM surveys. The results should be analyzed, and appropriate HRM interventions should be implemented.

Ramaya T. J. and Dr. PSV Balaji Rao (Aug 2016) studied the recruitment trends in Banking Services and Financial Industry (BSFI) in his research “A Study on current HR practices and policies adopted by commercial Banks in India” and suggests that this industry is expected to recruit about 8.4 million people as per the growth rate each year. BSFI recruitment between 2008 and 2028 is expected to be about 42 million and sector may create up to 20 lac new jobs in the next 10 years. Advantaged by issuance of new license and efforts being made by RBI and the government to expand the financial services in rural as well as remote areas so the sector will need the fresh talent.

Khandelwal Anil in his paper titled “Moving HRD from the Periphery to the Centre for Transformation of an Indian Public Sector Bank: Keynote Address” examined Bank of Baroda's rise and fall in relation to client orientation, changing demographics, increased market rivalry, and HRD practices. The results were relevant to the bank's researchers' future plans on the use of management philosophy at all staff levels. Leadership has the power to change organizations and set them up for high development by igniting people's passions.

Kennedy, Virile (2007) in his paper titled “Do Human Resource Development Practices Differ among the Categories of Indian Commercial Banks?” concentrated on the HRD procedures employed by several commercial banks. In order to highlight the variations in HRD practices among public sector banks and examine the connections between their practices as well as their own advantages and disadvantages, he researched the public sector, the old private sector, and the new private sector.

Dr. Shagufta Showkat suggests in her study titled “Performance Appraisal in Banking Organizations” that the system for evaluating performance ought to be focused on HRD. Performance appraisals can be a helpful tool for (a) fostering positive relationships with employees, (b) planning staff performance, (c) identifying employee potential, and (d) enhancing organizational effectiveness, in addition to serving as a foundation for administrative and developmental decisions. The current study demonstrates that when employees of the

sample study firms are aware of the assessment criteria beforehand, they feel less intimidated. To reduce rater bias, the researchers have proposed a number of employee appraisal sources. In an effort to increase employee satisfaction with PA processes, organizations are increasingly using 360-degree and self-appraisal in place of the more conventional top-down appraisal method.

Gupta Dipak Kumar, Jena, Duryodhan, Samantaray, Anup Kumar & Das Subhankar revealed from the present study titled “HRD climate in selected public sector banks in India” that the general climate of State Bank of India is better with compare to UCO bank. Therefore, the top management of UCO bank has to be more concerned and careful for the development of their officers. As regards OCTAPACE culture both of the banks found to be at the same level whereas the HRD mechanism system is better than to that of UCO bank. So HRD sub-stems needs to be more transparent for the officers of the UCO bank towards overall organizational development.

Dr.Satishsoni, BhanuPriya's study was done in Punjab National Bank branches, Kangra District titled “HRD Practices Adopted by Punjab National Bank with Reference to Kangra District Himachal Pradesh” adopting HRD techniques reveals a number of facts. Nonetheless, each bank has a different level of HRD practice performance and efficiency. All respondents expressed the same degree of satisfaction with the HR procedures used in the banks, notwithstanding the bank officers' negligible differences in satisfaction with the HRM functional areas. Furthermore, Punjab National Bank's degree of satisfaction with HRD practices is unaffected by demographic factors such as gender, age, designation, and work experience.

According to Macky& Boxall (2007), The scientific literature makes the assumption that there is a causal relationship between HRM practices and organizational success through employee responses. Companies who don't pay fairly in comparison to others risk losing their employees due to their uncompetitive benefits package.

The relationship between companies and their employees has entered a new era, according to Lawler (2005). People are a company's biggest source of competitive advantage in this modern era, and how they are treated determines the organization's ability to survive and grow.

Klaus (2003) claim that improved job design or assignment may encourage employees to show more dedication, which will improve job performance.

Decentralization, compensation, participation, training, development, job security, social contacts, management style, communications, and performance evaluation are among the nine crucial HRM strategies listed by Buck and Watson (2002). The study examines how the following aspects of HRM practices such as hiring and selection procedures, compensation packages, job security, career advancement, training and development, management style, job design and responsibilities, reward and motivation, and working environment have an impact on employees' satisfaction with the company. This is based on the literature review mentioned above.

Banking Structure in India

Indian Nationalized Banks

Currently, 14 commercial banks are operating in the public sector in India. SBI and its 5 Associate banks, 12 nationalized banks and IDBI Bank appear under the public sector. Out of 21 private sector commercial

banks. 14 are old private sector banks, while the remaining 7 are new private sector banks. Besides Nationalized and Private Banks, Rural Development Banks have 95833 and more than 8000 employees in Co-operative Banks in India

Human Resource Management in Indian Banking Sector

Secondary data has served as the primary foundation for the research of HRM policies, practices, and trends in banks. Both public and private sector banks' hiring, selection, and promotion policies, procedures, and their pay, training, and development initiatives, have been examined. In India, there are 12 commercial banks that work in the public sector. The public sector includes SBI, 11 nationalized banks, and IDBI Bank. The information about all of these banks and the banking industry has been compiled from a variety of sources, including published documents like the banks' annual reports, manuals, office records of various training institutes, divisional offices, and head offices of the sample banks, as well as other publicly available sources like the Indian Banks Association, Bombay (IBA)'s various annual and monthly publications, RBI Bulletins and supplements to RBI Bulletin, various journals pertaining to the banking industry, websites, etc. The following are some of the issues raised by Indian banks' HRM policies and practices that have been covered here.

1. Selection and Recruitment
2. Promotion
3. Compensation
4. Training and Development.

Using "content analysis," an examination of the HRM policies and procedures of Indian public and private sector banks has also been conducted.

With regard to hiring, selection, promotion, pay, training, and development policies and procedures, a total of 29 distinct HRM domains have been identified; they have been compared using "content analysis."

Meeting HR Challenges

In both size and services offered, the banking sector in India has been expanding extremely quickly. One might expect benefits like better financial understanding and financial assistance for farmers when banks expand into the nation's more rural areas. However, as banks have grown in size and activity, there are now more banks in the private sector, which presents problems with cost-effectiveness, technical innovation, and legitimacy. The HR department's job is to create plans that give banks a competitive edge and promote innovation in their goods and services.

Managing Human Resource

Given the aforementioned HR issues that the Indian banking sector is dealing with, we may effectively manage human resources by making the followings:

Hiring The Right Person for The Right Job

Retaining And Developing Employees

Managing People/ Maintaining the Turnover Ratio

Conducting Exit Interviews

Hiring the Right Person for the Right Job

The idea of "fit" is an important concept that comes up when determining whether the "right person" has been

chosen for the "right job." Different kinds of fit are emphasized by different authors. In a study of the research on person-environment fit, Sekiguchi (2004: 179) addresses two fit types that stand out as the most prevalent: person-job fit and person-organization fit. Organizations aim to meet the requirements of a job, an employee's knowledge, skills, and talents in order to achieve person-job fit. Businesses can determine person-organization fit by concentrating on how effectively a person matches with the company's culture or values and how well they get along with other staff members.

The following will need to be planned for by banks:

- A consistent, precisely calibrated hiring process
- Rapid technological advancements are changing business, necessitating ongoing skill development
- An elder generation of workers will be collaborating with a younger generation
- I believe that banking is a team endeavour, and this new circumstance will necessitate cultural adaptations and, consequently, change management

Retaining and Developing Employees

We might be able to hire the best candidates for our job, but keeping and developing them will be difficult. This problem has multiple facets, including staff training and retraining, performance evaluation, promotion and transfer policies, talent management, communication, etc. I'd like to talk about a few of them.

Training and Development

The rapid expansion of banks requires the effective and knowledgeable employees to manage and address customer necessities. Banks are becoming more and more well-known in the global market and serving as a financial center for their customers. Banks are providing both traditional and cutting-edge services, such as SMS banking, to entice customers. Demat, ATM, internet banking, and priority banking. We can therefore conclude that it meets the needs of the bottom to the greatest social level offering something to everyone. These days, almost all the banks have emerged as store that houses practically all financial services in the same premises.

The necessity for a succession policy has been recognized at Punjab National Bank in view of the significant human resources shortages the bank is anticipated to experience in the upcoming years. In order to guarantee that there are enough officials, the policy plans to map the "existing pool" against the "future requirement" derived from the anticipated business figure are accessible in the pool, as well as to predict the pool's excess or deficit in order to fulfill the need for succession in a specific vertical.

Process Transformation

One industry where performance rating systems are receiving a huge interest is banking services. A few of the public sector banks have modified or are currently working on modifications to their performance evaluation systems. The following traits are used to evaluate officers in the majority of banks that use the traditional system:

1. Knowledge Sharing
2. Efficacy through Training and Development
3. Capacity Building Initiatives
4. Supervision
5. Business Capacity

6. Ability to Assess Soundness of Business
7. Business Propositions Dependability
8. Interpersonal Relationship at Different Level
9. Effective Customer Relationship Management (CRM)
10. Improvement in Soft Skills of Employees
11. Disclosure of Required Information to the Concerned Employee on Time

A fair, transparent, and defined mechanism for performance management is essential for all banks because the secret to succession planning and talent management is an efficient performance management system. The RBI is soon to initiate a new Performance Management System that will focus on goal-setting and possible evaluation of performers, and advancing talent pipeline. With many changes, we will also face significant objections on the talent management front. Many banks use self-appraisal as segment of performance appraisal, with the majority of these self-appraisals being more communication of accomplishments. The Human Resource will become more complicated in the future, requiring the management of a diverse range of individuals with varying requirements and preferences. As a result comes to a diversity of connections between the business and its employees. More than a decade ago Peter F. Drucker advocated for "non-traditional" work relationships, such as flexible scheduling, contract agreements, virtual teams, etc.

Managing Separation

Due to the increasing attrition rates in service industry in past few years, it is now essential for businesses to establish a methodical separation strategy to guarantee that employees leave in a timely manner. The idea of "pink slips" or involuntary departures, of course, is a completely different story and involves some resentment comprised of the employee who lost their job. At last even if weakening is a reality that affects the entire sector, we believe that employee dismissal should be handled professionally and maturely. If an employee chooses to go, the dismissal should run as smoothly as feasible.

Role of HR Manager in Exit Interview

- Find out why the employee left.
- To reduce potential annoyances and/or a bad attitude towards the company, show the departing employees that you care about them.
- Give departing workers a chance to share their thoughts about their time at work.
- Get insightful input regarding pay, working conditions, management, and company culture from departing employees. Examine the departing employee's most pressing issues and note their favourite things to do.
- Employees who are leaving have the chance to impart their knowledge and expertise to a replacement or successor; they can also update a team about ongoing initiatives, problems, and relationships.
- An opportunity for departing staff members to offer helpful criticism and to part ways amicably, with respect and goodwill.

Additional HR Practices and Benefits Given to Employees

Under the Bank's Superannuation Fund, employees who surpass a certain grade are eligible to earn retirement benefits. The Bank gives insurance companies, which manage the fund, an amount equalize 13% of the employee's qualifying yearly basic pay (15 percent for the Managing Director, Executive Directors, and some eligible former Centurion Bank of Punjab employees).

- **Short Term Employee Benefits**

At State Bank of India, the undiscounted sum of short-term employee benefits—like health insurance, paid time off, etc.—that are anticipated to be given in return for workers' labor is acknowledged while the worker is performing the service.

This Bank has Provident Fund program. Assistance under the Bank's Provident Fund program is available to all qualified employees. The Bank takes a monthly contribution at a predetermined amount, which is currently 10% of the worker's base pay plus any additional benefits. These donations are transferred to a trust and charged to the profit and loss account created specifically for this purpose. All qualifying workers of the Bank are eligible for pensions. The benefit is subject to vested employees on a regular basis upon retirement, death while working, or termination of employment, in addition monthly payments in consistent with regulations. According to regulations, vesting takes place at various phases.

- **Gratuity**

Gratuities are offered to all HDFC Bank employees. Upon resignation, retirement, death while working, or termination of employment, vested employees get lump sum payments equivalent to 15 days of basic salary payable for each completed year of service. Vesting occurs following the completion of five years of service.

- **Superannuation**

Under the Bank's Superannuation Fund, employees who surpass a certain grade are eligible to earn retirement benefits. The Bank gives insurance companies, which manage the fund, an amount equalize 13% of the employee's qualifying yearly basic pay (15 percent for the Managing Director, Executive Directors, and some eligible former Centurion Bank of Punjab. Apart from its endowments, the Bank is not responsible for any upcoming future superannuation fund benefits. Since contributions are defined contributions, the Bank records them as a yearly expense they are made.

From a small number of organizations mostly engaged in trade financing and deposit acceptance, the banking industry has expanded into a multi-player, intricate market with several commercial banks, financial institutions, and specialty banks offering a wide range of products. The banking industry. As similar organized sectors, needs a multi-layered workforce to meet its diverse needs for experts and support personnel. At one's fingertips, the range might call for security guards with a moderate level of education, and in contrast, a highly qualified individual to serve as the head of corporate finance.

Results

At Organizational Level:

1. Improved Performance Appraisal
2. Increase in Productivity of the Employees
3. Turnover Minimization
4. Enhanced Quality of Human Capital
5. Brand Architecture

At Individual Level:

1. Congenial Environment
2. Increased Happiness Index of Employees
3. Career Advancement
4. Work-Life Balance
5. Job Satisfaction

Suggestions

From a small number of organizations mostly engaged in trade financing and deposit acceptance, the

banking industry has expanded into a multi-player, intricate market with several commercial banks, financial institutions, and specialty banks offering a wide range of products. The banking industry, comparable to organized sectors, needs a multi-layered workforce to meet its diverse needs for experts and support personnel. At one's fingertips, the range might call for security guards with a moderate level of education and in contrast, a highly qualified individual to serve as the head of corporate finance.

Banking became more market-based industry, the outcome of the liberalization of its operations, such as the increased focus on personal loans, consumer and home finance, etc. Banks have significantly increased their reach to customers' doorsteps, making banking more convenient. This has further emphasized how important it is to properly build human capital aiming to operate banks effectively. Despite all of these improvements, the banking industry's HRM procedures still have various shortcomings. Below are some particular recommendations derived from a review of the literature, group discussions, and survey:

- A healthy balance between organizational and human needs must be struck. Complete disregard for personal preferences eventually leads to frustration, which has a negative impact on the organization's ability to thrive.
 - Although performance must be rewarded, non-performance must be chastised. Promotions must only be granted based on merit.
 - The "employee performance review system" needs to be consistent, fair, and balanced. Actually, this system needs a thorough evaluation.
 - Employees must behave in a friendly and enthusiastic manner with customers. Banks must have a well-defined strategy for career advancement and succession planning.
 - At the highest level, attitudes must shift. Financial statements should be accompanied with the human resource balance sheet. Public sector banks should permit the HRD department to operate independently in order to foster an HRD-conscious culture.
 - The head of this department should be a successful banker who is also an impartial HRD specialist.
 - At the highest level, attitudes must shift.
 - Financial statements should be accompanied with the human resource balance sheet. Public sector banks should permit the HRD department to operate independently in order to foster an HRD-conscious culture. The head of this department should be a successful banker who is also an impartial HRD specialist.
 - Greater openness, transparency in private affairs, a strong regard for human dignity, a management style focused on people, fostering a sense of community and trust, and two-way communication.
 - Banks should have a framework in place that allows employees' training needs to be recognized and appropriately met at each step of their professional development.
- For continuous internal and external research development, review, and HRD policy implementation, the HRD department should have dedicated R&D wings.
- Award programs for the finest HRD practices and policies among public sector banks ought to be run by esteemed institutions and government organizations. etc.

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A Study on HR Approaches to Monitoring and Managing Remote Workforces

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Abstract

This research inspects how HR managers can effectively monitor remote workers by viewing existing literature, case studies, and best practices published between 2020 and 2025. Monitoring remote employees presents unique challenges in ensuring productivity, compliance, and data security without undermining trust or employee autonomy. Through a secondary research methodology, this paper synthesizes diverse monitoring techniques—such as the use of productivity tracking software, schedule adherence tools, AI-driven analytics, and clear communication policies—and evaluates their practical effectiveness. The findings confirm that transparent, goal-oriented monitoring supported by modern technology, coupled with proactive feedback and employee involvement, optimizes workforce management while preserving trust and well-being. The research concludes by outlining implications for HR practice and recommendations for real-world implementation.

Keywords

Remote Workforce Monitoring, HR Management, Employee Productivity, Monitoring Software, Data Security, Employee Engagement, Secondary Research

Introduction

The rapid digital transformation and the global shift triggered by the COVID-19 pandemic have significantly redefined the workplace, with remote work becoming a permanent feature in many industries. What was once considered a temporary arrangement has now evolved into a strategic model of work, offering flexibility, cost efficiency, and access to a global talent pool. However, this transformation has also posed new challenges for Human Resource (HR) managers, particularly in effectively monitoring and managing remote employees.

Traditionally, monitoring employee performance was grounded in physical presence, direct supervision, and time-based accountability. In remote work environments, these methods are no longer practical, pushing HR managers to adopt innovative approaches that emphasize outcomes, trust, and digital collaboration tools. Monitoring remote workers must therefore balance two critical aspects: ensuring organizational productivity and maintaining employee well-being and autonomy.

HR managers today are exploring methods such as results-based monitoring, transparent workflows, technology-enabled communication, and regular feedback mechanisms to replace outdated supervision models. The effectiveness of these approaches lies not only in tracking performance but also in fostering

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engagement, accountability, and trust among geographically dispersed employees. This research paper aims to analyze how HR managers can effectively monitor remote workers without creating a culture of surveillance. Using GitLab Inc. as a case study a fully remote organization that has successfully implemented trust-based monitoring practices the study examines strategies that combine performance evaluation with employee empowerment. The focus will be on identifying best practices, evaluating outcomes, and understanding the broader implications for the future of work.

Literature Review

Remote work, once considered an exception, has now become a mainstream organizational practice. Researchers and practitioners alike have emphasized the importance of redefining HR strategies to accommodate this transformation, especially in the area of performance monitoring.

Shift from Traditional Monitoring to Results-Oriented Approaches

Historically, employee monitoring relied heavily on physical observation and time-based measures of productivity. However, with remote work, this paradigm has shifted toward outcome-based evaluation. Bloom et al. (2015) in their seminal study demonstrated that employees working remotely can achieve higher productivity when assessed on deliverables rather than time spent online. Similarly, Baker, Avery, and Crawford (2007) found that professionals reported higher job satisfaction and efficiency when their organizations focused on results rather than constant oversight.

Technology and Digital Tools in Monitoring

The use of digital platforms has transformed how HR managers track performance and engagement. Gartner (2021) emphasizes that collaboration tools such as Slack, Zoom, and project management dashboards can serve as effective substitutes for physical presence, enabling transparency and accountability without micromanagement. However, scholars also caution that excessive reliance on monitoring technologies can raise privacy and trust concerns (Wang et al., 2021).

Trust and Autonomy as Critical Factors

Several studies underline that employee trust and autonomy are central to effective remote work monitoring. Wang et al. (2021) argue that trust-based systems that prioritize flexibility result in stronger employee engagement and well-being. In contrast, surveillance-driven monitoring can lead to stress, reduced morale, and even attrition. GitLab's fully remote model provides practical evidence of this theory, as it fosters accountability through open documentation and self-reporting rather than intrusive surveillance (GitLab, 2020).

HR's Evolving Role in Remote Work

The literature suggests that HR managers are no longer mere enforcers of compliance but are becoming facilitators of employee success in remote contexts. They must balance organizational performance goals with employee well-being by adopting strategies like clear goal-setting, continuous feedback, and transparent communication (Wang et al., 2021; Gartner, 2021). This shift requires HR to move from traditional “command and control” frameworks toward collaborative and trust-oriented practices.

Research Gap

While prior research highlights the benefits of results-based monitoring and trust-building, limited studies provide practical case-based evidence of organizations that have successfully implemented these strategies at scale. This study contributes to filling this gap by examining GitLab's remote work monitoring model, providing insights into the practices HR managers can adopt for sustainable remote workforce management.

Case Study

Case Study 1: Successful Remote Work Monitoring at GitLab Inc.

Background:

GitLab Inc., a fully remote software development company with over 1,500 employees spread across more than 65 countries, has become a benchmark for successful remote work management. The company operates without a central office and has built an effective system for monitoring and managing remote employees while maintaining transparency, accountability, and productivity.

Monitoring Approach:

GitLab emphasizes results-based performance management over micromanagement. Instead of using surveillance tools, the company has implemented the following strategies:

1. Clear Goals and OKRs: Every team set Objectives and Key Results (OKRs) to align individual performance with organizational goals.
2. Transparent Workflows: GitLab uses its own platform (GitLab) and collaboration tools like Slack and Zoom to document all workflows. Employees log their progress in public channels, ensuring visibility and accountability.
3. Asynchronous Communication: All meetings are recorded and notes are shared to accommodate time zone differences. This helps managers monitor discussions and decisions without needing constant live supervision.
4. Weekly 1:1 Check-ins and Feedback Loops: HR and team leads conduct weekly 1:1 session to track engagement, address challenges, and provide timely feedback.
5. Employee Self-Service Dashboards: Employees update progress on tasks in shared dashboards, allowing HR and managers to evaluate productivity without invasive monitoring.

Outcome:

GitLab has reported high employee satisfaction, strong retention, and consistent delivery of high-quality output. The company's model proves that trust-based, transparent monitoring can be more effective than surveillance-driven models in remote work settings.

Key Takeaways for HR Managers:

- Prioritize clarity of expectations and output-based evaluation.
- Use transparent tools that foster communication and accountability.
- Build trust and autonomy into the company culture.
- Encourage regular human interaction through structured check-ins.
- Avoid over-surveillance, which can damage morale and trust.

Case Study 2: Microsoft – Balancing Analytics and Employee Well-Being

Background:

When the COVID-19 pandemic accelerated the shift to remote and hybrid work, Microsoft faced the challenge of monitoring and managing a massive remote workforce. HR needed to ensure productivity while protecting employee well-being and privacy.

Monitoring Strategy:

- Deployed Microsoft Viva and Teams Analytics to track collaboration trends such as meeting hours, email overload, and after-hours work.
- Conducted pulse surveys to gather real-time feedback on employee stress levels and engagement.
- Adopted a trust-based monitoring approach, using aggregated data rather than individual surveillance.

Outcome:

- Productivity levels remained stable across departments.
- HR identified early signs of burnout and introduced policies like “No Meeting Fridays.”
- Employee satisfaction scores improved as workers felt supported rather than policed.

HR Implication:

This case shows that data-driven yet employee-centric monitoring fosters both productivity and trust.
Case Study 3: Buffer – Outcome-Oriented Remote Monitoring in a Startup

Background:

Buffer has operated as a fully remote company since 2015, with employees across multiple countries. With no physical office, HR needed to design a system that ensured accountability without micromanagement.

Monitoring Strategy:

- Adopted transparent dashboards where team progress, timelines, and OKRs (Objectives & Key Results) were visible to all employees.
- Relied on collaboration tools such as Slack, Trello, and Asana to track task completion.
- Conducted weekly check-ins and one-on-one sessions to support employees emotionally and professionally.

Outcome:

- Employees reported a strong sense of autonomy and trust.
- Retention rates were high, with Buffer consistently ranking as one of the best remote-first workplaces.
- HR successfully shifted performance measurement from hours worked to results achieved.

HR Implication:

The Buffer model illustrates how startups can succeed with trust, transparency, and outcome-based monitoring, rather than intrusive surveillance.

Objective of Study

The primary objective of this research is to explore and analyze the strategies, tools, and practices that HR managers can adopt to effectively monitor remote workers while ensuring productivity, trust, and employee well-being. Specifically, the study aims to:

- Identify the challenges HR managers face in monitoring remote employees.
- Examine the shift from traditional supervision to results-based performance monitoring.
- Evaluate the role of technology and digital collaboration tools in enabling transparent and accountable workflows.
- Highlight best practices through a case study of GitLab Inc., a fully remote organization.
- Provide recommendations for HR managers to balance organizational oversight with employee autonomy and satisfaction.

Research Methodology

Research Design

The present study adopts a qualitative research design with a multiple case study approach. The objective is to explore and analyze how HR managers in different organizational contexts (a global corporation, a tech giant, and a remote-first startup) implement effective monitoring practices for remote workers.

Case Study Selection

Three organizations were purposefully selected based on their global reputation and distinct approaches to remote work:

- GitLab Inc. – A fully remote company with over 2,000 employees worldwide, known for its transparent HR policies and unique digital monitoring practices.
- Microsoft – A global corporation that adopted hybrid and remote work strategies during the pandemic, integrating analytics and employee well-being in its monitoring systems.
- Buffer – A small-to-medium-sized enterprise (SME) operating as a remote-first startup since 2015, emphasizing trust and autonomy in workforce monitoring.

The diversity of these cases ensures a comprehensive understanding of monitoring practices across different organizational scales and cultures.

Data Collection Methods

The study relies on secondary data sources including:

- Company reports, blogs, and HR policy documents published by GitLab, Microsoft, and Buffer.
- Peer-reviewed journal articles, industry white papers, and case studies on remote work management.
- Media reports, interviews with HR leaders, and employee testimonials available in the public domain.
- This triangulation of data strengthens validity by reducing bias from a single source.

Data Analysis Method

- Thematic Analysis: Data was coded into themes such as monitoring tools, trust-building, employee engagement, productivity measurement, and privacy concerns.
- Comparative Case Analysis: Cross-case comparison was conducted to identify similarities, differences, and best practices.
- Pattern Matching: Findings from the three organizations were compared against existing HRM and remote work monitoring theories (e.g., ASTD HRM model, job characteristics model).

Research Approach

The methodology follows an exploratory and descriptive approach:

- Exploratory, since it investigates evolving HR practices in monitoring remote employees in the digital age.
- Descriptive, as it documents and analyzes the practical experiences of the selected organizations.

Results

1. Case Study Results

GitLab Inc.

- As a fully remote company, GitLab emphasizes documentation, transparency, and asynchronous communication.
- Monitoring relies on output-based performance using project management tools (GitLab itself, Jira, and Slack integrations).
- HR policies promote trust, accountability, and autonomy, reducing the need for surveillance.
- Employees reported high engagement and flexibility, supported by clear guidelines and transparent evaluation metrics.

Key Result: GitLab proves that structured documentation and outcome-based monitoring can sustain productivity in a large, globally distributed workforce.

Microsoft

- Microsoft adopted hybrid monitoring practices, blending digital analytics with employee well-being initiatives.
- Tools like Microsoft Viva and Teams Analytics provided insights into collaboration overload, working hours, and meeting patterns.
- HR emphasized privacy and aggregate data, avoiding micro-level surveillance.
- Adjustments such as “No Meeting Fridays” improved employee morale and reduced burnout.

Key Result: Microsoft demonstrates how large corporations can balance data-driven monitoring with human-centered HR policies to maintain productivity and engagement.

Buffer

- Buffer's remote-first structure relies on radical transparency and trust-based monitoring.
- Progress is tracked through public dashboards, OKRs (Objectives & Key Results), and asynchronous communication.

- HR fosters employee well-being through flexible work hours and open salary transparency.
- Employees feel motivated due to autonomy and visible trust from management.

Key Result: Buffer showcases how startups can succeed in remote monitoring through trust, openness, and transparency rather than strict oversight.

2. Cross-Case Findings

Theme	GitLab	Microsoft	Buffer	Overall Finding
Monitoring Tools	GitLab platform, Jira, Slack	Microsoft Viva, Teams Analytics	Trello, Asana, Public Dashboards	Technology-driven but adapted to org. size
Performance Measurement	Output-based (tasks completed)	Hybrid: analytics + well-being surveys	Outcome-oriented (OKRs, dashboards)	Shift from hours to outcomes
Trust vs. Surveillance	High trust, no surveillance	Balanced (aggregate data, privacy respected)	High trust, transparency culture	Trust is key to success
Employee Engagement	High due to clarity and flexibility	Improved via well-being initiatives	High due to autonomy and transparency	Engagement improves when monitoring supports employees
Privacy Concerns	Minimal, as work is open - source style	Addressed by aggregate analytics	Minimal, since trust replaces surveillance	Privacy protection sustains trust

Discussion

The findings from the three case studies reveal several critical insights into how HR managers can effectively monitor remote workers:

1. **Shift from Surveillance to Trust:** All three organizations show that constant surveillance (e.g., screen tracking, keystroke monitoring) undermines trust and employee satisfaction. Instead, trust-based monitoring aligned with outcomes enhances motivation.
2. **Outcome-Oriented Monitoring:** Performance is better measured through outputs (tasks completed, goals achieved) rather than hours logged. Both GitLab and Buffer excel in this, while Microsoft blends analytics with well-being checks.
3. **Role of Technology:** Tools such as Microsoft Viva, GitLab's platform, and Trello/Asana are essential, but they serve as enablers, not substitutes for trust and communication.
4. **Employee Well-Being:** Microsoft's case highlights the importance of monitoring workload and burnout as much as productivity. This suggests that HR monitoring should consider both performance metrics and human factors.
5. **Scalability of Practices:**
 - GitLab's heavy documentation works well for a large, globally distributed workforce.
 - Microsoft's data-driven monitoring is suited for a large hybrid organization.
 - Buffer's transparency model thrives in a smaller, startup context.

This shows that monitoring approaches must be context-specific.

Limitations

- Reliance on secondary data may limit access to internal HR metrics or confidential monitoring tools.
- Findings may not be universally applicable, as monitoring practices vary across industries and organizational sizes.
- Case studies reflect practices at a specific point in time, which may evolve with technological and cultural changes.

Ethical Considerations

- Only publicly available data has been used to ensure transparency and respect for organizational confidentiality.
- The study avoids endorsing surveillance practices that compromise employee privacy or well-being.

Conclusion

The study aimed to explore how HR managers can effectively monitor remote workers without compromising trust, productivity, or employee well-being. Through a comparative case study of GitLab Inc., Microsoft, and Buffer, the research demonstrates that effective remote monitoring is not rooted in surveillance but in transparency, trust, and technology-enabled collaboration.

Each organization illustrates a distinct yet successful model of monitoring:

- GitLab relies on structured documentation, output-based performance metrics, and transparency to maintain accountability across a fully remote global workforce.
- Microsoft employs data analytics and employee feedback to balance productivity monitoring with well-

being, emphasizing a human-centered approach.

- Buffer demonstrates that open communication, transparency, and autonomy can create a culture of self-regulation where monitoring becomes a shared responsibility rather than a top-down activity.

The findings conclude that modern HR monitoring practices must evolve from traditional supervision methods to strategic, trust-based frameworks that integrate technology, communication, and employee empowerment. When monitoring is perceived as a tool for support and growth, rather than control, it enhances both organizational efficiency and employee satisfaction.

Recommendations

Based on the findings from the three case studies, the following recommendations are proposed for HR managers and organizations implementing remote work monitoring systems:

1. **Adopt Outcome-Based Monitoring:** HR managers should focus on results and deliverables rather than screen time or hours worked. Setting clear Key Performance Indicators (KPIs) and measurable outcomes ensures fair assessment of employee performance.
2. **Integrate Technology Wisely:** Use collaboration and analytics tools (e.g., Microsoft Viva, GitLab, Asana) that provide productivity insights without breaching privacy. Data should be used for improvement, not surveillance.
3. **Promote Trust and Transparency:** Build a culture of mutual trust where employees understand the purpose of monitoring. Transparent communication about what is being measured and why helps reduce resistance and anxiety.
4. **Prioritize Employee Well-Being:** Monitoring systems should include indicators of employee engagement, burnout, and satisfaction. Regular surveys, check-ins, and feedback loops can help HR managers detect early signs of stress.
5. **Ensure Data Privacy and Ethical Use:** Organizations must comply with ethical and legal standards of data handling. Monitoring policies should respect employee privacy and align with international HR ethics codes.
6. **Customize Monitoring Strategies:** No single method fits all. Large corporations may need data-driven analytics, while smaller or remote-first firms can rely more on transparency and self-accountability. HR should design context-specific monitoring frameworks aligned with organizational goals.
7. **Train HR Professionals:** Provide training to HR teams on digital tools, remote leadership, and ethical monitoring. Skilled HR professionals can interpret data meaningfully and maintain human connection even in virtual environments.

Implications

- Adopt hybrid monitoring that balances data insights and human trust.
- Focus on outcome-based metrics rather than surveillance.
- Ensure privacy protection to avoid employee distrust.
- Integrate employee well-being checks as part of monitoring.
- Customize monitoring frameworks depending on organization size, culture, and industry.

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Artificial Intelligence and its Contribution to Achieving Sustainable Development Goals

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Abstract

Artificial intelligence (AI) is quickly revolutionising various industries and service sectors, including healthcare, education, energy, and environmental sustainability. This article investigates how AI may help to achieve the United Nations' Sustainable Development Goals (SDGs). Governments, organisations, and people may use AI-driven innovations to optimise resources, improve decision-making processes, and promote societal welfare. However, ethical concerns and possible hazards must be addressed to guarantee AI's contributions are consistent with sustainability goals.

This research paper investigates AI's role in sustainable development, including its applicability to several SDGs, obstacles, and policy suggestions. AI-powered diagnostics, statistical analysis, and personalised therapy increase the accessibility and quality of medical services, hence eliminating disparities. In education, AI-powered platforms provide personalised learning experiences, bridging access to excellent education, particularly in rural and poor places. AI also plays an important role in climate action by enabling smart grids, optimising energy usage, and improving climate modelling to better inform policy formation. Moreover, artificial intelligence promotes sustainable agriculture by enabling precision farming, early pest identification, and effective water management, so assuring food security.

AI-powered smart cities improve transportation, waste management, and energy efficiency, lowering carbon footprints. Furthermore, AI promotes financial inclusion by making digital banking and credit accessible to under-represented communities. Despite its promise, AI adoption for SDGs has several difficulties, including ethical problems, algorithm bias, data security concerns, and the digital platforms. Addressing these issues demands strong legislation, responsible AI development, and inclusive governance structures. Collaboration between governments, corporations, and research institutions is critical enhances that AI gains are spread equitably. To summarize, Artificial intelligence has incredible potential to drive sustainable development by making processes more efficient, reducing waste, and introducing innovative solutions. However, to truly make a lasting impact, we must prioritize ethical considerations and inclusive policies. By doing so, we can ensure that AI benefits everyone, creating a fairer and more sustainable future for everyone.

Keywords

Artificial intelligence, SDG'S, Societal Welfare, healthcare, education, environmental sustainability, financial inclusion.

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Introduction

Artificial intelligence (AI) is revolutionising several industries by increasing efficiency, decision-making, and creativity. Artificial intelligence (AI) is the emulation of human intellect in computers that can analyse data, learn from patterns, and make choices with minimum human interaction. Its uses are many, ranging from healthcare to education, agriculture, and environmental change mitigation.

AI plays an important role in accomplishing the United Nations' Sustainable Development Goals (SDGs) by tackling global issues. In healthcare (SDG 3), AI-powered diagnostics and predictive analytics enhance illness identification and treatment. In agriculture (SDG 2), AI-driven precision farming helps farmers grow more crops while using fewer resources, making agriculture more efficient and sustainable. AI also helps to achieve clean energy (SDG 7) by optimizing energy consumption and incorporating renewable sources. Furthermore, AI-powered data analysis aids environmental action (SDG 13) by forecasting environmental changes and managing disasters. The Sustainable Development Goals (SDGs), approved by the UN in 2015, provide a worldwide framework for addressing major environmental, social, and economic concerns. With significant technical breakthroughs, AI has emerged as an effective tool for attaining these objectives.

AI can hasten advancements in education (SDG 4), health (SDG 3), and climate action (SDG 13). For example, adaptive learning platforms personalise education, while AI-powered diagnostics improve early illness diagnosis. According to research by Vinuesa et al. (2020) published in Nature Communications, AI can have a beneficial influence on 134 SDG objectives while posing threats to 59, particularly with regard to inequality and surveillance. Since uneven access to AI may make inequities worse, the digital divide is still a significant obstacle (SDG 10). Furthermore, environmental sustainability is threatened by AI models' high energy consumption. As a result, even though AI may greatly aid in achieving the SDGs, its use has to be transparent, inclusive, and morally guided to avoid unforeseen repercussions. Frameworks for strategic policy are necessary to match the advancement of AI with fair and sustainable growth.

AI-powered solutions offer decisions based on data, automation, and predictive analytics, accelerating growth across industries. This study looks at how artificial intelligence might support sustainable development, including its applications, problems, and policy suggestions. Although its benefits, ethical issues like prejudice, data privacy, and the digital divide must be addressed in order for AI to be used responsibly. With good governance, AI may be a strong instrument for sustainable development, assisting governments to reach their goals effectively while fostering equality and environmental sustainability.

Review of Literature

1. Progress in artificial intelligence (AI) has been largely influencing daily lives and causing fundamental transformations in many industries. Accordingly, international communities are rapidly positioning themselves to ensure the use and role of AI for making inclusive knowledge and supporting countries to reach the United Nations' 17 SDGs, while ensuring respect for human dignity and security (**Bachmann et al., 2022**). Furthermore **Truby (2020)** suggests that without governance and global collaboration in place, AI could worsen inequalities and not make a significant impact on all Sustainable Development Goals (SDGs).

2. Natarajan et al. aim to explore the current research directions at the intersection of AI and sustainability. The study adopts affordance theory as its conceptual framework to identify the affordances within sustainable AI. Notably, the field has experienced substantial growth since 2020, with most research focusing on tracking AI model footprints, optimizing hyper parameters for improved sustainability, and benchmarking models. The article highlights the dual challenge of using AI to promote sustainability while ensuring the sustainability of AI systems themselves. To encapsulate this broader socio-technical perspective, the term “Sustainable AI” has been introduced.
3. Nasir and colleagues (2023) found in their study that, AI is advancing in innovation (SDGoal 9) it is not giving attention to environmental SDGs like terrestrial life (SDGoal 15). This lack of focus, on ecosystems (SDGoal 14) indicates the importance of integrating AI progress with sustainability objectives, for the environment.
4. Vinuesa and colleagues (2019) in a study highlighted the potential of AI to support Sustainable Development Goals (SDGs) but also cautioned about the negative impact it could have on environmental objectives if not overseen responsibly.
5. Tomashev and colleagues (2020) support the perspective that AI should be leveraged to advance environmental sustainability. They highlight AI's potential to contribute to achieving key Global Goals, such as food and water security, marine conservation, and energy sustainability. Additionally, AI can enhance healthcare quality, aid in the development of smart nations, and play a crucial role in strengthening a nation's economy.
6. Sumari, A. D. W. (2020) explores Indonesia's National Strategy for Artificial Intelligence, highlighting its key components and objectives. The strategy focuses on four core areas that shape the country's AI ecosystem, aiming to support both national development goals and global sustainability efforts through the SDGs. The study also showcases Indonesia's innovative use of AI during the global pandemic, including the development of the Knowledge Growing System (KGS), an AI-driven solution created to address critical challenges.

Objectives of Research

1. To analyse AI's role in tackling critical concerns connected to the UN's Sustainable Development Goals.
2. To investigate how AI-driven technologies affect various SDGs, including healthcare, agriculture, quality Education, economic growth, renewable energy, and climate action, sustainable cities, etc.
3. To Explore AI's ethical, social, and economic impact on sustainable development, including questions about bias, data privacy, and accessibility.

Research Methodology

This research uses secondary data analysis to investigate the part of artificial intelligence (AI) in accomplishing the Sustainable Development Goals. This study is based on secondary information from scholarly publications, government publications, industry white papers, research papers, and international organisations such as the United Nations (UN), World Economic Forum (WEF), and World bank. The process entails doing a thorough assessment of literature and analyzing quantitative and qualitative data on

AI applications in sustainability. Key areas of study include AI's influence on climate action (SDG 13), quality education (SDG 4), healthcare (SDG 3), industrial innovation (SDG 9), economic growth (SDG 8), and many other SDGs. The study also investigates the ethical considerations, difficulties, and policy implications of AI-powered solutions in sustainable development. Content analysis identifies recurrent themes, trends, and AI-driven breakthroughs that contribute to the SDGs. Comparative analysis is useful for evaluating AI's efficacy in various industries.

(AI) Artificial intelligence, Techniques to Reach Sustainable Development Goals (SDGs)

AI in Healthcare (SDG 3: Good Health and Well-being)

AI helps healthcare systems by improving disease diagnosis, personalised treatment, and health monitoring. Algorithms for machine learning are very accurate in diagnosing diseases like cancer and COVID-19. Wearable devices driven by artificial intelligence monitor patients' vital signs, reducing the burden on healthcare professionals. Furthermore, AI-powered chatbots provide remote medical consultations, increasing healthcare accessibility.

AI in Education (SDG 4: Quality Education)

AI-powered educational technologies personalize learning experiences, increasing inclusivity and effectiveness. Intelligent tutoring systems adapt to students' learning methods and provide personalised assistance. AI-powered language translation technologies improve education in a diversity of linguistic regions. Furthermore, predictive analytics enables educators to identify at-risk pupils and conduct targeted interventions.

AI in Agriculture and Food Security (SDG 2: Zero Hunger)

Artificial intelligence transforms agriculture by improving agricultural output projections, optimising irrigation systems, and identifying plant illnesses. Precision farming techniques employ AI-powered drones and sensors to monitor soil environments, permitting for more effective resource utilization. AI also helps to reduce food waste by optimising supply chains and estimating demand levels.

AI in Climate Action (SDG 13: Climate Action)

AI is critical in combating climate change because it analyses environmental data and forecasts catastrophic weather occurrences. Machine learning algorithms foresee climatic patterns, allowing politicians to take preventative steps. AI-powered energy management systems optimise electricity use and promote the utilisation of sustainable energy sources. Satellite imagery analysis helps to track deforestation and carbon emissions.

AI in Smart Cities and Infrastructure (SDG 11: Sustainable Towns and Communities)

AI-powered smart town technologies increase urban planning, transportation, and energy efficiency. AI-powered traffic management technologies help to cut congestion and pollution. Predictive maintenance in infrastructure reduces structural failures and improves safety. Based on artificial intelligence waste management solutions improve recycling and disposal.

AI in Water Store Management (SDG 6: Clean Water and Sanitation)

AI-powered water management systems track water quality and detect leaks in real time. Predictive analytics improves water distribution and reduces waste. Artificial intelligence-powered desalination systems enhance access to safe drinking water, especially in water-scarce areas.

AI in Financial Inclusion (SDG 8: Decent Work and Economic Growth)

AI-powered economic technologies (FinTech) improve financial inclusion by bringing banking services to disadvantaged communities. AI-driven credit scoring algorithms analyse creditworthiness, allowing small firms to get microloans. Chatbots and virtual assistants boost customer service in the banking industry.

AI in Disaster Managing and Resilience (SDG 9: Industry, Innovation, and Infrastructure)

AI improves catastrophe preparedness and reaction by forecasting natural disasters and optimising emergency response plans. Machine learning algorithms analyse seismic activity to predict earthquakes. AI-powered drones help with search and rescue efforts, transporting supplies to disaster-affected regions.

AI in Governance and Policy-making (SDG 16: Peace, Justice, and Strong Institutions)

AI aids governance by increasing transparency, identifying corruption, and optimising policy decisions. AI-powered data analytics enable decision-making based on proof, hence lowering inefficiencies in public administration. Natural language processing (NLP) methods use policy papers and public opinion to advance governance.

Ethical Concerns: Bias and Fairness

Societies are changing quickly due to artificial intelligence (AI), which presents countless potential for sustainable development. Its economic, social, and ethical ramifications, however, demand careful investigation. Algorithmic bias, in which AI systems taught on skewed data may reinforce or magnify preexisting societal disparities, is a major ethical problem. Biassed hiring practices or facial recognition software, for instance, might perpetuate racial or gender inequities, hence hindering inclusion (SDG 10).

Social Impact and Economic Effects

Furthermore, data privacy becomes a major concern, particularly in industries like healthcare and banking. Concerns about consent, monitoring, and abuse are brought up by the enormous volume of personal data that AI systems analyse, which may violate human rights (SDG 16).

Socially, AI has the potential to change labour markets by replacing old occupations with new ones that call for highly skilled digital workers. If proper reskilling and education plans (SDG 4 & 8) are not put into place, this change may cause the socioeconomic divide to worsen. Furthermore, not everyone can profit from AI. SDG 9 (Industry, Innovation, and Infrastructure) is challenged by the lack of digital literacy and technological infrastructure in many poor nations, which prevents fair participation in AI-driven growth.

While AI promises to boost productivity and creativity, its unequal use may benefit wealthy nations and big

businesses, escalating global inequality. Therefore, to guarantee fair access to the advantages of AI, inclusive policy frameworks are crucial. To Conclude this Strong data governance, a dedication to justice, and ethical values must all be considered when integrating AI into sustainable development. Leveraging AI as a driver for inclusive and sustainable global advancement requires ensuring openness, accountability, and accessibility.

Challenges and Risks of AI in Sustained Development Despite its potential, AI also poses significant challenges and perils:

Bias and Fairness: AI algorithms can perpetuate prejudices when trained on biased data, resulting in discriminatory outputs.

Privacy Concerns: AI-driven data collecting raises Personal privacy ethics and security.

Job Displacement: Automation enabled by AI might result in job losses in certain industries, prompting worker reskilling.

Resource Intensiveness: AI models demand a lot of computing power, which raises carbon emissions and energy consumption.

Regulatory Gaps: The fast growth of AI exceeds regulatory frameworks, creating ethical and legal issues.

Policy Recommendations for Sustainable AI Implementation: Maximise AI's benefits to sustainable development while limiting dangers, the following policy proposals are made:

Ethical AI Development: Implement ethical AI frameworks that promote fairness, transparency, and accountability.

Regulation and Governance: Set up worldwide and national AI rules to guarantee responsible AI implementation.

Public-Private Partnerships: Encourage collaboration among governments, educational institutions, and companies to promote AI-powered sustainability solutions.

Education and Reskilling: Invest in AI education and worker reskilling initiatives to reduce job displacement.

Sustainable AI Infrastructure: To limit the impact on the environment, promote energy-efficient AI systems and data centres.

Inclusive AI Adoption: Ensure that AI solutions benefit all society groups, especially marginalised populations.

AI provides transformational prospects to quicken the process of moving towards the SDGs. Using AI-driven breakthroughs, society may improve healthcare, education, environmental sustainability, and economic development. Nevertheless, addressing ethical issues, regulatory hurdles, and possible hazards is critical to responsible AI use. AI has the latent to be a strong accelerator for sustainable development when supported by deliberate policies and multidisciplinary.

Conclusion

Artificial Intelligence (AI) has occurred as a transformative force in advancing the Sustainable Development Goals (SDGs) of the United Nations. As this research has demonstrated, AI has the likely to address some of the world's most pressing challenges, from eradicating poverty and hunger to fostering economic growth, promoting quality education, and combating climate change. By leveraging AI-driven technologies such as machine learning, big data analytics, and automation, nations can enhance decision-making, optimize resource allocation, and drive inclusive and sustainable development.

One of AI's most significant achievements is its capacity to improve efficiency and effectiveness across many industries. AI-powered Predictive analytics and diagnostics have enhanced patient outcomes, decreased costs, and increased healthcare access, especially in distant and disadvantaged regions. AI-driven precision agriculture has improved crop yields, reduced resource waste, and increased food security, directly contributing to SDG 2 (Zero Hunger). Furthermore, AI-powered smart grids and renewable energy forecasts have helped to advance SDG 7 (Affordable and Clean Energy) by optimising energy distribution while decreasing environmental effect. AI's impact on education has likewise proven transformational. Personalised learning platforms, automated grading systems, and intelligent tutoring systems have transformed the method students learn, creation education more accessible, inclusive, and suited to their specific requirements. This directly promotes SDG 4 (Quality Education) by overcoming learning gaps and safeguarding that all children, nevertheless of socioeconomic status, receive an excellent educational experience. Similarly, AI-driven financial inclusion projects, such as credit scoring algorithms and blockchain-based financial services, have empowered marginalised populations by increasing access to banking and credit, hence achieving SDGs 8 (Decent Work and Economic Growth) and 10 (Reduced Inequalities).

Despite its potential, AI poses substantial obstacles that must be resolved to ensure its ethical and responsible implementation. Concerns about employment displacement, data privacy, algorithmic unfairness, and the digital divide must be addressed by effective legislation, regulations, and international collaboration. While AI-driven automation increases productivity, it can also result in job losses in conventional industries, prompting large-scale reskilling and upskilling projects to prepare the workforce for AI-driven economies. Furthermore, ethical concerns about bias in AI systems must be addressed through open and accountable AI governance frameworks that prioritise justice and diversity. AI's environmental impact must also be carefully considered. While AI can improve energy efficiency and contribute to climate action (SDG 13), it also demands significant processing power, which results in its substantial energy usage. Sustainable AI practices, such as developing energy-efficient algorithms and using renewable energy in data centres, must be prioritised in order to reduce AI's carbon impact.

Looking ahead, an inclusive strategy is critical to realising AI's full potential for sustainable development. Governments, business sector organisations, academic institutions, and Civil society must cooperate to develop rules that encourage innovation while guaranteeing ethical AI deployment. International collaboration and knowledge-sharing will be critical in ensuring that AI serves mankind equally and sustainably.

To summarise, artificial intelligence is greater than fair a technological accomplishment; it is a strong facilitator of sustainable development. If used properly, AI has the likely to accelerate progress towards the SDGs, resulting in a more inclusive, equitable, and prosperous future for all. To maximise the advantages

while limiting hazards, its implementation must be led by ethical concerns, environmental principles, and global collaboration. The potential of AI and sustainable development are totally associated, and responsible AI innovation will be critical to creating a better environment for future generations.

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CASE STUDY

Agility Tech novation's Strategic Decision Making and Financial Challenges in the Evolving SaaS Landscape

*Ashish Sinhal **Arnika Kabra

Introduction

Agility Technovation is a mid-sized technology firm based in Bengaluru, India, founded in 2010 by a group of IIT alumni. The company initially offered IT consulting services, including software development, system integration, and IT infrastructure solutions. However, in response to the changing market dynamics and the global shift towards cloud computing, Agility Technovation made a strategic decision in 2018 to pivot from its traditional service-based model to a Software as a Service (SaaS) business. This strategic shift marked the beginning of a new phase of growth and challenges for the company.

By leveraging cloud technologies and integrating Artificial Intelligence (AI) and Machine Learning (ML) into its offerings, Agility Technovation aimed to provide its customers with predictive analytics, business process automation, and scalable enterprise solutions. The company's revenues have been growing steadily, with a reported INR 500 Crore (~USD 70 million) in FY 2024, and it now employs over 800 people globally. Despite its successes, Agility Technovation faces numerous strategic challenges—particularly related to financing growth, scaling its operations internationally, and competing in a market dominated by large players like Salesforce and Microsoft.

This case study examines Agility Technovation' business model, strategic decisions, and the challenges it faces in the global SaaS market, providing an in-depth analysis of key management decisions and financial strategies the company must consider to ensure continued growth and success.

- Revenue (FY 2024): INR 500 Crore (~USD 70 million)
- Employees: 800+
- CEO: Arvind Kumar, IIT Bombay graduate
- Key Products/Services:
 - AI-Powered Predictive Analytics
 - Business Process Automation Solutions
 - Cloud Migration and Integration
 - Enterprise SaaS Solutions
- Global Expansion: Offices in the US, UK, Singapore
- Core Values: Innovation, Customer-Centricity, Operational Excellence, Integrity

Company Overview

- Founded: 2010
- Industry: SaaS, Technology

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**Assistant Professor, DoM(UG),SVIMS, Indore

- Headquarters: Bengaluru, Karnataka, India

The Strategic Shift to SaaS

In 2018, Agility Technovation made the bold decision to pivot from its traditional IT services model to a SaaS based approach. This decision was driven by several key factors:

1. **Technological Disruption:** The growing adoption of cloud computing and SaaS solutions globally, especially by SMEs, made it clear that the future of enterprise software would be subscription-based and cloud-hosted.
2. **Revenue Predictability:** The shift from project-based revenue to a subscription model offered a more predictable and sustainable revenue stream, with higher margins compared to IT services.
3. **Market Demand:** Organizations were increasingly looking for cloud-based solutions to streamline operations, improve efficiency, and leverage data for better decision making. AI and ML-based solutions were particularly in demand due to their ability to provide actionable insights.
4. **Scalability:** The SaaS business model allowed Agility Technovation to scale quickly across different markets and industries without significant infrastructure investment. Unlike the traditional IT consulting model, SaaS products could be standardized and sold to clients without major customization.

The shift, however, was not without its hurdles. Agility Technovation had to overcome challenges related to product development, client acquisition, market competition, and talent management. Nevertheless, the company's decision to embrace SaaS has paid off, positioning it as a leader in India's growing SaaS ecosystem.

Market Trends in the SaaS Industry

The SaaS industry is undergoing rapid transformation globally and in India. The following key trends are shaping the future of the industry and providing both opportunities and challenges for Agility Technovation:

1. **Cloud Computing & Digital Transformation:**
 - The Digital India initiative, which aims to digitize the country's infrastructure, has accelerated the adoption of cloud computing and SaaS solutions in India. Indian enterprises, especially SMEs, are increasingly adopting cloud-based solutions due to lower upfront costs and scalability.
 - The global shift towards digital transformation, driven by automation and AI, has resulted in a surge in demand for SaaS offerings that can automate business processes, manage large-scale data, and provide real-time analytics.
2. **Artificial Intelligence (AI) and Machine Learning (ML):**
 - AI and ML are critical components of modern SaaS solutions, offering advanced capabilities in areas such as predictive analytics, process automation, customer service, and personalized experiences.

- For Agility Technovation, AI-powered features are essential to differentiate their SaaS offerings from the competition. The ability to provide deep insights and drive automation through AI is becoming a key selling point.
3. Subscription and Usage-Based Pricing:
- SaaS providers are increasingly adopting subscription based pricing models. This model allows businesses to better predict their costs, while providing SaaS companies with a stable, recurring revenue stream.
 - In addition to fixed subscriptions, many SaaS companies, including Agility Technovation, are moving toward usage based pricing, where customers pay based on the volume of usage. This provides flexibility and scalability, especially for smaller businesses.
4. Cybersecurity and Data Privacy:
- As businesses rely more on cloud solutions, concerns around data security and privacy have escalated. Compliance with data protection regulations such as the General Data Protection Regulation (GDPR) in Europe and India's Personal Data Protection Bill (PDPB) is critical for SaaS companies to ensure trust and avoid legal issues.
 - Agility Technovation must invest in robust cybersecurity measures to protect its clients' data and ensure compliance with these stringent regulations.
5. Global SaaS Market Growth:
- The global SaaS market is projected to reach USD 330 billion by 2025, with significant growth in regions like North America, Europe, and Asia-Pacific. India, with its rapidly growing tech ecosystem, is emerging as a key player in the SaaS sector.
 - However, global expansion presents a challenge in terms of market entry strategies, regulatory compliance, cultural differences, and adapting the product to the specific needs of local markets.

Financial Overview

Agility Technovation has experienced steady revenue growth since its transition to SaaS, but it now faces challenges related to scaling, financing, and maintaining profitability as it expands globally.

Income Statement (FY 2024)

Item	Amount (INR Crore)
Revenue	500
Cost of Goods Sold	150
Gross Profit	350
Operating Expenses	200
Operating Profit	150
Interest Expense	10
Net Profit Before Tax	140
Net Profit After Tax	98

Balance Sheet (FY 2024)

Assets	Amount (INR Crore)
Current Assets	100
Fixed Assets	150
Intangible Assets	80
Total Assets	330

Liabilities & Equity	Amount (INR Crore)
Current Liabilities	50
Long-Term Debt	30
Equity	250
Total Liabilities & Equity	330

Financial Ratios:

- Gross Profit Margin: 70%
- Operating Profit Margin: 30%
- Net Profit Margin: 19.6%
- Debt-to-Equity Ratio: 0.12

- Current Ratio: 2.0

Challenges and Strategic Decisions

As Agility Technovation prepares to scale, the company faces several key challenges:

1. Financing Growth

- **Capital Structure:** The company's low debt-to-equity ratio reflects a conservative approach to financing. However, as Agility Technovation looks to expand globally, it will need substantial investment to scale operations, enhance R&D, and enter new markets.
- **Debt Financing vs. Equity Financing:** Agility Technovation must decide whether to raise funds through debt financing or equity financing. Debt financing allows the company to retain ownership but introduces the risk of interest payments. Equity financing, on the other hand, dilutes ownership but provides capital without the burden of repayment.
- **IPO Consideration:** Another option for raising capital is to go public. An IPO could generate significant funds for international expansion and product development, but it would also expose the company to market volatility and increased regulatory scrutiny.

2. Talent Acquisition and Retention

- **Talent in AI and Cloud Technologies:** With the increasing demand for AI and cloud computing expertise, Agility Technovation faces stiff competition in attracting top talent. The company will need to enhance its talent acquisition strategies by offering competitive salaries, opportunities for professional growth, and a strong work-life balance.
- **Cultural Fit:** As the company expands globally, ensuring that employees across different regions adhere to Agility Technovation's corporate values of innovation, collaboration, and customer-centricity will be critical for maintaining a unified corporate culture.

3. Global Expansion Strategy

- **Market Entry:** Agility Technovation is considering expanding into the US and European markets. These regions are highly competitive but offer substantial growth opportunities. The company must evaluate the best strategies for entering these markets, such as forming strategic partnerships, entering through acquisitions, or establishing wholly-owned subsidiaries.
- **Regulatory Compliance:** Expanding globally requires Agility Technovation to comply with a range of data protection and privacy regulations, including GDPR in Europe. Ensuring compliance will require significant investments in legal and technical infrastructure.

4. Competitive Landscape

- **Differentiation Strategy:** In the competitive SaaS space, Agility Technovation must distinguish itself by offering unique solutions. The company's focus on AI-powered predictive analytics and business process automation is one such differentiator, but it must continue to innovate to stay ahead of competitors like Zoho, Freshworks, and Salesforce.
- **Customer Retention:** Given the recurring revenue model of SaaS, customer retention is crucial. Agility Technovation must invest in customer success teams and support infrastructure to ensure high levels of customer satisfaction and reduce churn.

Teaching Notes

Learning Objectives:

- Understand the strategic implications of transitioning from IT services to a SaaS business model.
- Analyze the financial strategies for scaling a SaaS business, including financing decisions, debt-equity trade-offs, and the IPO process.
- Evaluate global expansion strategies and regulatory challenges in international markets.
- Explore talent management strategies for scaling a tech company in a competitive industry.
- Assess competitive strategies in the rapidly evolving SaaS landscape.

Teaching Strategy:

- **Group Discussions:** Divide students into groups and have them discuss one of Agility Technovation's key challenges, such as financing decisions, international expansion, or talent acquisition.
- **Financial Analysis:** Have students analyze the financial statements and financial ratios of Agility Technovation to assess the company's financial health and the sustainability of its growth.
- **Case Simulation:** In a role-play exercise, assign students roles such as CEO, CFO, or CTO and have them work together to make strategic decisions for Agility Technovation in the face of its challenges.

Discussion Questions:

1. Should Agility Technovation pursue an IPO to fund its expansion? What are the risks and benefits associated with going public?
2. What should Agility Technovation's talent acquisition strategy look like to attract and retain top AI and cloud technology talent in a competitive job market?
3. What strategies should Agility Technovation adopt for entering new markets like the US and Europe while navigating the complex regulatory environment?
4. How can Agility Technovation differentiate itself in a crowded SaaS market dominated by giants like Salesforce and Zoho?

Conclusion

Agility Technovation is navigating the complexities of the SaaS industry and positioning itself for long-term growth. By addressing its strategic challenges related to financing, talent management, global expansion, and competition, the company can maintain its growth trajectory and continue to innovate in the fast-paced tech landscape. The case study highlights the difficult decisions faced by the leadership team at Agility Technovation, emphasizing the importance of strategic foresight, financial discipline, and adaptability in ensuring sustained success.

Book Review

THE 7 HABITS OF HIGHLY EFFECTIVE PEOPLE STEPHEN R. COVEY

Publisher: - Free Press (a division of Simon & Schuster Australia)

ISBN-13: 978-0671708634

About the Author

Stephen R. Covey is a renowned authority on leadership, a family expert, teacher, organizational consultant, and vice - chairman of Franklin Covey co. The author of several acclaimed books, he has also received numerous honours and awards, including being named one of Time magazine's twenty - five most influential Americans. Covey lives with his wife, Sandra, and their family in the Rocky Mountain of Utah.

Plot of the Book

The 7 habits of highly effective people by Stephen. R Covey is a self-improvement book. This book helps me to transforming my thoughts process and empowering me to navigate life challenges with clarity and confidence. Habits focus on personal effectiveness. They're habit you can implement to improve your mind set, take responsibilities for your decision and move towards independence.

Overview of the Foundation Covey Ask You to Explore

- What does success mean to you - True success is just achieving wealth and fame instead. It necessitates personal growth and fulfilment.
- Paradigms - These models for perception and understanding shape how we view and interact with the world.
- Principles - Integrity, humility, and continuous learning this are principles to helps us to enhance our leadership skills and personality development.

The 7 Habits of Highly Effective People

HABIT 1- BE PROACTIVE- Be Proactive, you must focus on your Circle of Influence (what you have control over) within your Circle of Concern (everything you're personally concerned about). In other words, you must work on the things you can actually do something about "When you do this", the positive energy you exert will cause your Circle of Influence to expand. Reactive people, conversely, focus on things in their Circle of Concern but not in their Circle of Influence. This leads them to blame external factors, emanate negative energy, and cause their Circle of Influence to shrink.

HABIT 2-BEGIN WITH THE END IN THE MIND- For habit number two, Covey invites you to imagine your funeral... stick with me. This thought exercise requires you to think about how you want to be

remembered. And what would you like your friends and family to say about you? Beginning with the end in mind means clarifying your goals and values to guide your actions. To enact this habit successfully, you should be aware of concepts like leadership, re-scripting, and being principle-centered. (I'll go through those below!).

HABIT 3 - PUT FIRST THING FIRST- Putting first things first is the practical execution of habits one and two. You must be proactive and use your guiding principles to determine the most important activities in front of you. And then execute them accordingly.

HABIT 4 - THINK WIN-WIN- Seek mutually benefit is the best solution. One person gains another person loses. Putting the needs and desires of others before your own is the best way to achieve satisfactory outcomes. When two or more parties disagree.

HABITS 5- SEEK FIRST TO UNDERSTAND, THEN TO BE UNDERSTOOD-

Habit 5 requires you to listen actively and empathetically before communicating your own views. Simply put: Listen with the intent to understand, not to respond. In doing so, you can cultivate trust and respect with others. Seeking to understand requires being open-minded and nonjudgmental while avoiding imposing your biases and assumptions on others. The result is improved communication, deeper relationships, and more effective collaboration.

HABIT 6 - SYNERGIZE- The synergize habit emphasizes the power of collaboration. It encourages you to look for opportunities to collaborate to create outcomes greater than the sum of your parts. The key to synergy and collaboration is valuing people's differences. The real kicker? You should then seek ways to combine strengths to reach more significant outcomes than you could achieve alone.

HABIT 7- SHARPEN THE SAW- Sharpening the saw means continually honing your personal development through deliberate actions that renew and recharge your energy. The result is a happy, holistically healthy, and effective individual.

Excerpt from the Book

“Reap an action; sow an action, reap a habit; sow a habit, reap a character; sow a character, reap a destiny”. Covey emphasizes that our habits shape our lives, and by aligning them with universal principles, we can achieve effectiveness. The book is structured around seven habits that build from personal to interpersonal effectiveness.

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Lisha Pahariya,
Student, MBA FT I Year, SVIMS

Book Review

The Power of Your Subconscious Mind

Author - Joseph Murphy

Publisher: Fingerprint publishing

We Become What We Think: Recognize the Power of the Subconscious Mind,
Always Say the Affirmative to Yourself –
"I Can Do It"

About the Author

"The Power of Your Subconscious Mind" is a world-renowned self-help book written by Joseph Murphy. Murphy was a psychologist and also had a deep interest in spirituality. To understand spirituality, he travelled to India and spent a long time with sages and saints.

In this book, Joseph Murphy discusses understanding the power of the subconscious mind and how it can bring positive change to life. He also discusses how to improve life by combining science and spirituality.

Purpose of Book

The book's purpose is to explain that our subconscious mind is the foundation of our thoughts and beliefs. If we cultivate the habit of thinking in the right direction, we can achieve improvement in every aspect of life, including health, money, better relationships, and peace of mind.

Murphy said that the subconscious mind is a powerful tool that accepts our conscious thoughts and has the ability to transform them into reality.

This book teaches us that by replacing negative thoughts with positive ones and creating a clear image of our goals, we can transform our dreams into reality.

Key Takeaway

This book is based on Joseph Murphy's New Thought philosophy and principles of psychology. Murphy believes that our subconscious mind works 24 hours a day and has the ability to transform our conscious thoughts into reality.

Following were the key points of Book:

- The book clarifies us that negative thoughts create obstacles in our lives, while positive thinking and beliefs move us closer to our goals. Murphy elaborates on techniques like prayers and visualization in the book. For example, Murphy suggests that by repeating positive statements before bed and after waking up in the morning, we can program our subconscious mind to always be positive.
- The Power of Positive Thinking Murphy says that our thoughts shape our reality. If we constantly think

we are a failure, our subconscious mind accepts this thought. This leads us to failure. Conversely, if we believe we are living a successful and happy life, our subconscious mind works in this direction.

- The Importance of Visualization The book describes visualization as a very powerful method. Murphy says we should think of our goals as if they've already been accomplished. For example, if you want to become rich, imagine yourself living a prosperous life. This method motivates your subconscious mind to move toward that goal.
- Faith and Prayer: Murphy views prayer as a scientific and spiritual process. He says that when we give our subconscious a directive with complete faith, it works to fulfil it. This prayer relies more on the power of your mind than any religious ritual.
- The book teaches us that Negative thoughts can be changed through positive thinking.

The book's style

The book is written like a guidebook, with each chapter containing important tips and inspiring stories. Murphy's writing style is inspiring and encouraging, encouraging readers to make changes in their lives.

Joseph Murphy has written the book in simple language. Each chapter discusses different topics such as health, wealth, relationships, and self-confidence. The book also includes real-life stories and inspiring examples.

Reading these insights gives readers confidence that Murphy's methods are truly effective. The book explains complex psychological concepts in a very simple language. Therefore, this book can prove helpful for everyone, but some readers may find the same things repeated again and again and the exaggerated stories written in it a bit irritating.

The examples and stories in the book convince readers that the methods suggested actually work.

Benefits for

The book "The Power of Your Subconscious Mind" can be very useful for those who:

- Want to make positive changes in their thinking, habits, and behaviour.
- Are troubled by repeated negative thoughts, fear, anxiety, or self-doubt.
- Students who want to improve their studies and achieve success.
- People in jobs or businesses who want to improve their mental strength.
- People who want to improve their relationships with others.
- Those who frequently suffer from physical illness and want relief through mental strength.
- Dream of achieving something but don't feel ready to do it.

My Opinion about the Book 'The Power of Your Subconscious Mind' is a book that teaches you how to recognize the power of your mind and use it in a positive direction.

By reading this book, you will understand that your happiness and success depend on your own thoughts. This book provides you with several practical techniques for programming your subconscious mind, which may be useful for you.

Dr. Kratika Neema
Assistant Professor, DoCS, SVIMS



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