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Aims and Scope

Optimization: Journal of Research in Management is a bi-annual peer reviewed journal of G.L. Bajaj Institute of Management and Research, Greater Noida. It aims at bridging the gap between the known and the unknown, between theory and practice and also between perspectives of academics and those of the corporate world. It consists of multi-disciplinary, interdisciplinary empirical and conceptual research work dedicated towards advances in contemporary and futuristic research in the area of management. The Journal focuses on empirical and applied research that is relevant to practicing managers and meets the standards of academic rigor.

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Managing Director
Mr. Amit Prasad

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Securing Rural Healthcare Data: A Comprehensive Approach to Risk Mitigation and Privacy Assurance

Jyoti Mohan Koli* and A.K. Saini

ABSTRACT

Purpose of the study: *In the context of rural healthcare, this research project focuses on the crucial element of information security governance. It aims to identify the specific challenges faced by rural healthcare organizations in safeguarding private patient information.*

Design/methodology/approach: *This is a survey-based study. Employees of rural hospitals in the Delhi region participated in the study. Findings: This study aims to provide recommendations for enhancing information security governance and fostering a culture of data protection in rural healthcare organizations by evaluating the unique requirements and limitations of rural healthcare settings.*

Research limitations: *The study is constrained by a small sample size and a lack of funds for conducting a comprehensive quantitative study.*

Practical implications: *Organizations providing healthcare in rural areas often grapple with limited funding, a shortage of qualified personnel, and aging technological infrastructure. Due to these constraints, allocating sufficient resources to information security governance projects is challenging.*

Social implications: *The project investigates how information security governance frameworks and best practices can be utilized to mitigate risks, protect patient data, and ensure legal compliance.*

Keywords: *Comprehensive, Healthcare data, Privacy assurance, Risk mitigation, Rural, Securing*

INTRODUCTION

To provide effective treatment to their populations, rural healthcare organizations increasingly rely on digital technology and electronic health records. However, issues with data privacy and information security are raised by the growing digitization (Abouelmehdi et al., 2017). Rural healthcare providers frequently confront specific hazards that might affect the confidentiality, integrity, and accessibility of sensitive patient information, in addition to having limited resources and technical skills. In order to enhance data protection measures, this research intends to investigate the significance of information security governance in rural healthcare settings. The protection of sensitive patient data, such as medical records, personal information, and financial information, is ensured through information security governance (Jalali et al., 2018). To maintain public trust and adhere to legal and regulatory standards, patient privacy must be protected (Abouelmehdi et al., 2017). Due to the significance of patient data and the expanding digitization of healthcare systems, rural healthcare organizations are rapidly becoming targets of cyber threats. These organizations frequently lack the technological know-how and resources necessary to successfully address cybersecurity issues.

Information security governance provides an organized framework for identifying, evaluating, and mitigating risks related to cybersecurity threats. It aids in the establishment of security measures, including firewalls, encryption, and intrusion detection systems, to safeguard against unauthorized access, malware, ransomware, and other cyberattacks. By supporting the resilience of rural healthcare organizations through maintaining business continuity in the event of security incidents or disruptions, information security governance ensures uninterrupted medical attention and limits interruptions to patient care.

Implementing strong security procedures, such as regular data backups, disaster recovery plans, and incident response processes, enables prompt recovery of vital systems and data, reducing the impact of cybersecurity incidents. This guarantees continuous medical attention and limits interruptions to patient care. Organizations providing healthcare in rural areas are subject to a number of legal obligations regarding data privacy and information security. Breaking these restrictions could result in legal repercussions, financial penalties, and reputational harm.

Regulations like HIPAA, the General Data Protection Regulation (GDPR), and other applicable data protection laws can all be complied with using information security governance. It supports audits and inspections by assisting organizations in establishing policies, practices, and security measures that are compliant with legal requirements. Objectives of the study

1. To identify the specific information security challenges faced by rural healthcare organizations.
2. To explore the role of information security governance frameworks and best practices in mitigating risks and protecting healthcare data.
3. To develop recommendations and guidelines to enhance information security governance in rural healthcare organizations.

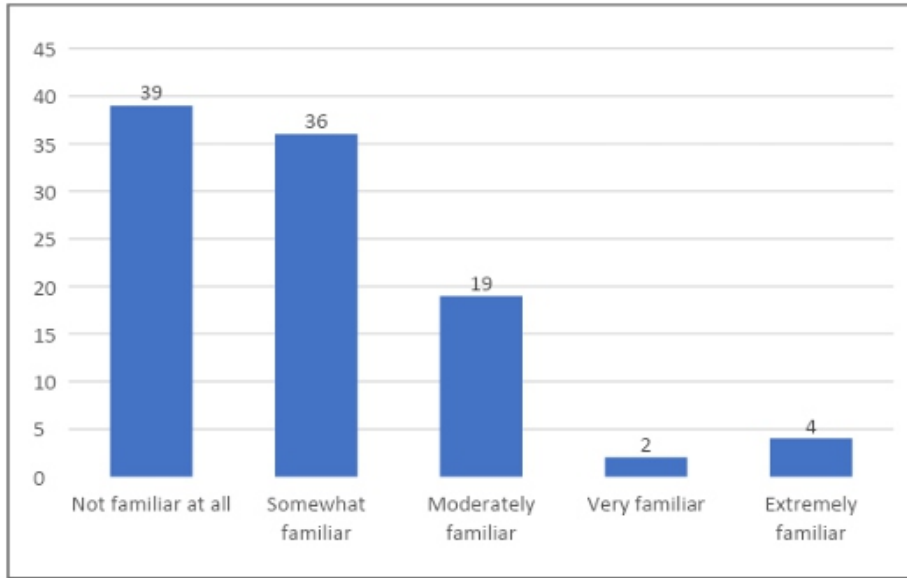
RESEARCH METHODOLOGY

This was a survey-based study. The participants were employees of different branch of rural hospitals in Delhi. This a quantitative study, the Primary data was obtained through a survey designed to understand the information security governance of rural hospitals. Sampling technique adopted for the study will be NonProbability Purposive and Conveniences sampling. Spreadsheet software was used to examine the data that was collected.

RESULTS AND INTERPRETATION

100 participants of Mean \pm SD of age 32.29 ± 2.17 years were included in the study. Out of the 100 participants, 29 were males and 71 were females. The following are the interpretation of the questionnaires filled by the participants of the study. 1. How familiar are you with information security governance practices in your rural healthcare organization?

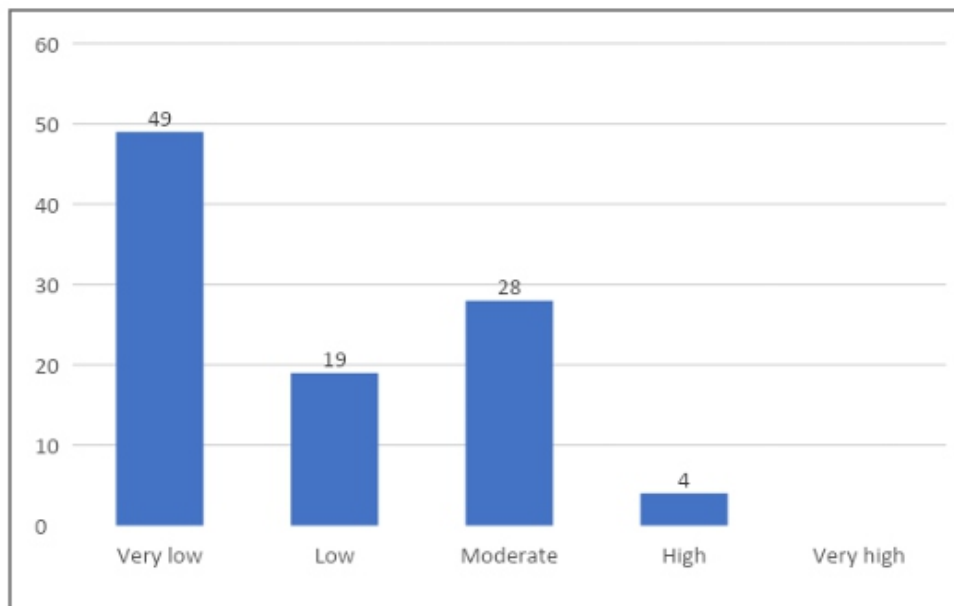
- Not familiar at all
- Somewhat familiar
- Moderately familiar
- Very familiar
- Extremely familiar



Description: When asked how familiar are you with information security governance practices in your rural healthcare organization, 39 told not familiar at all, 36 told somewhat familiar, 19 told moderately familiar, 2 told very familiar and 4 told extremely familiar.

1. How would you rate the level of emphasis placed on information security governance within your organization?

- Very low
- Low
- Moderate
- High
- Very high



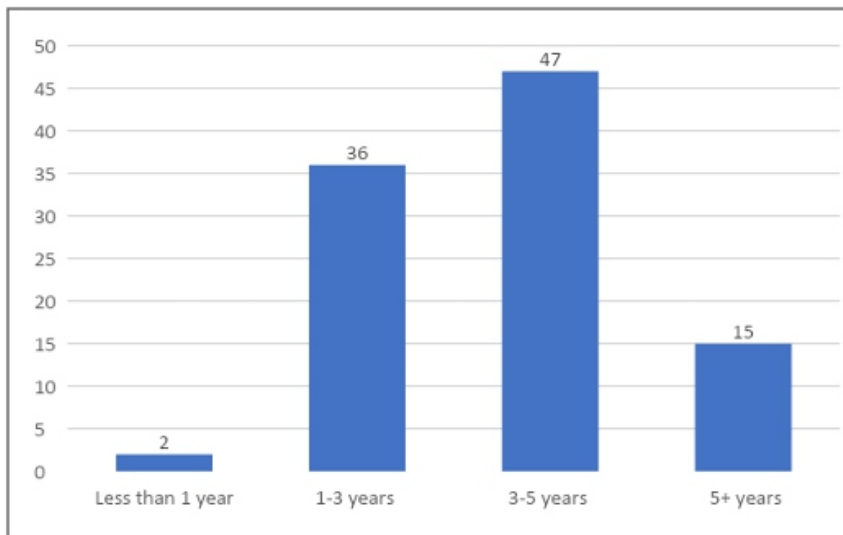
Description: When asked how would you rate the level of emphasis placed on information security governance within your organization, 49 told very low, 19 told low, 28 told moderate and 4 told high 0. Are you aware of the potential risks and threats to information security within the rural healthcare organization?

- Yes, very aware
- Yes, somewhat aware
- No, not aware

0. How long have you been employed in the rural healthcare organization?

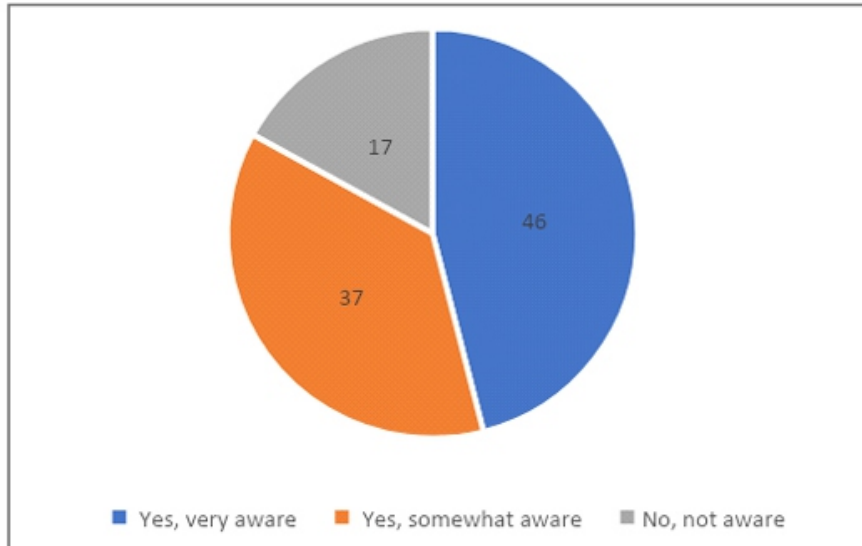
- Less than 1 year
- 1-3 years
- 3-5 years
- 5+ years

Description: When asked how long have you been employed in the rural healthcare organization, 47 participants told 3 to 5 years, 36 told 1 to 3 years, 15 told 5 plus years and 2 told less than 1 year.



0. Are you aware of the potential risks and threats to information security within the rural healthcare organization?

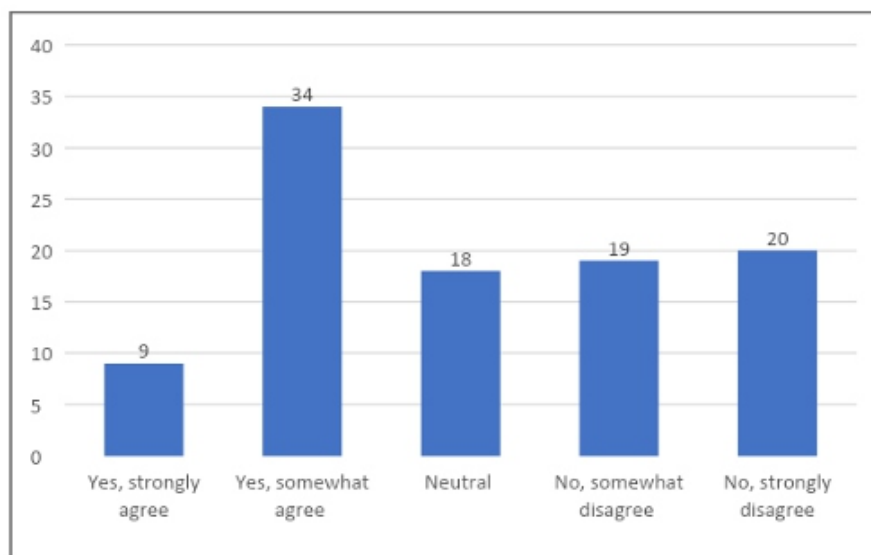
- Yes, very aware
- Yes, somewhat aware
- No, not aware



Description: When asked are you aware of the potential risks and threats to information security within the rural healthcare organization, 37 participants told yes, 46 told they were very aware and 17 told they were not aware.

0. Do you believe that the current information security mures in the organization are sufficient to protect patient data?

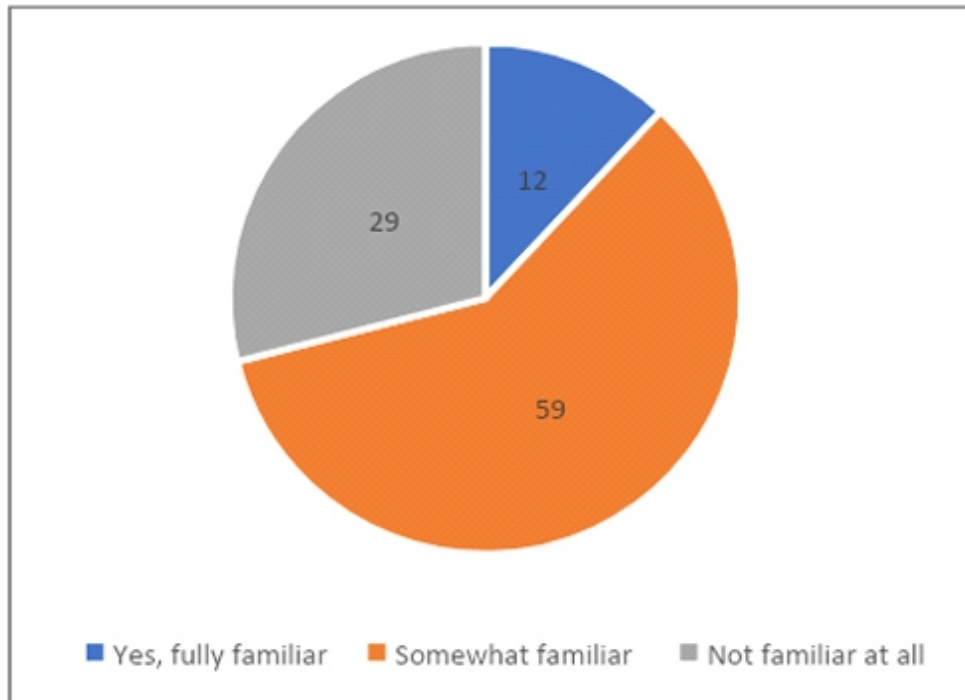
- Yes, strongly agree
- Yes, somewhat agree
- Neutral
- No, somewhat disagree
- No, strongly disagree



Description: When asked do you believe that the current information security mures in the organization are sufficient to protect patient data, 34 participants told they somewhat agreed, 20 participants told they strongly disagree, 19 told they disagree somewhat, 18 gave neutral response and 9 told strongly agreed.

20 participants told they strongly disagree, 19 told they disagree somewhat, 18 gave neutral response and 9 told strongly agreed. 0. Are you familiar with the process of reporting potential information security incidents or breaches within the organization?

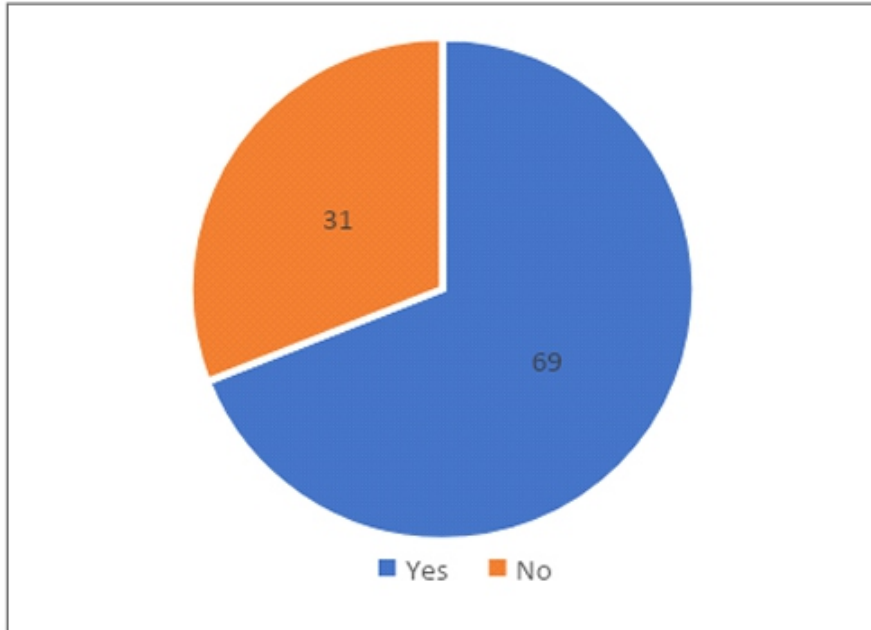
- Yes, fully familiar
- Somewhat familiar
- Not familiar at all



Description: When asked are you familiar with the process of reporting potential information security incidents or breaches within the organization, 59 participants told they were somewhat familiar, 29 told not familiar at all and 12 told they were fully familiar.

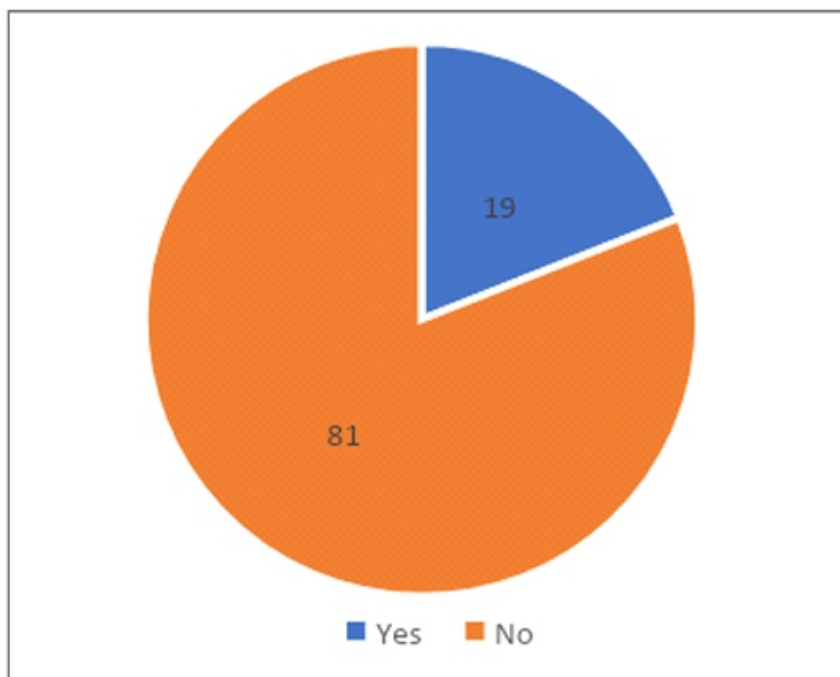
0. Do you think information security governance frameworks or best practices are currently implemented in your rural healthcare organization?

- Yes
- No



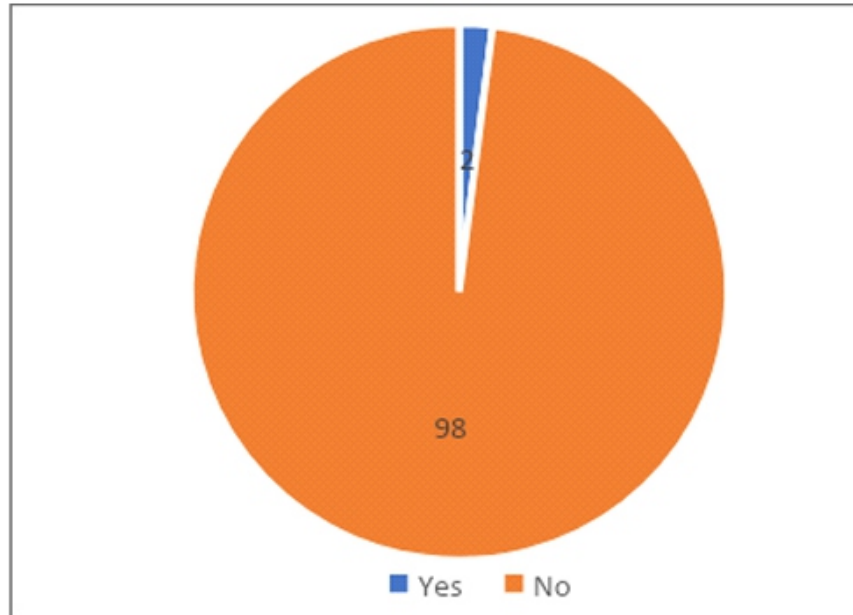
Description: When asked do you think information security governance frameworks or best practices are currently implemented in your rural healthcare organization, 69 participants told Yes and 31 told No. Description: When asked are you familiar with the process of reporting potential information security incidents or breaches within the organization, 59 participants told they were somewhat familiar, 29 told not familiar at all and 12 told they were fully familiar.

0. Do you assess the cybersecurity risks specific to your rural healthcare organization?
Yes
No



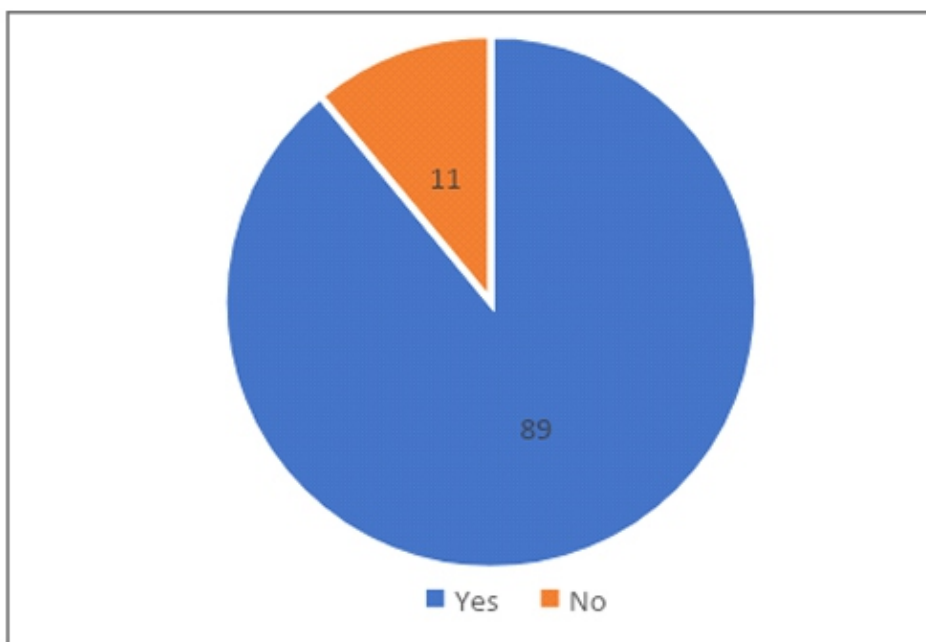
Description: When asked do you assess the cybersecurity risks specific to your rural healthcare organization, 81 participants told No and 19 told Yes. 0. Are there any specific information security training and awareness programs conducted for employees in your rural healthcare organization?

- Yes
- No



Description: When asked are there any specific information security training and awareness programs conducted for employees in your rural healthcare organization, 98 participants told No and 2 told Yes. 0. Do you measure the effectiveness of information security governance practices within your rural healthcare organization?

- Yes
- No



Description: When asked do you measure the effectiveness of information security governance practices within your rural healthcare organization, 89 participants told Yes and 11 told No

DISCUSSION

The privacy of patient data, cybersecurity, and organizational resilience can all be seriously affected by poor information security governance in rural healthcare. Developing effective security controls can be challenging, leaving organizations vulnerable to cyber threats if insufficient investment is made in security measures. Due to a lack of educated specialists or the high expense of employing them, rural healthcare settings may lack specialized information security skills. This deficiency may hinder the creation and execution of efficient security policies, risk assessments, and incident response plans, as suggested by Habibzadeh et al. (2019). Without skilled staff, businesses could find it difficult to handle changing cybersecurity threats and adhere to best practices.

Employees are essential to keeping healthcare organizations' information secure. However, inadequate information security governance frequently leads to a dearth of thorough employee training and awareness initiatives (Habibzadeh et al., 2019). Without the right training and awareness of security processes, employees may unintentionally participate in dangerous behaviors or fail to recognize and report security issues, increasing the organization's susceptibility to breaches. Like all healthcare entities, rural healthcare organizations are required to abide by industry-specific regulations such as HIPAA or GDPR (Sahi et al., 2017). Strong information security governance practices are necessary for compliance with these standards.

Rural healthcare organizations may find it challenging to develop and maintain essential security controls due to a lack of resources and experience, putting them at risk of non-compliance and significant legal repercussions. Building a unified and centralized strategy for information security governance in rural healthcare organizations can be difficult, as these organizations often rely on a patchwork of different systems and software. Ineffective system integration might create security flaws and make it difficult to efficiently monitor and protect patient data.

Risk identification, evaluation, and mitigation are essential components of effective information security governance. However, poor governance procedures in rural healthcare settings may result in insufficient risk management. Without thorough risk analyses and proactive risk mitigation plans, organizations risk missing important security flaws and failing to effectively prioritize security investments.

There are few opportunities for collaboration and information sharing on information security practices in rural healthcare organizations, which often operate in isolation. The inability to learn from others' experiences, exchange best practices, and gain access to common resources or support networks that can bolster information security governance initiatives is hampered by this isolation.

SUGGESTIONS AND RECOMMENDATIONS

To enhance information security governance in rural healthcare organizations, the following suggestions and recommendations need to be considered:

Create a Formal Governance Framework: Develop a comprehensive governance framework outlining information security rules, practices, and standards. Ensure that the framework encompasses risk management, incident response, access restrictions, data protection, and regulatory compliance. Tailor the framework to address the unique requirements and limitations of rural healthcare organizations.

Allocate Adequate Resources: Provide sufficient financial and human resources to support information security activities. This includes budgeting for security equipment, innovations, educational initiatives, and the necessary employment or outsourcing of expertise. Prioritize information security for the long-term viability of the organization.

Implement Thorough Training Programs: Establish

comprehensive training programs to familiarize staff members with best practices, policies, and procedures in information security. Foster a culture of security awareness by consistently emphasizing the value of data privacy and each employee's role in protecting sensitive information. Conduct recurring security awareness campaigns to update staff on new threats and evolving security procedures.

Conduct Regular Risk Assessments: Perform regular risk assessments to identify weaknesses, threats, and potential risks to information security. Examine both technical and non-technical elements, including hazards associated with third-party vendors, network infrastructure, data processing procedures, and physical security. Utilize the findings to properly allocate resources and implement mitigation measures.

Develop Incident Response Strategies: Create thorough incident response strategies outlining actions to be taken in the event of a security incident or breach. Clearly define roles, responsibilities, communication channels, escalation mechanisms, and cooperation with relevant stakeholders. Test and update these strategies regularly to align with new threats.

Implement Strong Access Controls: Utilize robust access controls, including user authentication, the least privilege principle, and role-based access controls, to prevent unauthorized access to sensitive information. Encrypt sensitive information both in transit and at rest to protect against unauthorized exposure or manipulation. Consider implementing multi-factor authentication for increased security.

Encourage Cooperation and Information Exchange: Foster cooperation and information exchange between government organizations, business associations, and rural healthcare providers. Participate in forums, discussions, and joint projects to stay informed about new dangers, market trends, and best practices, such as threat intelligence sharing or joint security assessments.

Establish Compliance Monitoring Procedures: Develop procedures for tracking and evaluating compliance with legal obligations such as HIPAA or GDPR. Conduct regular internal audits to identify gaps and ensure adherence to information security rules and procedures. Address non-compliance issues promptly and establish systems for ongoing monitoring and tracking of compliance.

Stay Informed About Cybersecurity Developments: Keep abreast of the latest cybersecurity risks, vulnerabilities, and market developments. Subscribe to security warnings and advisories from reliable sources. Join information security networks, attend conferences, or participate in webinars to stay informed about new practices and technologies that can enhance information security governance.

Seek External Expertise: Recognize the limitations of internal resources and consider pursuing external knowledge through partnerships, collaborations, or outsourced services. Work with security consultants, managed security service providers (MSSPs), or industry organizations specializing in healthcare information security to enhance internal skills and gain access to specialized expertise and resources.

CONCLUSION

In conclusion, enhancing information security governance is crucial for risk mitigation and data privacy in rural healthcare organizations. Ineffective information security governance can expose healthcare organizations to cyberattacks, jeopardize patient privacy, and hinder compliance with regulations. Rural healthcare organizations can bolster their security posture and safeguard sensitive data by implementing appropriate governance practices. This study has underscored several crucial aspects of improving information security governance in rural healthcare.

It highlights the importance of dedicating sufficient resources, both human and financial, to support information security activities. With adequate funding, organizations can implement robust security measures, establish comprehensive training programs, and acquire specialized knowledge. Cultivating a security culture requires enhancing staff education and awareness, empowering employees to actively contribute to the protection of patient data by educating them about information security best practices, rules, and procedures. Regular risk assessments aid in identifying weaknesses, evaluating risks, and prioritizing mitigation actions. Proactive threat management allows organizations to address gaps in their security infrastructure and allocate resources efficiently.

Creating incident response plans and conducting frequent drills ensure a coordinated and efficient response to security incidents or breaches, reducing their impact and expediting resolution. Collaboration and information sharing across rural healthcare organizations, business groups, and governmental organizations facilitate the exchange of best practices, threat intelligence, and pooled resources. Such collaboration improves overall security and strengthens sector-wide information security governance. Regular monitoring, evaluation, and continuous improvement are crucial to maintaining a successful information security governance architecture and responding to new risks.

By putting these ideas into practice, rural healthcare organizations can enhance their information security governance procedures, safeguard patient data, ensure regulatory compliance, and increase stakeholder and patient trust. The process of enhancing information security governance is ongoing and requires dedication, cooperation, and investment. Ultimately, it enables small, rural healthcare providers to navigate an ever-changing cybersecurity environment while providing dependable, secure healthcare to their patients.

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Appendix

Questionnaire

1. How familiar are you with information security governance practices in your rural healthcare organization?
 - Not familiar at all
 - Somewhat familiar
 - Moderately familiar
 - Very familiar
 - Extremely familiar
0. How would you rate the level of emphasis placed on information security governance within your organization?
 - Very low
 - Low
 - Moderate
 - High
 - Very high
0. How long have you been employed in the rural healthcare organization?
 - Less than 1 year
 - 1-3 years
 - 3-5 years
 - 5+ years
0. Are you aware of the potential risks and threats to information security within the rural healthcare organization?
 - Yes, very aware
 - Yes, somewhat aware
 - No, not aware
0. Do you believe that the current information security measures in the organization are sufficient to protect patient data?
 - Yes, strongly agree
 - Yes, somewhat agree
 - Neutral
 - No, somewhat disagree
 - No, strongly disagree
0. Are you familiar with the process of reporting potential information security incidents or breaches within the organization?
 - Yes, fully familiar
 - Somewhat familiar
 - Not familiar at all
0. Do you think information security governance frameworks or best practices are currently implemented in your rural healthcare organization?
 - Yes
 - No
0. Do you assess the cybersecurity risks specific to your rural healthcare organization?
 - Yes
 - No

0. Are there any specific information security training and awareness programs conducted for employees in your rural healthcare organization?

Yes

No

0. Do you measure the effectiveness of information security governance practices within your rural healthcare organization?

Yes

No

Best Practices of Programmatic Advertising: A Narrative Analysis

Radheshyam Bajaj

ABSTRACT

Purpose: This study presents the theoretical and conceptual foundation for programmatic advertising (PA) and explores how PA, as a key tool, can assist advertisers and agencies in developing effective digital advertising strategies.

Methodology: The study employs a conceptual framework—a visual representation of expected relationships and connections between various concepts, drawn from the theoretical framework.

Findings: The application of PA typically begins with a customer's explicit request for a product or service. PA helps us understand how many online portals our customers visited during a given time period.

Research Limitations/Implications: The primary challenge to advanced marketing is self-delusion. Agencies and clients often focus on attracting the right number of users and making appropriate ad choices, rendering ad testing unnecessary.

Practical Implications: In the current landscape, where marketing and spending have become more relevant and dependable, the automation of digital advertising, particularly through the effective implementation of programmatic advertising, plays a crucial role in supporting online marketing growth.

Originality/Value: Digital advertising automation serves as a crucial tool for enabling processes that are more efficient and effective than manual methods. The transformation of early advertising observation processes has contributed to the gradual decline of traditional advertising methods, leading to decreased profit margins and increased costs for advertising companies. In response, enterprises have innovated within the advertising industry.

Keywords: Real-time bidding, Digital marketing tactics, Programmatic advertising, Online advertising market

INTRODUCTION

With the continued growth of digital media technology and smartphones, online advertising is becoming more personal and interaction-oriented. Trends in digital marketing systems are compelling advertisers (The Privacy Paradox) to develop systems that can support automated advertising (Ad Exchanger, 2015). With the advent of exponentially improvised and advanced systems, the field is becoming more innovative, competitive, and challenging (Ad Exchanger, 2015). This change is also evident in the modern media landscape after the introduction of marketing automation. Digital automation technology involves a type of automated process (programmed using machines and algorithms) that buys advertising space in real-time. The competitive technological development of digital advertising has become increasingly successful. Strategies and frameworks that can be used by many ad agencies to obtain accurate output and gains from connected methods in real-time. The competitive technological development of digital advertising has become increasingly successful. Strategies and frameworks that can be used by many ad agencies to obtain accurate output and gains from connected methods and internet advertisements, such as advances in artificial intelligence (AI) and machine learning, along with the abundance of personal data accessible on the internet, have made it possible to offer targeted advertising at a low cost at scale. This type of advertising is exchanged electronically in real-time among

multiple actors in a convoluted supply chain (A Goal Hierarchy Approach). The digital online industry currently offers the most reasonably priced method for customers, ad agencies, and advertisers around the globe to accomplish everyday tasks, purchase items, and make investments in these purchases.

It is now more convenient for businesses all over the world to employ financial innovation payment through partnerships with well-known banks (Keith et al., 2013). The speed at which digital marketing is evolving, helping to convert true information through different modes of systems that can support digital users' information, has made companies constantly enhance their productivity and earnings from internet techniques, raising the marginal return on investment of automatic promotion media.

As reported by emarketer.com, "Programmatic advertising can be explained as the tool which can be used for channeling the buyers and sellers through automation. Further, statista.com reports that in the digital advertising business, programmatic advertising will account for 46% of display advertising revenue in 2023. Programmatic advertising is projected to account for over a quarter of all electronic media advertising transactions in India and could grow in the coming years.

Advertisers using the traditional method of manual intervention try to reserve advertising space. The whole process involves many tedious meetings and negotiations. The proliferation of publishers with the advent of digital marketing has made it increasingly difficult for advertisers and ad agencies to manage their chain of supply and demand. In the current situation, automation helped control the entire workflow (Hoelzel, 2015, August 22, BI Intelligence Report).

Programmatic advertising has empowered advertisers to adopt a more customer-centric approach, facilitating real-time buying and transforming their advertising processes to align with specific needs through targeted campaigns. Consequently, advertisers have experienced increased revenue from advertising. Systematic advertising enables brands to offer better and clearer insights into the needs of their target audience. While programmatic advertising is still in its infancy in the country, this trend unmistakably demonstrates the evolution of advertising (Hoelzel, 2015, August 22, BI Intelligence Report). Figure 1 illustrates how programmatic advertising has contributed to the growth of digital revenue share over the past few years (The 'Privacy Paradox', 16). Publishers distribute advertising to end-users using programmatic by displaying appropriate adverts based on the advertiser's budget. Because the adverts in this technique are tailored to the user's interests rather than being generic, conversion rates are high (Hoelzel, 2015, August 22). You may also optimize your marketing and expenditures with programmatic buying. The whole point of programmatic advertising is to bid on more effective ads. In real time, ad impressions might rise or fall. The introduction of smart technology devices, such as smartphones, smart speakers, and desktop computers, has altered people's ideas about how to utilize the Internet. Product development processes have evolved, yet purchasing strategies are now more effective than ever. Using programmatic advertising, the company's brands saw a huge shift in conversions at a greatly reduced cost. Programmatic advertising relies on public supply and demand since real-time bidding determines inventory value (Hoelzel, 2015, August 22). We present a theoretical and conceptual framework that explains how improved advertising strategies can be designed with the aid of programmatic advertising. To better design strategies

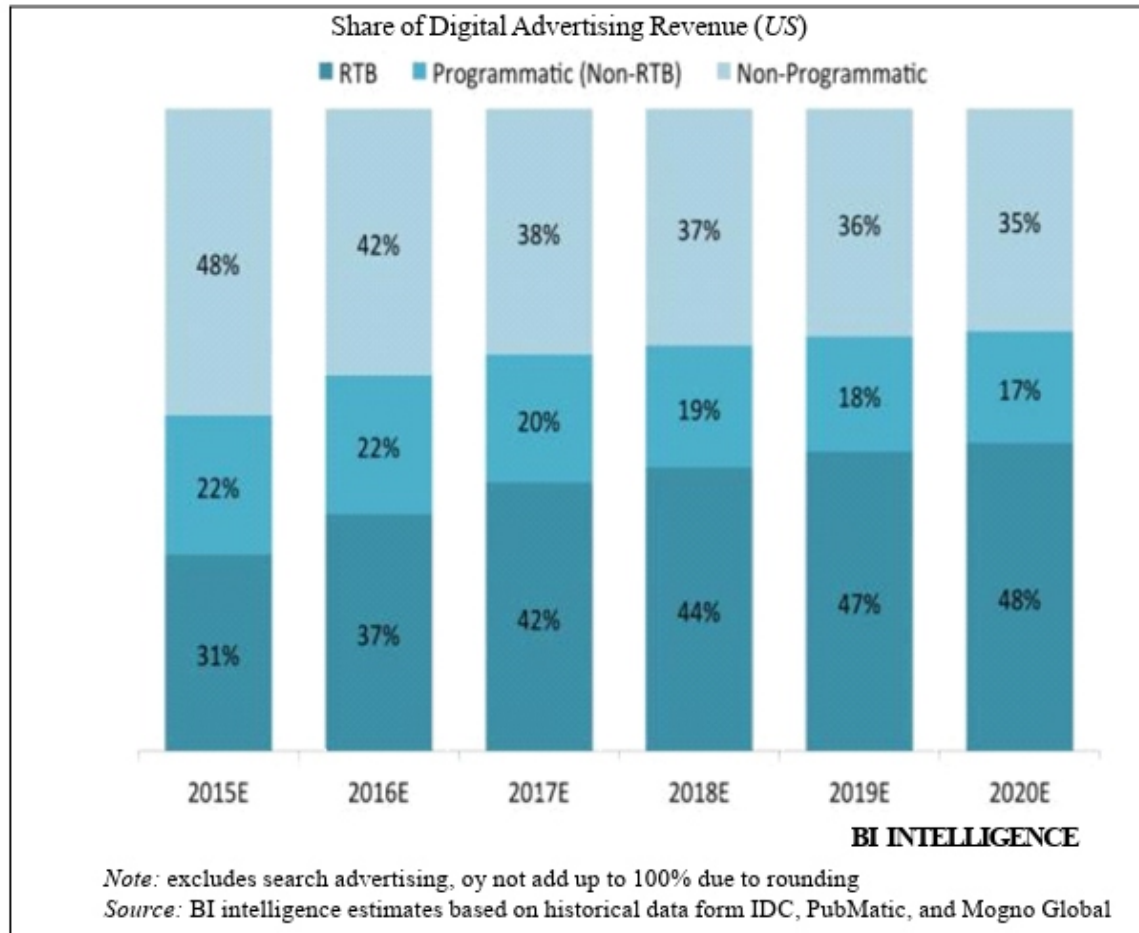


Figure 1: BI Intelligence Report (Hoelzel, 2015, August 22)

in complex environments, a conceptual framework for identifying information related to need satisfaction has been developed. This paper follows the steps listed below. First, we present pertinent background research on ethics in the opening session. Second, a conceptual framework has been demonstrated via careful research. The research will elucidate the noteworthy function of programmatic advertising in formulating efficacious digital marketing tactics. Lastly, we make a few deductions.

THEORETICAL BACKGROUND

Programmatic Advertising

Programmatic advertising has a more nuanced definition. The majority of the writers' descriptions are deceptive about their applicability because there aren't enough applied scientific research investigations (Whitmer, 2018, Programmatic Mistakes). According to the data gathered, the idea of an advertising space bidding system can offer a structured tool for personal marketing and is also made feasible by drawing in potential clients (Benady, 2015). The way advertising is carried out has changed due to programmatic advertising, which permits lower expenditure and more thought to be given to the risk that comes with advertising (Seitz and Zorn, 2016).

This technique has assisted publishers in disseminating up-to-date material that is closely related to each person's comprehension of specifications, transforming them into target audiences. With the use of programmatic advertising, better campaigns that focus on who, where, and when to interact personally have been developed (Lambrecht and Tucker, 2013). Real information, according to economists, improves information utilization and opens up chances for purchasing advertisements on online media

platforms, providing buyers and sellers with the ideal advertisements at the most negotiable price at the appropriate time and location (Benady, 2015).

The automated advertising system has a number of uses. By learning about a customer's behaviors, interests, and recurrent purchases, information data management platforms (DMPs) build customer profiles using data cookies. Additionally, a variety of data can be utilized to ascertain geography, present activities, and GPS location. This example helps one to grasp the reasoning above. Motels near airports can assist travelers stuck at airports by providing lodging through their cellphones if flight delay information is available (Gertz and McGlashan, 2016).

The supply-side application system aids in managing the optimal inventory that is displayed on the billboard on the other side of the application. The client's channel usually determines how much online browser space is available. A demand-side platform (DSP) ascertains the precise cost of its browser space and auctions, as well as the advertising agency's bid, by evaluating accurate information between the customer and the advertising agency whose customer database is involved in sales and purchases (Gertz and McGlashan, 2016; Seitz and Zorn, 2016).

Programmatic advertising automation has the ability to minimize costs and help employees make the right decisions in the process, resulting in the right ads being served (Benady, 2015). There have been several situations in which companies have been forced to withdraw from using automation after their ads have been placed alongside their competitors. This emphasizes how important it is for marketers to exercise caution and protection when utilizing programmatic advertising applications. Because of their lack of technical understanding of the application, marketers may find the situation even more challenging (Gertz, and McGlashan, 2016).

Digital Promotional Strategies

Digital advertising leverages social media, smartphones, and other electronic devices to promote and endorse products and services. This encompasses advanced electronic billboards positioned along highways and in urban areas. Digital marketing involves the strategic planning and overall approach to acquiring and retaining customers. Digital marketers must take into account various platforms and device types, including desktops, mobile devices, and tablets. Some may specialize in a particular segment, such as a local cable channel, while others adopt a broader approach. A digital component should be integrated into a comprehensive marketing strategy that encompasses events like open houses, outdoor advertising, print media, and more. The primary aim of this endeavor is to boost brand recognition, foster preference, and increase revenue through diverse digital advertising methods (Taiminen Karjaluo, 2015). Various forms of digital marketing activities encompass search engine optimization (SEO), search engine marketing (SEM), content marketing, influencer marketing, content automation, advertising campaigns, e-commerce marketing, affiliate media marketing, social media optimization, and ecommerce. Email marketing, programmatic advertising, e-books, optical discs, games, and various digital media formats are also pertinent. These elements are interconnected and should be addressed alongside the incorporation of extended non-internet channels, particularly through mobile phones, digital media applications (SMS or MMS), and social media.

Digital Promotion can be categorized based on the advantages or applications within the digital marketing and advertising sectors. To enhance the management of marketing and advertising in digital markets, marketers should concentrate on fostering customer relationships based on engagement (Tiago Verissimo, 2014). The evolution of marketing and advertising has introduced the concept of Integrated Marketing Communication (IMC). Integrated Marketing Communications (IMC) is a strategy in marketing communications designed to ensure the consistency and customer-centric nature of messages and communication strategies delivered through all channels. IMC integrates various facets

of marketing and advertising communication, such as public relations, advertising, direct sales, sales promotions, and interactive advertising, to deliver clarity, consistency, and maximum impact in communication. The goal of IMC is to influence audiences through promotional elements, creating awareness, favorability, and compliance.

Digital merchandising harnesses local media, smartphones, and various electronic gadgets to promote and sponsor products and services. This encompasses digital billboards strategically placed on highways and in high-traffic zones. Digital advertising involves meticulous planning and an encompassing framework to attract and retain customers. Digital marketers need to take into consideration various specialized systems and devices, including personal computers, mobile phones, and tablets. Sometimes the focus may be on a narrower segment, such as a local cable network, while in other cases, the approach may be more comprehensive. Sustainability within the digital landscape should transcend conventional advertising strategies to meet the expectations of startups, outsourced advertising, branded materials, and more.

Digital advertising and marketing encompass all forms of visual, written, and video advertising commonly seen on the internet. This includes popup advertisements that appear each time you log in, as well as sponsored posts that populate your Facebook feed. Occasionally, live broadcasts may necessitate the viewing of advertisements. Resilience is somewhat unpredictable in smaller niches, as indicated by “Ad.” Advertising is an integral facet of common applications within the digital marketing field. A digital advertising strategy serves as a well-defined and strategic approach to achieve established advertising objectives. Goals are formulated based on the priority rules of your organization. Once goals are established, options for digital advertising and marketing campaigns are expanded or pursued based on goal attainment. A digital marketing strategy extends beyond individual advertising campaigns. When we refer to digital advertising strategies, we allude to comprehensive plans and schemes with longterm and overarching objectives. Mid-level campaigns represent a distinctive approach to attaining smaller, short-term goals within your digital marketing strategy.

Having a strategy is as essential as having a plan for attaining each objective. It substantially streamlines the implementation of workflows, facilitating increased functionality while overseeing and executing multiple areas through data analysis. This allows for a seamless transition between various digital marketing strategies, including SEO/SEM, conversion rate optimization (customer experience), email marketing, and social media marketing. The overarching business objective is to attract new customers and cultivate deeper relationships with existing ones. Your business should also incorporate a proactive and sustained effort to draw in or engage more customers by managing your online content and integrating proprietary digital advertising and marketing channels with traditional media. Additionally, an effective content promotion strategy is imperative.

Barriers in Digital Promotional Strategies

Digital advertising strategy must deliver much better advertising with credible feedback loops, but deep limitations prevent it. Self-delusion is the largest obstacle to advanced marketing. Most of us hold heartfelt beliefs until we realize that, due to a lack of impartial, independent assessment, this place doesn't require as much effective marketing and promotion.

Both agencies and clients are constantly considering the number of users they need to attract and selecting the best ads. Additionally, groups and clients quickly lose interest in goal evaluation as they become interested in working with new creators. Ad testing is not necessary.

The notion that revenue trends only show up when advertising is effective is the next obstacle to more effective advertising. Unless the sales response to your ad is immediately overwhelming, it's nearly impossible to use statistics to determine the usefulness of the advertisement. As mentioned earlier, there

there are so many variables beyond our control that it is impossible to replicate or isolate the effects of media marketing alone. Additionally, an incomplete marketing workshop can take weeks, while other marketing efforts can take months to see positive results. However, this delay in announcement may invalidate the efforts to comply with income data. Additionally, rapid marketing has short-term results that can be reflected in revenue statistics but also long-term results that can easily be overlooked when tracking sales data. Due to these limitations, income data typically remains a difficult or poor indicator of marketing effectiveness.

Sophisticated Marketing Mix Modeling

Sophisticated marketing mix modeling comes naturally after comparing advertising and marketing results and sales but often requires hundreds of thousands of rupees and years of effort afterward. Building an old database with all the prior marketing and relevant variable inputs is necessary. Few agencies possess the resources-budget, perseverance, suitable database, and seasoned expertise-needed to be successful in advertising mix modeling. Nevertheless, advertising composition modeling is more useful in evaluating the cumulative effect of dense and distinctive advertising than it is in evaluating the contribution to a single commercial.

Furthermore, marketing mix and advertising blend modeling do not explain the success or failure of marketing and advertising. What aspects of your marketing strategy worked well, such as the message, media weight, or media mix? Marketing mix modeling, in general, is unable to respond to queries of this nature. Again, sales numbers are of limited value when it comes to making important advertising decisions.

The third obstacle is the enormous creative ego that surrounds quality advertising. One of the biggest obstacles is the perception that gendered advertising is the exclusive domain of “creatives” within the company. Effective advertising frequently needs a lot of work and fine-tuning, mostly based on unbiased audience feedback. Great creative egos are usually faced with some evolutionary enhancements. Since the group would not receive smaller improvements as part of the promotion, larger campaigns are likely abandoned. Big egos aren’t just found in agency compliance, to be fair. A patron’s big ego can also be an obstacle to good advertising. A big ego creates obstacles because emotions rely on logic, reason, and customer feedback to make decisions.

The fourth roadblock to better marketing is the huge assumption that major competitors know where they stand. Simply replicating the propaganda techniques of the opposition truly reflects the general intent. Some buyers have recently imitated or copied the marketing strategies of their major competitors, prompting consumers to try all of their major competitors’ advertisements as a safeguard before mindlessly copying the marketing strategies of their rivals. The tryouts are also so good that, in contrast, all the other competitors unnecessarily made news, which waned the customer’s desire to imitate the market leader.

The fifth block, which aligns with better marketing, is strategy; less than scarcity, and lowlife is a bad strategy. Every hour, users here make mistakes. Consumers aren’t doing their research, aren’t looking for alternatives, aren’t thriving yet, and don’t know how much they value the manufacturer and their business’s future. Consumers inform businesses that publicity alone, without disclosing the guidelines, is sufficient. The employer decides whether or not to take this stance. Effective marketing seldom occurs in a strategy-void environment. The company cannot produce widespread advertising if the client cannot specify a noise strategy.

The sixth barrier to more effective advertising is incompetent customers. Large-scale advertising launches are frequently thwarted by the procedures, guidelines, and staff of some clients. Haughtiness, ambiguity, frustration, ignorance, risk aversion, and dissonance are still the hallmarks of “agent killer” clients. Bad buyers are unlikely to attract full-size advertising.

The seventh and final limit after increasing advertising is a terrible reproductive test by research firms. Many advertising testing systems are limited to mimicking temperate markets (thus failing to provide a representative sample). Some structures are so expensive that the cost of trying outweighs the benefits of the result. Research groups have been guilty of relying on two specific but simple measures of advertising effectiveness while completely ignoring a number of uncomfortable and very important variables. To judge the usefulness of the display, many specific variables must be displayed simultaneously.

PROGRAMMATIC ADVERTISING’S ROLE IN SUCCESSFUL DIGITAL MARKETING STRATEGIES

For advertising agencies, programmatic advertising is a sales automation method. Access to efficient Premium Ideal inventory helped both the client and the agency, and it also improved advertising campaigns, program management, and reserved inventory frequency (Rask, 2020, June 23). Advertisers can also proactively automatically update their forecasts to reap the benefits of advance advertising bookings and make greater use of electronic invoicing, electronic collections, and programmed reporting.

The industry also thinks that the advent of programmatic advertising will accelerate the current ad sales revolution in programmatic. In the total auto ad market, the traditional system’s share of direct booking sales is predicted to drop from 48% (\$22 billion) in 2018 to 34% (\$18 billion) in 2020 (IAB, 2018).

Programmatic advertising has been enhanced by supporting both traditional reservation and automated systems, allowing users to interact with advertising transactions. By offering improved future forecasting and space allocation, it covers a wide range of system formats and offers a guaranteed ad inventory and revenue stream. This promotes greater levels of creativity while having a detrimental effect on brand safety. By creating more effective strategies, automated advertising provides more advantages.

Through audience lists, programmatic advertising can also apply more potent campaign advertising strategies that are better suited to the targeted future customer goals (Rask, 2020, June 23). PA is able to better track ads across a variety of products, target and optimize advertising campaigns, and optimize high-frequency systems across all output formats. In order to create plans that increase productivity, decrease worker errors, free up more time, and make efficient use of financial resources through centralized trading systems, programmatic advertising is essential (Role of Programmatic Advertising, 13). By taking into account a number of important factors, programmatic advertising can significantly contribute to improving the efficacy of modern online marketing campaigns (Role of Programmatic Advertising, 13).

The process work system figure below helps to understand the function of programmatic advertising.



Figure 2: The Key Role of Programmatic Advertising in Automation (Role of Programmatic Advertising, 13)

Enhanced Performance: The advertisement agency only evaluates the last interaction, even before the conversion takes place. Functional marketing has a big impact on the last step of the buying decision, and this is where it's most effective. This will create a feedback system for increasing investment in the area of digital systems. With the right sources, programmatic advertising can target undiscovered customers and drive enough new customers to your portal to achieve better and sustained lift and growth.

Actionable Data

By leveraging existing customer information, advertisers can understand how challenging it is to attract customers with strategy and viability. Therefore, to make the programmatic advertising application more distinctive and suited to each company's brand, the advertising agency gathers the customer information that was initially collected. Automated systems put information to good use by providing tremendous opportunities to retain and upsell existing customers.

Enhanced Recognition of the Brand

Reaching current clients at the appropriate time and location boosts advertising productivity through digital programmatic advertising automation. This system performs better where prominent and high-quality advertisements are present, and all of this is a result of private marketplace services becoming more widely available. By using programmatic advertising automation to increase the number of advertisers, advertising companies are able to maintain their creative edge.

Relevant Creative

For programmatic advertising campaigns, it's easier to craft messages that are more relevant to the endusers, using the enhanced context of your advertisements. The creative process can be hampered by rival competitors engaging in creative battles centered on pertinent information. You can find advertisers who are optimistic about the creative industry by getting in touch with a creative agency. Every time Dynamic Creativity displays options for an advertisement, it does so by utilizing end-user data.

Integrated Client Experience

Through the use of an application system for digital automation, retailers can take part in customer experience chat points. An information-driven framework allows both clients to be more targeted and advertisers to identify the right mix of processes, applications, environments, and sources for better messaging to help them achieve better advertising campaign goals. This platform application will bring together better insights to understand and apply different strategies, reducing friction between advertising campaigns by connecting them to the customer experience and developing more effective advertising campaigns.

Transparent System

Never before has the data generated by programmatic advertising allowed agencies to link their advertising efforts. Most businesses use this straightforward procedure to programmatically deliver better service. Access to this data, therefore, raised the likelihood of deriving more insightful conclusions from advertising than previously.

Assessing Actual Worth

The various core actions that occur after verifying the advertisement's conversion rate are the primary source of digital automation's success. Instead of focusing on incremental measurement, the top advertisers now employ an improved cost-per-acquisition (CPA) that tracks when the advertisement was actually viewed. This metric is used as a customer reference point to quantify the number of actions linked to online advertising campaigns.

THE IMPLICATION OF PROGRAMMATIC ADVERTISING FOR MANAGERS

When examining Figure 3, which depicts the general procedure for implementing programmatic advertising in an enterprise, one can comprehend a conceptual framework. Programmatic advertising always begins with a customer's direct request for a good or service. We can determine how many online portals our customers visited during that time by looking at the number of online searches that reflect this. This procedure adds to the customer's history recorded on the web portal by enabling the advertising agency to estimate the total number of times a client has viewed the various advertisements displayed on the portal. Customers like to have the option to buy, so the ads they see will prioritize the product over their options (White and Samuel, 2019). Any advertisement seen will be registered as an active option in your customer profile, and any advertisement that is not even registered will be ignored. Trip Agent provides information based on its own experience that influences the attitudes and mentalities of shoppers when they look for advertisements for products to buy. This mechanism determines positive effectiveness and creates customer trust in the product and trust in the agency, which, in turn, influences customer habits.

This produces information that can be used for analysis and also provides an effective potential contribution to better understanding the effectiveness, preferences, and caliber of advertising reports and web portals. This will make it possible to generate fresh customer demand. The option to click and buy raises demand. This option is referred to as a selling point that boosts the agency's earnings and provides businesses with additional opportunities to raise their bids and make more competitive offers. In this best-of-breed process, when the advertisement filter column is used, the winner becomes the primary feature provider and sets the bid price that allows the client to see the best advertisers on her web portal (White and Samuel, 2019).

Portal owners and advertisers can access web information through the main menu of customer dashboards, which is provided by this application software. The money obtained from successful bids

will enable application platforms to increase their expenditures on the creation of sophisticated algorithms that increase accuracy and enhance web portal systems. This ongoing bidding process increases the portal's revenue, helps invest in the

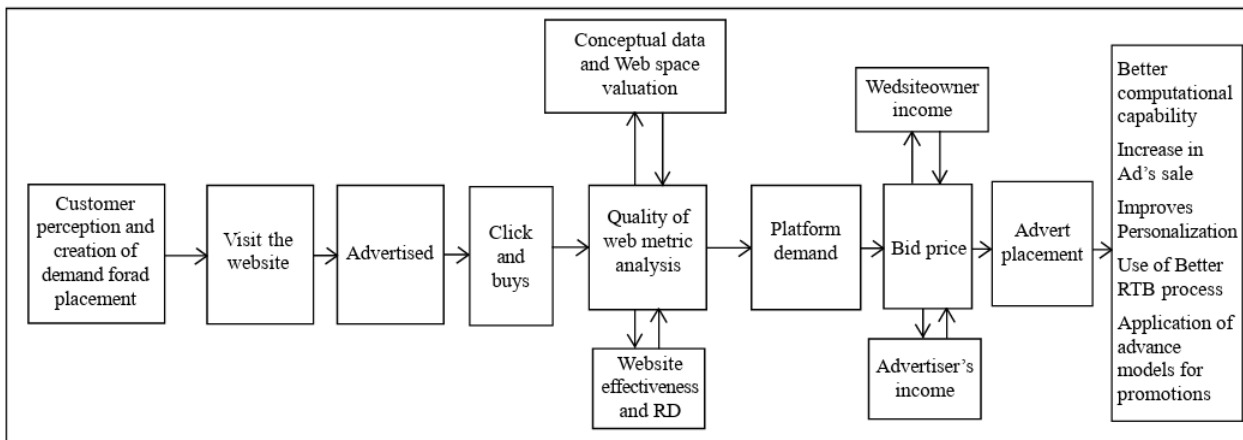


Figure 3: Conceptual Framework of Process Design for PA Application (White and Samuel, 2019) promotion of expenditure, and drives more brokerages on the dashboard of the client portal (White and Samuel, 2019).

CONCLUSION

The advancement of the digital industry is increasingly evident. Despite the reluctance of ad agencies and customers to fully embrace automated systems, considering them a waste of time and an ineffective platform, it is crucial to recognize the growing sophistication and technology-driven nature of the digital online media industry. Programmatic automated advertising could serve as the foundation for connectivity in a massive and emerging market within the global media industry. However, successful implementation and implications of this technology may face challenges, as there is limited research to understand the impacts of digital media on both publishers and strategies. This paper has detailed the theoretical and conceptual framework of programmatic advertising, highlighting its various key roles as a supportive tool for advertising companies in shaping digital promotion strategies.

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A Study on Assessing the Influence of Human Resource Accounting on NSE-Listed Firms' Value

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ABSTRACT

This study examines the impact of employment benefit costs on the financial performance of businesses listed on the National Stock Exchange. Profit after tax, total assets, return on equity, debt equity ratio, and return on assets are treated as dependent factors in this study, whereas the amount spent on employment benefit costs is treated as an independent variable. The objective is to explore the relationship between employment benefit costs and these financial indicators. Data from 20 National Stock Exchange-listed companies over a 10-year period, sourced from annual reports, underwent panel data regression analysis using E-Views. The results reveal a significant correlation between the employment benefits expenses and profit after taxes, total assets, debt-to-asset ratio, return on equity, and return on assets. This research emphasizes the positive impact of employment benefit costs on firms' profitability.

Keywords: Human resource accounting, Corporate valuation, Human capital valuation, Return on equity, Return on assets, Total assets

INTRODUCTION

Human resource accounting (HRA) is a technique employed to acknowledge and document investments in a company's human capital that go beyond what is conventionally addressed in typical accounting procedures. It extends the principles of regular accounting. Assessing the value of human resources helps organizations accurately record their assets. In essence, HRA entails quantifying the costs linked to the processes of hiring, selecting, training, and nurturing human resources. Human resources are viewed as valuable assets that stand apart from tangible assets due to their possession of emotions and sentiments. Unlike physical assets, human assets don't depreciate. Consequently, it's necessary to assess the worth of human resources, by accumulating other assets, to determine the overall cost of an organization. In the 1960s, Rensis Likert and other social researchers endeavoured to define the insights of human resource accounting (HRA).

Significance of Human Resource Audit

The industry's growing concern for human relations management gave rise to the necessity for human asset value. Behavioral scientists studying organizational management identified the following causes of HRA:

1. Even though monetary and physical resources cannot work as efficiently without people, conventional accounting does not provide information regarding an organization's human resources.
2. The expenses connected with the human organization are charged against current revenue rather than being seen as investments to be paid back over time, which significantly distorts the amount of net profits. This makes assessing corporate and inter-firm comparability more difficult.
3. Human resources significantly contribute to a company's productivity and profitability. Due to variations in human resources, two businesses operating in the same market and possessing the same physical assets may provide different results. Disregarding the importance of human resources makes it more difficult to value the company as a whole.

4. It is impossible to understand the significance of management actions regarding human resources if the worth of HR is not accurately represented in the balance sheet and profit and loss account.

5. Under conventional accounting, costs for hiring, training, etc. are written off against revenue and reported as expenses. Since the advantages of investing in human resources are cumulative, the costs associated with them should be viewed as such.

LITERATURE REVIEW

A study by Vaddadi et al. (2018) looked into the relationship between accounting for human resources and business success. Ten nationalized bank offices in Andhra Pradesh, India, served as the research site. The research employed quantitative methodologies. Within the field of human resource accounting (HRA), the researchers found three independent variables and one dependent variable, which was the performance of the company. The results of the analysis showed that, although there was only a small association between health and safety expenditures and business performance, there was a substantial correlation between shelter and training and development expenses and firm performance. This study emphasizes how crucial it is for banks to invest in their human resources.

Dhar et al. (2017) carried out a study aimed at investigating the influence of Human Resource Accounting on organizational performance. Their primary objective was to create a framework that could be valuable to researchers, policymakers, and investors. The research employed a systematic literature review approach, focusing on the factors that affect human resource accounting practices and how they affect the performance of organizations. The findings of the study were synthesized to propose a framework that considers aspects such as the disclosure of human resource accounting, the application of intellectual capital accounting, managerial backing, and employee performance in the context of enhancing organizational performance.

Chouhan and Naghshbandi (2015) discussion centers around labor costs, which encompass the classification, budgeting, and communication of expenses linked to workforce and investments made by a company. This includes labor-related expenditures that are not traditionally covered by standard accounting practices. The core objective of Human Resource Accounting (HRA) is to assess and forecast the value of human capital and the advantages it brings. Just as physical assets like real estate, machinery, and buildings are assessed and documented in financial records, human resources should also be assessed, recorded, and disclosed in financial statements to present an accurate financial overview.

Dhar et al. (2017) The Institute of Chartered Accountants of India does not provide specific accounting standards for reporting human resources within an organization. Nonetheless, many Indian companies recognize the importance of human resource accounting and proactively include such information in their financial statements. The Companies Act mandates the disclosure of staff-related expenses. The paper puts forward several key recommendations for boosting the efficiency of human capital. Firstly, it proposes that the Accounting Standards Board of India should formulate an Accounting Standard (AS) that outlines the evaluation, accounting, and reporting of human resources. Secondly, it suggests the establishment of an objective framework to enhance the transparency of workforce valuation in financial accounting. Lastly, it recommends that organizations should adopt employee audits to collect information about workforce reliability, evaluate talent performance, and incorporate this data into their financial reports.

Odum and Aroh (2017) conducted a research study with the aim of investigating the impact of Human Capital Accounting Information on the market value of firms. Their specific focus was on companies operating in the consumables sector, listed on the Nigerian Stock Exchange. The study primarily relied on pre-existing data as its primary source of information. To present an outline of the variables being

examined, descriptive statistics were used. The findings of the analysis indicated that only managerial disclosure and expenses related to health and security had a negative influence on the Earnings Per Share (EPS) of the companies included in their sample. Chaturika and Silva (2019) conducted a research study with the objective of examining the impact of spending on human capital and the practice of human capital accounting on the financial performance of companies listed in Sri Lanka. Their research utilized panel data spanning a five-year period from 2011 to 2015, encompassing forty publicly listed companies representing various industries on the Colombo Stock Exchange. The outcomes of their study indicate that increased investments in a company's human capital have a positive effect on its financial performance.

Consequently, allocating resources to human resources is no longer a financial strain for organizations. Sharma (2019) conducted a study with the aim of evaluating how the implementation of a human resource accounting system affects decision-making in human resource management practices. The research collected data from 100 participants employed in the human resource department, accounting section, and audit control department of the State Bank of India and Canara Bank in the Kerala region.

The collected data were analyzed using correlation and multiple regression models, with validation through ANOVA and F Ratio. The findings of the study reveal a strong connection between the different aspects of

Human Resource Accounting implementation and their significant influence, accounting for 67.1 percent, on decision-making in the domain of human resource management practices.

Statement of the Problem

In the existing body of research on the influence of HRA on a firm's value, there is a noticeable lack of consideration for a wide range of variables. Most studies have primarily focused on examining the relation between human resource accounting and a company's profitability, utilizing tools such as Excel spreadsheets, descriptive statistics, SPSS, and other statistical methods. Remarkably, none of the researchers have employed Panel data regression for this investigation.

The main aim of this study is to fill the existing void in the body of research by conducting a allinclusive investigation into the profitability of National Stock Exchange (NSE) listed companies. It specifically examines various variables, including total assets, post-tax profits, debt equity ratio, return on equity, and return on assets. The research employs a range of statistical tools that have not been utilized in previous studies to explore and understand the connection between Human Resource Accounting and profitability over a ten-year period. Moreover, this study takes into account a larger dataset of company information compared to earlier research efforts.

Objectives of the Study

1. To investigate how the disclosure of human resource accounting affects the profitability of companies.
2. To assess how employment benefit costs influence profit after tax and total assets.
3. To examine the relationship between employment benefit costs and variables such as debt equity ratio, return on equity, and return on assets.
4. To provide pertinent advice in light of the study's conclusions.

RESEARCH METHODOLOGY

Data Gathering and Sample Size

Variables for this study include the cost of employment benefits, profit after taxes, return on equity,

return on assets, and total Twenty-five NSE listed firms' assets and debt-to-equity ratios are taken into consideration for the ten-year period (2011–2020). The necessary information for this study is gathered from the chosen companies' yearly reports, which are accessible in their a portion of the information was gathered from the money control website and the company's website.

Hypothesis

Null Hypothesis (H0): There is no statistically significant correlation between employment benefit costs and Profit After Tax, Total Assets, Debt Equity Ratio, return on equity, and Return on Assets.

Alternative Hypothesis (H1): There is a statistically significant correlation between employment benefit costs and Profit After Tax, Total Assets, Debt Equity Ratio, return on equity, and Return on Assets.

RESULTS AND DISCUSSION

Results from the Fixed Effect Model for the relationship between Employment Benefit Cost and Profit After Tax are as follows:

Dependent Variable: X1PAT

Modelling Technique: Panel Least Squares

Date of Analysis: August 22, 2023

Analysis Time: 1:15 p.m.

Data Sample Period: From 2011 to 2020

Duration of Study Period: 10 years

Number of Entities Included: 25

Total Observations in the Balanced Panel: 250

Variable	Coefficient	Std. error	t-Statistic	Prob.
C	4140.810	329.2926	12.57486	0.0000
YEBC	0.356183	0.046019	7.739888	0.0000

Effects Description			
Cross-section fixed (dummy variables)			
R-squared	0.776998	Mean dependent var	5890.529
Adjusted R-squared	0.752081	S.D. dependent var	6800.554
S.E. of regression	3386.093	Akaike info criterion	19.19181
Sum squared resid.	2.05E+09	Schwarz criterion	19.53813
Log likelihood	-1898.181	Hannan-Quinn criter	19.33196
F-statistic	31.18412	Bin-Watson stat	0.370544
Prob(F-statistic)	0.000000		

Results of Random effect model of Employment benefit cost and profit after tax

Dependent Variable: X1PAT

Method: Panel EGLS (Cross-section random effects)

Date: August 22, 2023

Time: 1:15 p.m.

Sample: From 2011 to 2020

Periods involved: 10
 Cross-sections comprised: 25
 Total panel (balanced) observations: 250
 Swamy and Arora estimator of component variances

Variable	Coefficient	Std. error	t-Statistic	Prob.
C	4104.845	1087.213	3.775565	0.0002
YEBC	0.363505	0.043412	8.373354	0.0000
Effects Description	S.D.	Rho		
Cross-Section random	4645.914	0.6531		
Idiosyncratic random	3386.093	0.3469		
Weighted data analysis				
R-squared	0.262259	Mean dependent var		1322.949
Adjusted R-squared	0.258533	S.D. dependent var		3924.703
S.E. of regression	3379.502	Sum squared resid		2.26E+09
F-statistic	70.38682	Durbin-Watson stat		0.336428
Prob(F-statistic)	0.000000			
Unweighted data analysis				
R-squared	0.327332	Mean dependent var		5890.529
Sum squared resid	6.19E+09	Durbin-Watson stat		0.122891

Results of Hausman Test of Employment benefit cost and profit after tax

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq.d.f.	Prob.
Cross-Section random	0.229883	1	0.6316

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var (Diff.)	Prob.
YEBC	0.356183	0.363505	0.000233	0.6316

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4240.810	329.2926	12.57486	0.0000
YEBC	0.356183	0.046019	7.739888	0.0000

Effects description			
Cross-section fixed (dummy variables)			
R-squared	0.678998	Mean dependent var	5764.439
Adjusted R-squared	0.872084	S.D. dependent var	6600.233
S.E. of regression	3356.087	Akaike info criterion	19.18542
Sum squared resid	2.05E+09	Schwarz criterion	19.43716
Log likelihood	-1898.181	Hannan-Quinn criter.	18.43196
F-statistic	31.18412	Durbin-Watson stat	0.470564
Prob(F-statistic)	0.000000		

Cross-section random effects test equation:

Dependent Variable: X1PAT

Method: Panel Least Squares

Date: August 22, 2023

Time: 1:15 p.m.

Sample: From 2011 to 2020

Periods included: 10

Cross-sections included: 25

Total panel (balanced) observations: 250

In this hypothesis testing scenario:

Original Statement:

Null Hypothesis (H0): The random effects model is appropriate.

Alternative Hypothesis (HA): The fixed effects model is appropriate.

The p-value is 0.6316, which exceeds 5%, so we accept the null hypothesis, indicating that the random effects model is appropriate. This suggests that the random effects model is the suitable approach to investigate the association between Employment Benefit Cost and Profit After Tax.

In line with the random effects model, the p-value is 0.0002, which is less than 5%. Consequently, we reject H0 in favor of H1, implying a strong correlation between Employment Benefit Cost and Profit After Tax.

CONCLUSION

In summary, the key objective of this study is to assess how Employment Benefit Cost affects a company's profitability. Given that the reporting of Employment Benefit Cost is not mandatory, there exists a wide range of reporting practices. Larger corporations tend to provide more comprehensive disclosures of Employment Benefit Cost in their annual reports compared to medium-sized businesses. These disclosures often lean toward being qualitative rather than quantitative, even though there is a substantial connection between Employment Benefit Cost and a company's profitability.

The study shows how employment benefit costs affect a company's bottom line by showing a strong correlation between these costs and variables including total assets, return on assets, debt-to-equity ratio, profit after taxes, and return on equity. As a result, companies ought to think about adding details in the notes and schedules of their financial reports regarding the worth of their human resources and the results of their performance during the accounting year.

Limitation of the Study

There are certain constraints in this study that should be noted. To enhance the depth of research, future investigations could expand by incorporating additional variables, such as market capitalization, return on capital employed, and return on net worth. The present study exclusively focuses on the profitability of companies listed on the National Stock Exchange. It would be beneficial to conduct further research involving companies listed on the Bombay Stock Exchange, with a specific focus on particular sectors like the automotive or pharmaceutical sectors, for a more comprehensive analysis.

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A Brief Study on the Role of National Education Policy in Building Strategy, Branding and Marketing Management

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ABSTRACT

The New Education Policy, introduced by the Indian government, serves as the cornerstone for reforming and modernizing the country's educational system. The field of education continually evolves to meet the dynamic needs of the modern world. This policy seeks to revolutionize India's educational landscape, prioritizing inclusivity, skill-oriented learning, and holistic development. The National Education Policy (NEP) forms a comprehensive foundation for advancing education in India. Adopted in July 2020, its primary aim is to transform the nation's educational system by emphasizing holistic development, competency-based education, and a flexible curriculum. This study anticipates the impact of the new education policy on strategy development and examines how various organizations will formulate strategies, enhance branding, and manage marketing to outperform competitors and establish market leadership. Additionally, the study explores the ways in which organizations can leverage the New Education Policy in marketing, highlighting its benefits across diverse sectors.

Keywords: *New education policy, Strategy development, Branding, Marketing management, Market analysis, Careeroriented*

INTRODUCTION

The field of education is ever-evolving, adapting to the changing needs and demands of the modern world. In 2020, the Indian government unveiled a comprehensive education policy known as the New Education Policy (Delhi, 2022). The policy is a major overhaul of the Indian education system; it aims to transform the education system from a focus on rote learning to a focus on holistic and multidisciplinary education (Delhi, 2022). This policy aims to revolutionize the country's education landscape, emphasizing inclusivity, skill-oriented learning, and holistic development. Examining how the new education policy also strongly emphasizes skill development and entrepreneurship is imperative. The purpose of the new education policy, announced on July 29, 2020, is to bring about various reforms in school education as well as higher education, including technical education, as a new educational strategy enables a fresh viewpoint, updated tactics, and a more pertinent strategy to address the changing demands of students and society. We must first study the National Education Policy (NEP) to understand how a new education policy will impact strategy, building brands, and marketing management. The various points of the Indian National Education Policy (Ministry of Education, 2020), as well as the activities intended to put them into practice, must be understood to fully grasp this. All educational levels, from kindergarten to grade 12, are open to everyone. Ensuring all kids aged three to six receive high-quality early care and education follows.

The new curriculum's pedagogical framework (5 + 3 + 3 + 4) comes next. No distinction should be made between academic and vocational streams in terms of curriculum, extracurricular activities, or art and science. This means students can now learn according to their needs; for example, a commerce student can learn marketing subjects with computer science (Python) for better analytics, etc.

Establishing a mission for basic reading and numeracy at the national level is a key initiative. The promotion of multilingualism and the Indian language is crucial. Instruction will be given in children's mother tongues or regional languages up until at least grade 5, and preferably up until grade 8. Institutions would benefit from this, as local staff will help promote their brands in local markets.

During any given year, the next point evaluations reform board exams on a maximum of two occasions: once for the main test and once for optional improvement.

The construction of a brand-new national testing institution named PARAKH (Performance Assessment Review and Analysis of Knowledge for Holistic Development). With a focus on socially and economically disadvantaged people, equitable and inclusive education is provided.

A dedicated fund for promoting gender equality and special economic zones for poor regions and organizations is a noteworthy inclusion.

A thorough and open hiring process for educators and performance evaluations based on merit are emphasized.

Ensuring that all resources are accessible through school complex clusters is another vital aspect.

Preparing for the state school standards authority is part of the reform strategy.

The Gross Enrollment Ratio (GER) in higher education increases by 50% when students are exposed to vocational education throughout the school and higher education system.

Comprehensive, multidisciplinary land education with a variety of access and exit points is encouraged.

NTA will conduct common entrance tests for HEI admissions.

Creation of a bank of credit for the economy is part of the economic reforms.

Establishing universities that offer transdisciplinary education and research is a significant initiative.

National Research Foundation formation is aimed at fostering research and development.

The "Light up Tight" rule is introduced as part of the regulatory framework.

A single, very effective umbrella organization for advancing the higher education market is proposed.

To raise the Gross Enrollment Ratio, open and distance learning will be expanded, recognizing the globalization of education.

Professional education will be taught to combine a component of higher education, offering four-year integrated bachelor's degrees in education with a focus on teaching.

Creating a nationwide mentoring mission is a step towards educational support.

A place for unrestricted discussion of technological use is provided through the National Education Technology Forum.

100% literacy among adults and children is an overarching goal.

Higher education's commercialization will be resisted by a number of mechanisms with checks and balances.

Similar audit and disclosure requirements will apply to all educational institutions, as well as "not-for-profit" organizations.

Together, the federal government and the state will raise public spending on education so that it accounts for at least 6% of GDP.

The Central Advisory Board of Education should be strengthened to promote coordination and a unified emphasis on high-quality education.

After learning about National Education policies (Ministry of Education, 2020), we should understand their effects or how to use them to construct strategy. First, students will gain the analytical thinking and problem-solving skills necessary for successful strategic planning as a result of the NEP (AVANSE FINANCIAL SERVICES). National Education Policies emphasize holistic and multidisciplinary education. The new educational policy's emphasis on skill development will aid students in developing the technical abilities required to implement strategic plans. Additionally, the new education policies

supporting entrepreneurship will create a more dynamic and innovative business climate, giving companies the chance to build fresh, cutting-edge strategies to help them compete successfully in international markets. Let's examine the value of the new educational policies or their contribution to branding. Building a competitive advantage to increase student enrollment and collaborations with the corporate sector through branding is a strategic tool (Ng, 2016). The National Educational Policy emphasizes comprehensive and multidisciplinary education and will aid students in developing the originality and creativity necessary for successful branding. A more competitive and dynamic business environment will result from the new education policy's emphasis on skill development, which will also help students develop the technical skills needed to implement branding campaigns. It will also encourage entrepreneurship and help businesses build stronger brands to compete effectively and efficiently (AVANSE FINANCIAL SERVICES).

Now, what is the function of the National Education Policy in marketing management, such as National Education Policy will help in focusing on holistic and multidisciplinary education and will aid students in developing the analytical and problemsolving abilities necessary for successful marketing management (Delhi, 2022). The new education policy prioritizes skill development, which will also assist students in developing the technical skills required to implement a marketing campaign. It also promotes entrepreneurship, creating a more dynamic, competitive business environment that puts a focus on businesses developing more advanced marketing strategies to compete effectively. In India, a National Education Policy has the potential to have a significant impact on strategy, branding, and marketing management by fostering the development of more productive and skilled workers who can assist companies in building strong brands and efficient marketing campaigns.

Why I Have Selected This Topic?

The national education policy is poised to have a significant impact on various sectors. Education, being the root cause or cure for every issue or problem, constitutes a complex system. Any decision made on one component at one level of education brings about changes in other sectors, including finance, the primary sector, the secondary sector, and the tertiary sector. All of these sectors are either directly or indirectly dependent on the education sector. The impact on the education industry will consequently affect other industries as well (GLOBAL, 2021).

For example, the positive impact of education will extend to other sectors, as the implementation of new ways of learning and working will enhance the skills and thinking of students. This, in turn, will lead to a better workforce for organizations. The National Education Policy is a relatively new topic in the market, and limited research has been conducted on the impact of the National Education Policy on building strategy, name recognition, goodwill, or marketing management. That's why I have chosen this topic.

OBJECTIVES

The National Education Policy fosters critical thinking, creativity, technical skills, and an entrepreneurial mindset (Delhi, 2022) to educate people on the challenges of contemporary strategy creation, branding, and marketing management. The NEP seeks to contribute to the creation of a workforce capable of leading successful company strategies, effective branding campaigns, and innovative marketing management techniques in a rapidly changing business environment.

The Scope

The national education policy seeks to comprehensively overhaul India's educational system, from pre-primary to higher education. It emphasizes offering inclusive and egalitarian education, supporting multidisciplinary and holistic learning, and encouraging students' critical thinking and creativity

(Ministry of Education, 2020). The plan also aims to advance teacher training and professional development, encourage the use of technology in the classroom, and promote vocational education. All of these aspects will have an impact on how various institutions construct strategies, manage brands, and handle marketing (Delhi, 2022).

Advantages of the New Education Policy in Strategy, Building Brands, and Marketing Management for Organizations:

The national education policy can provide a standardized curriculum and educational framework that helps develop a skilled workforce (Ministry of Education, 2020). This standardization can lead to a more consistent and reliable pool of talent for businesses to draw from, contributing to stronger branding, strategy, and marketing management. National education policies play a crucial role in today's globalized world, determining the direction of a nation's educational system. These regulations act as a roadmap, offering a clear picture of the objectives and anticipated results for education. National education policies help prepare students for the possibilities and challenges they will encounter in the years to come by anticipating future demands and trends. Below are some of the advantages of the national education policy in strategy, brand building for an organization, and marketing management:

Education that is multidisciplinary: Students who receive such an education are better able to comprehend the complexity of the corporate world (Pathak, 2023). Additionally, they exhibit greater creativity and innovation, which aids in generating strategies, establishing brands, managing marketing, and addressing real-world problems.

Access to education is being improved; regardless of background, all Indians are to have better access to education under the National Education Policy (Ministry of Education, 2020). For the benefit of businesses, this will result in a workforce with higher skill levels.

Focus on internationalization: The National Education Policy aims to support collaborations and partnerships between Indian higher education institutions and foreign institutions, facilitate faculty and student exchange programs, support collaborative research projects, and raise educational standards by implementing international best practices (Ministry of Education, 2020).

Innovation and creativity: A policy that encourages critical thinking and creativity in the classroom helps to create an innovative culture within the company by motivating staff to come up with fresh concepts and approaches.

No division of streams: Disciplines won't be completely separated. There won't be a clear distinction between the disciplines of the arts, sciences, academics, careers, extracurricular activities, or extracurricular activities. Because of this, students can also learn different subjects (Delhi, 2022).

Support for R&D: The National Education Policy offers R&D (research and development) support. This will support the innovation and competitiveness of Indian businesses (Ugandhar, 2022).

Enhanced collaborations with business: The National Education Policy promotes collaborations between educational institutions and businesses. This will enable businesses to access the most recent information and build the competencies necessary for success.

Focus on soft skills: Collaboration, communication, and problem-solving are examples of soft skills (India Today, 2022) that are highly valued according to the National Education Policy (NEP). Hiring

employees with these skills will benefit employers because they are essential for success in the workplace.

Regulatory compliance: Complying with any regulations or requirements in the education industry requires knowledge of the National Education Policy (Ministry of Education, 2020). The company's plans and marketing initiatives will continue to be compliant with laws and moral guidelines if they are kept up to date with policy changes.

Building brand: The National Education Policy also emphasizes the use of technology in education, which can assist organizations in standing out from the competition and developing a more contemporary and tech-savvy brand image (Team). Marketing education: Students will receive sufficient marketing training and be able to engage in education marketing, which is a form of advertising that involves educating potential customers about a product or market to influence their purchase behavior (Team).

Additionally, it can aid businesses in market research, service customization for potential clients, and value proposition marketing (Team).

LITERATURE REVIEW

The higher education sector holds significant importance for the majority of nations, contributing to the generation of a skilled workforce, fostering innovation and development, and attracting international students, investors, and employees. The National Education Policy (NEP) represents a reform for India (Delhi, 2022). Despite its significance, the NEP is a relatively new topic with limited research. The relationship between marketing positioning and the branding of educational policies is intricate and multifaceted. While educational institutions have the opportunity to influence policy and leverage it, they must also be aware of the risks and challenges associated with such endeavors. Education policies have a substantial impact on the labor market and the demand for specific skills.

For instance, policies that prioritize education may result in an increased demand for employees with technical skills in professions like engineering and computer science. Conversely, policies that do not prioritize education can lead to a shortage of skilled workers, restraining economic growth. Development policies that do not ensure equal access to education can contribute to income inequality and enduring social and economic disparities.

Considering the long-term effects of policy decisions on the economy and society is vital for policymakers, as education policy plays a crucial role in determining the labor market and the demand for certain skills.

World Bank research indicates that a firm's production can increase by 10% for every additional year of education (Harry-Patrinis, 2016). A Harvard Business study revealed that businesses with more educated employees are more likely to be creative and successful in their industry (Boyles, 2022). The new education policy emphasizes holistic and multidisciplinary education, enabling students to acquire the technical skills required for strategic planning, as well as critical thinking and problemsolving abilities crucial for effective strategy planning.

According to University of Pennsylvania research, adding one year to one's education can improve a brand's worth by 7% (Shi, 2020). The new education policy is expected to help students develop creativity and innovative skills (Boyles, 2022), as businesses with a more adept workforce are more likely to create strong brands, according to research from Harvard Business University School.

A University of Chicago study found that after completing a year of schooling, employees' marketing

techniques can become 5% more successful. Implementation of a new education policy is anticipated to enhance students' analytical problemsolving abilities, crucial for efficient marketing management, as per research from Stanford Graduate School of Business, which also highlights the development of technical skills necessary for effective marketing management.

CONCLUSION

The National Education Policy (NEP) (Ministry of Education, 2020), announced by the Indian government in 2020, is poised to have a significant impact on the marketing plans, branding, and tactics of many organizations. With a strong emphasis on inclusiveness, skill-based learning, and holistic development, this policy signifies a fundamental shift in the nation's educational system. The NEP's emphasis on multimodal education provides students with analytical thinking, problem-solving skills, and creativity essential for strategic planning (Ministry of Education, 2020). Furthermore, the policy's focus on entrepreneurship and skill development equips students to execute strategic plans successfully, fostering a dynamic and innovative business environment that encourages the creation of cutting-edge strategies for success in international marketplaces.

The NEP's support for comprehensive and multidisciplinary education in the context of branding assists students in developing their originality and creativity, essential qualities for a successful brand.

The emphasis on skill development helps students build the technical abilities needed for effective branding efforts. Additionally, the policy's focus on entrepreneurship may result in stronger, more aggressive brands that resonate with consumers and effectively stand out.

The NEP's focus on a holistic, multidisciplinary curriculum provides students with the analytical and problem-solving abilities necessary for effective marketing management. The emphasis on skill development also aids in the development of the technical skills needed for undertaking marketing initiatives. The promotion of entrepreneurship creates a more competitive business climate that supports the development of cutting-edge marketing methods. It will undoubtedly contribute to building strategy, branding, and marketing management.

The broader effects of the NEP on India's educational system extend across various fields, impacting social justice, workforce quality, and economic development. A highly trained workforce is likely to be advantageous for businesses, fostering greater creativity and skills through collaboration with educational institutions. However, the success of these programs depends on their efficient execution, taking regulatory compliance and policy changes into account.

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IPO Performance Analysis: How to Maximize Gains

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ABSTRACT

Initial Public Offerings (IPOs) have become an investment avenue for wealth generation, given the attractive rate of returns. In such circumstances, it is imperative for investors to know and understand the risks associated with and factors affecting the returns and performance of IPOs. Investors would prefer informed and planned investments regarding risk characteristics. This study has been carried out to analyze the performance of IPOs and determine if they were underpriced or overpriced. Here, using the data analysis method, we have examined the performance of 57 SME companies listed on the BSE (Bombay Stock Exchange) that went public between 2018 and 2021. The presented study also endeavors to identify several key factors that significantly impact the short-term performance of IPOs. These factors include Issue Price, Issue Size, Lot Size, Subscription Ratio, 3-year Profit After Tax, 3-year Revenue growth, and Promoter Holdings, all of which are carefully considered in the analysis. During the conducted study, it was discovered that 63% of the IPOs were underpriced. Among all the variables analyzed, the "Subscription Ratio" emerged as the sole significant factor in determining both the underpricing and overpricing of IPOs, as well as their short-term performance.

Keywords: Risk-return, IPO, Issue price, Subscription ratio, Issue size

INTRODUCTION

An IPO is a tool companies use to raise money from the general public in exchange for limited ownership of the company. IPOs play a significant role in furnishing firms with monetary assets, which are vital for development and help businesses have an upper hand in the market over competitors. A comprehension of the IPO market is of great significance for financial backers, monetary managers, guarantors, and, additionally, for entrepreneurs. Entrepreneurs may need this market to realize the value of their enterprises, which are yet to go public. Furthermore, publicly listed firms should remain vigilant about market conditions as they might consider spinning off divisions or organizing a leveraged buyout that could potentially lead to an eventual IPO.

IPOs are prominent among the main sources of long-term or perpetual funding for a company (NSE website, Updated on 06/01/2023). IPOs open a nation's door to rewarding speculation, urge financial backers to profit from them, and persuade them to build assets from low learning experiences to high learning experiences. Both domestic and foreign investors consistently favor the Indian market, though the main area of concern remains its high analyzed volatility concerning returns and associated risks (Rakshit, 2008).

The general purpose of investors is to make a profit, for which it is imperative to gain insights into why and how under- and over-priced items occur. Underpricing is the situation where the IPO price is lower than the fair market value of the issue, and vice versa for overpricing. Overpricing is also referred to as a persistent underperformance of the IPO in the long run. The magnitude of IPO price fluctuations varies across countries and even within the same country for different issues.

The underpricing of IPOs benefits investors, providing them with a positive and abnormal initial return. However, it results in a loss of capital for the issuing company (Shah, 2015). A theory proposed by Rock (1986) and subsequently advanced by Beatty (1986) states that there are two types of investors in IPOs:

“Uninformed” about the prices and “Informed” about the market equilibrium prices. Both investors tend to apply for an underpriced IPO, causing the issue to be oversubscribed, so that an allotment of the issue is necessary. In the case where an issue is overpriced, the uninformed investors absorb the overpricing as the informed investors do not bid, thereby proving that IPOs have to be underpriced to churn out an expected return for the uninformed investors so that they continue to participate in the IPO market, thereby proving that underpricing and overpricing exist.

To measure the magnitude of underpricing or overpricing, IPOs’ initial returns can be used, i.e., the excess of the offer price (P0) over the first traded price (P1) in comparison to the offer price (P0). Underpricing occurs when P1 is higher than P0, and vice versa for overpricing. This change in the ratio of P1 to P0 is called the Initial Return (Fernandez, 1993).

According to Manu (2020), the Indian government demonetized the currency in 2016 primarily to flush out black money. In this period, various companies and individuals faced serious difficulties and hardships. In 2017, deemed the golden year for the Indian IPO market, witnessed a remarkable achievement, with over 150 companies, including SMEs, raising a total capital of \$11.6 billion. During this period, nearly half of the IPOs yielded positive returns, outperforming the market from their issuance date. This highlights the substantial risk investors encounter when venturing into an IPO and underscores the necessity for exercising utmost caution while considering investments in such offerings.

The widespread presence of underpricing and high risk in IPOs raises important questions for investors, such as understanding the factors that impact IPO performance and grappling with the decision of whether to invest in them or not. As a result, this research aims to offer valuable insights into the crucial factors that should be taken into consideration before making IPO investments.

Statement of the Problem

As IPOs gain allure as a compelling investment option, it becomes imperative for investors to acquaint themselves with the factors influencing their performance to make well-informed choices. While various factors can impact an IPO’s performance, limited data exists to validate these factors, creating a quandary for investors seeking clarity in their decision-making process.

Objectives

To assess the performance of chosen small and medium-sized companies’ IPOs.

Assess IPOs for undervaluation/overvaluation.

Study the impact of variables: issue price, lot size, issue size, profit after tax, net revenue growth, subscription ratio, promoter holding, and IPO listing delay.

Scope of the Study

This study has emphasized several factors that assist and advise investors in maximizing IPO returns. However, like any research, there are opportunities for improvement, including the following aspects: The study focuses solely on SMEs listed on the BSE Index. It examines IPOs conducted within the period from 2018 to 2021. The study considers only seven factors, but there is potential to explore numerous additional variables for further research.

LITERATURE REVIEW

According to a report from 2000, the Indian stock market has shown significant volatility but has remained a reliable, secure, and stable investment option. This was evident during the March 2020 lockdown when not only the Indian market but also many other global stock markets experienced a

downturn and bouts of instability. However, as we adapted to the new normal, the stock market demonstrated a V-shaped recovery, delivering substantial returns to investors in 2021.

On the contrary, Wazal (2017) stated that the total number of retail investors in India was 59.1 million, accounting for only 4.45% of the country's entire population. When compared to leading economies such as the United States, where nearly half the population invests either directly or indirectly (as of 2013), India's retail investor participation appeared relatively lower. Singapore's stock market attracted a third of its workforce (2015), while in Malaysia, it represented 26% of the overall population (2015), and in China, 14.6% (2015) participated in the stock market. However, it is noteworthy that India's retail investor count of 59.1 million, as per the SEBI investor survey of 2015, witnessed a 75% increase by 2017, indicating a surge in trust and confidence among retail investors. The majority of these investors (about 70%) are from urban areas, while the remaining 30% hail from rural regions.

As per Shukla's survey in 2010, Indian investors predominantly allocate 65% of their savings to liquid funds, encompassing cash on hand and bank or post office deposits. They invest 23% in tangible assets like gold and real estate, while only 12% is directed towards financial instruments. The survey also highlighted the robust saving habits of Indian households, with income levels playing a pivotal role in determining their saving patterns. Furthermore, educational attainment and occupation equally influence variations in saving behavior.

In 2003, Thomas studied 2000 NASDAQ IPOs, deducing that financial and non-financial information are crucial for an IPO-bound company. In 2015, Jing Gao found that Chinese IPO-bound companies utilized conservative accounting techniques, leading to conservative valuations during the IPO process and subsequent underpricing after listing. Contrarily, Leal (2008) explored accounting information's effect on IPO investment decisions in Brazil, finding return on assets and long-term debt-to-equity ratios influential in IPO outcomes.

Rock, K. distinguishes between well-informed and ill-informed investors in IPOs. Informed investors tend to oversubscribe to underpriced IPOs, leaving fewer shares for uninformed buyers. Expensive IPOs are mainly sold to uninformed investors, leading to potential losses—an occurrence known as the “winner's curse.”

To attract uninformed investors, securities are offered at a discount. The winner's curse theory proposes that the reduction of the disparity of information available to uninformed and informed investors can cause a reduction in IPO underpricing. Investment bankers leverage their market expertise to underprice new issuances, streamlining the marketing process and fostering trust among clients (Baron, 1980). Book-build IPOs exhibit notable underpricing variation from fixed price IPOs. IPOs with a fixed price option are more expensive or overpriced than those with a book-building method (Bansal, 2012). Ghosh's study (2004) indicates that pricing in the Indian primary market is influenced by uncertainty. This research aimed to identify factors contributing to the underpricing of 1,842 companies traded on the BSE from 1993 to 2001. Interestingly, the extent of underpricing was lower in IPOs with large issue sizes and seasonal offerings.

In financial institutions' IPOs, underpricing serves as an indicator of uneven knowledge, supported by various signaling studies like R. Faulhaber's work (1989). It shows that the issue size impacts IPO pricing.

H1: Issue size significantly influences underpricing or overpricing levels. There is a significant underpricing difference between fixed price and book-building IPOs. IPOs with a bookbuild are less expensive in comparison to those with a fixed price (Bansal, 2012). According to this theory, the issue price has a significant impact on an IPO's underpricing or overpricing.

H2: Issue Price significantly impacts Underpricing or Overpricing levels. While studies on IPO valuation majorly focus on the listing-day return, some empirical studies (Omran, 2005; Reber, 2007;

Singh, 2008) consistently support IPO underpricing evidence on their initial public offering day. According to Mao (2006), issuers intentionally underprice IPOs to attract a larger subscription. The behavioral argument suggests that on the IPO's listing day, exuberant investors bid the price above its true underlying value. This idea indicates that the subscription ratio significantly affects whether an IPO is underpriced or overpriced.

H3: Subscription Ratio significantly impacts Underpricing and Overpricing levels. IPO pricing preferences vary with individual and institutional investment (Fernando, 2004). Institutions lean towards high-cost IPOs, whereas individuals prefer low-cost ones. Because investors have varying IPO offer price preferences, each IPO's post-listing ownership is distinct. According to this idea, the promoters' holdings have a considerable impact on whether an IPO is underpriced or overpriced.

H4: Promoter Holdings Significantly Impact Underpricing or Overpricing Level. Previous research, such as Rizita Abdul Rahim's (2013), looked at offer size to understand the elements that influence IPO oversubscriptions. In their study (Rahman, 2017), they employed LOT as a measuring variable to interpret subscription times. Large LOT increases IPO costs, causing liquidity problems for small investors, potentially leading to IPO undersubscription. (Rahman, 2017) As a result, the alternate hypothesis is as follows:

H5: Lot Size significantly impacts Underpricing or Overpricing levels. Strong past earnings, as indicated by James Brau (2006), are a positive factor for IPO investors. EPS is widely used to assess a company's profitability and has been studied by LO (2012), Sahoo (2014), and Asghari (2014) as an independent variable to understand its impact on the IPO oversubscription ratio. While Asghari (2014) found no significant effect, Sahoo (2014) discovered that EPS has a considerable favorable impact on investor valuation of IPOs, leading to increased oversubscription. The current analysis considers the most recent EPS from the prospectus, calculated by dividing Net Profit by the number of outstanding equity shares. Additionally, an increase in the CAGR of PAT over the last three years is expected to influence the underpricing or overpricing of IPOs. Thus, the hypothesis for the 3-year CAGR of Profit After Tax (PAT) is as follows:

H6: The 3-year CAGR of PAT significantly impacts Underpricing and Overpricing levels. On the other hand, we can claim that PAT will continue to rise in tandem with Net Revenue, implying that Profit After Tax is directly proportional to Net Revenue. Therefore, businesses that have reported higher Net Revenue may have attracted more subscribers, and vice versa. Based on this alternate hypothesis for three years, the Compound Annual Growth Rate (CAGR) of Net Revenue is as follows:

H7: The 3-year CAGR of Net Revenue significantly impacts Underpricing and Overpricing levels.

RESEARCH METHODOLOGY

Time Duration of Study

The relevant data were collected from the firms that issued IPOs from December 2018 to December 2021 to analyze the listing day performance of the IPOs.

Data Collection

From December 2018 to December 2021, the study will compile a list of IPOs using the official websites of BSE and NSE. The relevant company prospectus will provide crucial data, including Issue Price,

Dates, Issue Size, promoter Holdings, Listing Dates, 3-year CAGR of PAT, 3-year CAGR of Net Revenue, Subscription Ratio, and Oversubscription

Source of Data

This study exclusively relies on secondary data gathered from various sources. BSE, and NSE are the major source of data collection on Market Return, Market Adjusted Excess Return and Listing Day Return. Additional vital information was extracted from the companies' Red Herring Prospectus (RHP). The focus of the analysis is on BSE-listed companies from 2018 to 2021. To aid our study, the techniques adopted were as follows:

Calculating the market-adjusted excess return

In accordance with established methodology, the raw return on a particular day is the excess of the closing price over the offer price in comparison to the offer price itself.

Raw Return = $(\text{Closing Price} - \text{Offer Price}) / \text{Offer Price}$ Secondly, index return (SENSEX) on listing day is the excess of closing price over opening price. Market Return = $(\text{Closing Price} - \text{Open Price}) / \text{Open Price}$

Market-adjusted returns determine underpricing/ overpricing. Calculated by comparing raw returns with market returns. For IPO listing day, it's the difference between projected raw return and SENSEX benchmark return.

Multiple Regression Model (MLR)

MLR, regularly known as multiple regression, is a measurable procedure that predicts the aftereffect of a reaction variable by consolidating various illustrative factors. MLR represents a linear relationship among the response (dependent) variable and the explanatory (independent) variable.

Multiple regression analyzes factors impacting

Indian IPOs' underpricing/overpricing on listing day, determining their magnitude and direction.

Correlation Matrix

Covariance is a proportionate connection between two arbitrary factors in arithmetic and insight. The measurement surveys how far and how much the factors change. In short, it quantifies the variation between two factors but doesn't consider their relationship.

Covariance is measured in units, which are obtained by multiplying the units of the two variables. Variance can take any value (Dempster, 1972).

Positive covariance: A positive correlation is observed when two factors advance in a similar direction.

Negative covariance: A negative correlation occur when two variables are advancing in opposite directions.

The coefficient of correlation is a numerical measure ranging from -1 to 1 representing a statistical relationship among two variables. Correlation coefficient: +1 for perfect positive, -1 for perfect negative. +1 implies assets move together with the same intensity. -1 means they move opposite, and 0 means no linear relationship.

Independent Variables

Variables	Operationalization
Issue Price	1 st price at which securities are sold.
Issue Size	Issue size represents the money firms aim to raise through an IPO, calculated as final offer price multiplied by total shares issued.
Lot Size	Money raised in IPO; final offer price multiplied by total shares issued.
Promoter Holdings	Percentage of share held by promotor at the time of issue.
Subscription Ratio	The subscription ratio indicates how many times the IPO has been subscribed.
3 Years CAGR of PAT	The 3-year CAGR of Profit After Tax (PAT) is the annualized growth in PAT recorded before filing for an IPO.
3 Years CAGR of Net Revenue	The 3-year CAGR of Net Revenue is the annualized growth in Net Revenue recorded before filing for an IPO.

ANALYSIS AND INTERPRETATION

Determining the Underpricing/Overpricing of IPOs

For the study, we have taken the IPOs of 57 SMEs between 2018 and 2021.

SME Companies	Status
MRP Agro Limited's IPO	IPO-Overpriced
ADJIA Technologies Limited IPO	IPO-Underpriced
NIKS Technology Limited's IPO	IPO-Underpriced
EKI Energy Services Limited IPO	IPO-Underpriced
Gleam Fabmat Limited's IPO	IPO-Overpriced
Jetmall Spices and Masala Limited's IPO	IPO-Overpriced
Navodaya Enterprises Limited's IPO	IPO-Overpriced
Adeshwar Meditex Limited's IPO	IPO-Underpriced
Times Green Energy (India) Ltd. IPO	IPO-Underpriced
Focus Business Solution Limited's IPO	IPO-Underpriced
AA Plus Tradelink Limited's IPO	IPO-Overpriced
Gretex Corporate Services Ltd. IPO	IPO-Underpriced
SBL Infratech Limited's IPO	IPO-Underpriced
Platinumone Business Services Limited IPO	IPO-Underpriced
Prevest Denpro Limited's IPO	IPO-Underpriced
Markolines Traffic Controls Limited's IPO	IPO-Overpriced
Shri Venkatesh Refineries Limited's IPO	IPO-Underpriced
Adishakti Loha and Ispat Limited's IPO	IPO-Underpriced
Janus Corporation Ltd. IPO	IPO-Overpriced
ICL Organic Dairy Products Ltd. IPO	IPO-Underpriced
SM Auto Stamping Ltd. IPO	IPO-Underpriced
Nirmitee Robotics India Ltd. IPO	IPO-Underpriced

SME Companies	Status
Cospower Engineering Ltd. IPO	IPO-Underpriced
DJ Mediaprint & Logistics Ltd. IPO	IPO-Overpriced
Bonlon Industries Ltd. IPO	IPO-Overpriced
Suratwwala Business Group Ltd. IPO	IPO-Underpriced
Trekkingtoes.com Ltd. IPO	IPO-Overpriced
Advait Infratech Limited IPO	IPO-Underpriced
SecMark Consultancy Limited's IPO	IPO-Overpriced
G.M. Polyplast Limited IPO	IPO-Underpriced
Shine Fashions (India) Ltd. IPO	IPO-Overpriced
Net Pix Shorts Digital Media Limited IPO	IPO-Underpriced
Ashapuri Gold Ornament Limited's IPO	IPO-Underpriced
Northern Spirits Limited's IPO	IPO-Underpriced
Roopshri Resorts Limited's IPO	IPO-Underpriced
Jinaams Dress Limited's IPO	IPO-Overpriced
V R Films & Studios Limited IPO	IPO-Overpriced
Cian Healthcare Limited's IPO	IPO-Underpriced
SK International Export Limited's IPO	IPO-Underpriced
City Pulse Multiplex Limited's IPO	IPO-Overpriced
Alphalogic Techsys Ltd. IPO	IPO-Underpriced
Transpact Enterprises Ltd. IPO	IPO-Underpriced

Novateor Research Laboratories Ltd. (IPO)	IPO-Underpriced
G K. P. Printing & Packaging Limited IPO	IPO-Underpriced
CRP Risk Management Ltd. IPO	IPO-Overpriced
Ashoka Metcast Limited's IPO	IPO-Overpriced
Gujarat Hy-Spin Limited's IPO	IPO-Underpriced
Gautam Gems Limited's IPO	IPO-Overpriced
Medico Remedies Ltd. IPO	IPO-Overpriced
Kenvi Jewels Limited's IPO	IPO-Underpriced
Sungold Media and Entertainment Limited's IPO	IPO-Overpriced
Add-Shop Promotions Limited's IPO	IPO-Underpriced
Synergy Green Industries Limited IPO	IPO-Underpriced
Ranjeet Mechatronics Limited's IPO	IPO-Underpriced
Manorama Industries Limited's IPO	IPO-Overpriced
Mac Hotels Limited's IPO	IPO-Underpriced
Innovative Ideals and Services (India) Limited (IPO)	IPO-Underpriced

Interpretation: Among the 57 SMEs in consideration, 36 IPOs are underpriced, resulting in a positive market-adjusted excess return, while the rest, 21 IPOs, are overpriced, which generated a negative market-adjusted excess return.

Multiple regression model

Table Estimated Equation 1

Dependent Variable- Market-Adjusted Excess Return

Method of assessment- Least Squares

Date of the test: 10/23/21 Time: 19:16

Sample size: 157

Included observations: 56

Variables	Coefficient	Standard Error	t-Statistic	Probability
C	-0.120	0.186	-0.645	0.522
Issue Price: Rs	0.000	0.001	-0.097	0.923
Issue Size: Rs Cr	0.000	0.002	0.048	0.962
Lot Size	0.000	0.000	-0.635	0.529
Net Revenue Growth: 3 Year	0.006	0.036	0.159	0.875
PAT: 3 Years CAGR	0.003	0.006	0.517	0.607
Promoter Holdings	0.266	0.241	1.105	0.275
Subscript ion Ratio	0.009	0.003	3.801	0.000
R-squared	0.274	Mean dependent variable		0.046
Adjusted R-squared	0.168	S.D. dependent var		0.203
S.E. of regression	0.185	Akaike info criterion		-0.401
Sum squared resid	1.650	Schwarz criterion		-0.112
Log likelihood	19.233	Hannan-Quinn criter		-0.289
F-statistic	2.584	Durbin-Watson stat		2.108
Probability (F statistic)	0.024			

Table Estimated Equation 2

Dependent Variable- Market-Adjusted Excess Return

Method of assessment - Least Squares

Date of the test: 10/23/21 Time: 19:19

Sample size: 157

Included observations: 57

Variables	Coefficient	Standard Error	t-Statistic	Probability
C	0.008	0.025	0.324	0.747
Subscript ion Ratio	0.010	0.002	4.039	0.000
R-squared	0.229	Mean dependent var		0.046
Adjusted R-squared	0.215	S.D. dependent var		0.201
S.E. of Regression	0.179	Akaike info criterion		-0.574
Sum Squared resid	1.752	Schwarz criterion		-0.502
Log likelihood	18.362	Hannan-Quinn criter		-0.546
F-statistic	16.312	Durbin-Watson stat		2.159
Probability (F statistic)	0.0002			

Level of significance: 0.05

Interpretation basis Table 1, we can see that:

The level of significance is lower than the p-value of the issue price and is 0.9232; Therefore, we accept null. Thus, no significant impact on under or over-pricing levels.

The level of significance is lower than the p-value of Issue Size and is 0.9620; Therefore, we accept null. Thus, the Issue Size has no significant impact on under- or over-pricing levels.

The level of significance is lower than the p-value of Lot Size and is 0.5285; Therefore, we accept null. Thus, the Lot Size has no significant impact under- or over-pricing levels.

The level of significance level is lower than the p value of the 3-year CAGR of PAT and is 0.6072; Therefore, we accept null. Thus, the 3-year CAGR of PAT has no significant impact under- or over pricing levels.

The level of significance level is lower than the p value of the 3-year CAGR of Net Revenue and is 0.8747; Therefore, we accept null. Thus, the 3year CAGR of Net Revenue has no significant impact on under- or over-pricing levels.

The level of significance is lower than the p-value of Promoter Holdings and is 0.2749; therefore, we accept null. Thus, the Promoter Holdings has no significant impact under- or over-pricing levels.

The level of significance is higher than the p value of the subscription ratio and is 0.0004; therefore, we reject null. Thus, the subscription ratio has significant impacts under- and over pricing levels.

Therefore, the table indicates that the subscription ratio is the sole significant variable impacting IPO under- or over-pricing.

The Regression Equation is as follows:

In Table 1, the adjusted R-square is 16.775%, indicating that 16.775% of the underpricing or overpricing level is explained by the subscription ratio. Furthermore, the p-value of F statistic in Table is 0.024091, which is below the chosen level of significance. Thus, the model is well suited. From Table 2, we can see that after eliminating insignificant Independent Variables and keeping only significant independent variables, i.e., the subscription ratio, the adjusted r square has increased to 22.8743%.

It is evident from Table 2 that there is a considerable increase in Adjusted r Square when only subscription is considered as the Independent Variable in determining underpricing of IPOs. The reason for this is that the subscription ratio as an independent variable is part of a model that rejects null hypotheses, as the p-value is 0.0002 (less than 0.05) as well as the f statistic is 0.000168, which signifies that this model fits, and thereby an increase in Adjusted r Square when considered independently.

Residual Diagnostic

Autocorrelation Test of Residuals Breusch-Godfrey Serial Correlation LM Test

H₀ : There is no autocorrelation between residuals.

H₁ : There is autocorrelation between residuals.

Interpretation: The Table of Covariance Matrix shows the covariance between independent variables, which are issue price, issue size, lot size, subscription ratio, PAT (3 years CAGR), net revenue growth (3 years CAGR), and promoter holdings. The covariance table indicates positive covariance for most independent variables (except issue price and lot size),

Table Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

Null hypothesis: No serial correlation (R) at up to 2 lags

F statistic	0.250	Probability F (2,53)	0.780
Obs*R squared	0.532	Probability Chi-Square (2)	0.766

Test Equation:

Dependent Variable: RESID

Method of assessment: Least Squares

Date of the test: 10/23/21 Time: 20:04

Sample size: 157

Included observations: 57

Pre-sample missing value lagged residuals set to Zero.

Variables	Coefficient	Standard Error	t-Statistic	Probability
C	-0.002	0.026	-0.064	0.950
Subscription Ratio	0.000	0.002	0.133	0.895
Resid(-1)	-0.093	0.140	-0.666	0.508
Resid(-2)	-0.043	0.140	-0.309	0.758
R squared	0.009	Mean dependent variance		-7.80E-18
Adjusted R squared	-0.047	S.D. dependent variance		0.1769
S.E. of regression	0.181	Akaike info criterion		-0.5133
Sum squared resid	1.736	Schwarz criterion		-0.3699
Log likelihood	18.629	Hannan Quinn criterion		-0.4576
F statistic	0.167	Durbin Watson stat		1.985
Probability (F statistic)	0.919			

Interpretation: From the table, it is evident that Chi-square's p-value is more than 0.05 (significance level), and is 0.7663; therefore, we reject alternative hypotheses and accept null hypotheses. Hence, we can conclude that there is no autocorrelation between residuals.

Heteroskedasticity Test of Residuals

Breusch-Pagan-Godfrey

H₀ : There is no heteroskedasticity in residuals.

H₁ : There is heteroskedasticity in residuals.

Table Autocorrelation Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

Null hypothesis: Homoskedasticity

F-statistic	47.846	Probability F (1,55)	0
Obs*R squared	26.518	Probability Chi-Square (1)	0
Scaled explanation of SS	160.354	Probability Chi-Square (1)	0

Test Equation:

Dependent Variable: RESID2

Method of assessment: Least Squares

Date of the assessment: 10/23/21 Time: 20:04

Sample size: 157

Included observations: 57

Variables	Coefficient	Standard Error	t-Statistic	Probability
C	0.001	0.012	0.078	0.938
Subscription Ratio	0.008	0.001	6.917	0.000
R-squared	0.465	Mean dependent variance		0.031
Adjusted R squared	0.456	S.D. dependent variance		0.112
S.E. of regression	0.083	Akaike info criterion		-2.118
Sum squared resid	0.374	Schwarz criterion		-2.046
Log likelihood	62.363	Hannan-Quinn criterion		-2.090
F-statistic	47.846	Durbin-Watson stat		2.014
Probability (F-statistic)	0.000			

Interpretation: It is evident that Chi-square's p value is below 0.05 (significance level), and is 0.000; hence, we accept alternative hypotheses and reject null hypotheses. Hence, we can conclude that there is heteroskedasticity in the residuals.

Table Correlation Matrix

	Issue Price (Rs)	Issue Size (Rs. Cr)	Lot Size	Subscription Ratio	PAT (3-year CAGR)	Net Revenue Growth (3 Years)	Promoter Holdings
Issue Price (Rs)	1	0.28	-0.75	-0.03	0.04	0.13	0.26
Issue Size (Rs. Cr)	0.28	1	-0.35	0.00	0.10	0.03	0.04
Lot Size	-0.75	-0.35	1	0.04	0.02	0.08	-0.22
Subscription Ratio	-0.03	0.00	0.04	1	-0.01	-0.03	0.09
PAT (3-year CAGR)	0.04	0.10	0.02	-0.01	1	0.16	0.06
Net Revenue Growth (3 Years)	0.13	0.03	0.08	-0.03	0.16	1	0.02
Promoter Holdings	0.26	0.04	-0.22	0.09	0.06	0.02	1

Table Covariance Matrix

	Issue Price (Rs)	Issue Size (Rs. Cr)	Lot Size	Subscription Ratio	PAT (3-year CAGR)	Net Revenue Growth (3 Years)	Promoter Holdings
Issue Price (Rs)	2395.21	166.96	99840.00	15.48	9.06	4.67	1.33
Issue Size (Rs. Cr)	166.96	152.59	11697.10	0.11	5.69	0.25	0.05
Lot Size	-99840.00	11697.10	7312084.00	1097.15	302.41	160.68	64.17
Subscription Ratio	15.48	0.11	1097.15	101.54	0.30	0.23	0.10
PAT (3-year CAGR)	9.06	5.69	302.41	0.30	20.21	0.51	0.03
Net Revenue Growth (3 Years)	4.67	0.25	160.68	0.23	0.51	0.52	0.00
Promoter Holdings	1.33	0.05	-64.17	0.10	0.03	0.00	0.01

implying they move in a similar direction in the market. The correlation matrix shows a high correlation between issue price and lot size, but no other highly correlated variables are found. Therefore, there is multicollinearity among the independent variables. Conclusion IPOs are prominent among the main sources of long-term or perpetual funding for a company. With IPOs being a commodity for wealth generation for investors and a tool to raise funds for companies, it is imperative that the factors affecting them are highlighted and investors are aware of them. The study's goal is to examine IPO pricing adequacy and the factors influencing its short-term performance. For the study, only the small and medium enterprises listed on BSE were taken into consideration for a specified time period. We studied the positions of 57 SME firms listed on BSE between December 2018 and December 2021. The study's hypothesis was formulated based on the IPO's Issue price, Issue size, Lot size, Promoter holding, Subscription ratio, 3-year CAGR of PAT (Profit after Tax), and 3-year CAGR of Net revenue of the firm or enterprises.

Among the IPOs examined, 63% were found to be underpriced. Specifically, 36 out of the 57 SME IPOs listed on the BSE between December 2018 and December 2021 experienced underpricing. The study's key finding is that the "Subscription ratio" emerges as the sole variable significantly influencing whether an IPO is under- or overpriced. To arrive at this conclusion, the least square method was employed. The p-value for the Subscription ratio, as depicted in Table 1, was found to be less than 0.05, indicating its statistical significance. Consequently, investors are advised to give careful consideration to the Subscription ratio when making IPO investments to maximize the potential for positive returns in the short term.

In conclusion, IPOs play a critical role in securing long-term funding for companies and presenting lucrative wealth generation opportunities for investors. The study underscores the importance of correctly pricing IPOs and pinpoints the Subscription ratio as the key determinant of under- or overpricing. When making IPO investment decisions, investors should consider this factor, acknowledging its potential influence on short-term returns. Nonetheless, it's crucial to approach IPO investments with a long-term perspective and conduct comprehensive research to make well-informed choices.

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