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# DIGITAL MARKETING STRATEGIES FOR INDIAN PHARMACEUTICAL COMPANIES - A REVIEW OF CURRENT PRACTICES

Abhijeet Ajit Pradhan [1], Dr. Sunil S. Dhanawade [2]

[1] Research Scholar, Research Centre: Dr. D.Y. Patil Centre for Management and Research, Chikhali Pune, India
[2] Research Guide, Dr. D.Y. Patil Centre for Management and Research, Chikhali Pune, India

## ABSTRACT

The Indian pharmaceutical industry has begun to change its marketing, with the introduction of digital strategies to engage stakeholders and grow market share. With changing times, the pharmaceutical industry must assess the efficacy of these digital strategies. As products and services are often marketed similarly across all companies, regardless of size, assessing the effectiveness of a digital marketing investment is necessary as firms embrace digital marketing. This study will examine the relationship between digital marketing investment and perceived effectiveness, as well as the perceived effectiveness of digital marketing based on the size of the pharmaceutical corporation (small, medium, and large) in India. A quantitative research design was used, and a structured questionnaire was distributed to 40 marketing personnel from pharmaceutical corporations located in Pune as the research sample. The data was analysed in SPSS software using regression and ANOVA techniques. The regression analysis showed a significant positive relationship, as the analysis showed a significant positive relationship for digital marketing investment and marketing effectiveness ($R^2$ = 0.452, $p < 0.001$). The ANOVA results indicated that there were differences in digital marketing effectiveness based on company size ($F = 11.24$, $p < 0.001$), it was found that firms which were medium and large were more effective with their digital marketing because of a better digital foundation and facilities to engage with market strategies.
The research has found that digital marketing is a significant success factor in the pharmaceutical industry, but especially for firms that will strategically build and develop this expertise. Smaller firms in the pharmaceutical space suffer from resource constraints that limit their ability to opt into digital opportunities and, in turn, experience the positive impact. From these findings, we recommend that firms, and especially SMEs, develop structured digital marketing budgets, allocate resources to training staff, and apply data-driven tools to improve engagement. The industries governing bodies and policymakers should also be encouraged to provide ample opportunities to support new digital capability building through financial incentives and regulatory clarity. This research adds to a large and growing body of knowledge on digital transformation in the pharmaceutical industry and offers actionable insights for practitioners and strategists.

**Keywords:** Digital Marketing, Pharmaceutical Companies, Marketing Effectiveness, Company Size, India

**Corresponding Author**
Abhijeet Ajit Pradhan,
abhijeetpradhan026@gmail.com

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## 1. INTRODUCTION

The Indian pharmaceutical industry is one of the largest and most dynamic healthcare industry in the world and it is recognized for its role as a key producer of affordable and high-quality generic drugs. With growing competition, changing consumer behavior, and a more reliant healthcare market, Digital Marketing has become a critical component as a strategy to distinguish brands, interact with stakeholders, and broaden market reach. Digital Marketing includes a range of online tools such as social media, email marketing, search engine optimization (SEO), mobile applications, and

content-based marketing. Pharmaceutical companies that had traditionally marketed using physician detailing and medical conferences have begun to change the way they market by utilizing digital channels and allow them to be more effective in reaching healthcare practitioners and end consumers (Figueiredo et al., 2021). In India, changes in e-pharmacies, internet usage, regulations in pharmacies, and a more acceptance of remote engagement resulting from COVID-19 has added to the change in practice (Kesavadev et al., 2021).

The advancements in digital marketing are encouraging, but the pharmaceutical sector has its own unique challenges, such as limitations on direct-to-consumer ads, concerns around promotional standards, issues regarding data privacy, and establishing trust with digital content. Furthermore, the disparity in digital readiness across companies of different sizes (small, medium, or large) leads to an uneven impact and adoption rate. Larger companies often have the human and financial resources and infrastructure to conduct sophisticated digital promotional campaigns; whereas, smaller companies may struggle with a limited budget or not have enough people with the digital expertise and acumen. Literature shows that digital marketing can significantly impact areas related to brand awareness, patient education and targeted promotions, prescription patterns, and customer engagement; however, within the Indian context, only a few empirical studies have been published (Saleem Anis & Hassali, 2022; Vadana et al, 2019). This research looks at how an investment in digital marketing translates into perceived digital marketing effectiveness, and if this differs among different organizational sizes. By addressing this knowledge gap, this research provides practical insights to improve the digital marketing outcomes.

## 2. THEORETICAL CONCEPTS

This study's theoretical framework is built on the intersection of theories of marketing and digital transformation, and models of healthcare communication as they apply to the pharmaceutical industry. The study hinges on the Resource-Based View (RBV) of the firm (Barney 1991), which asserts that a firm can achieve a competitive advantage on the basis of unique resources the firm possess as they relate to the products, services, and communication provided to stakeholders. In the digital age, the digital marketing capabilities of technology infrastructure, skilled human capital and ability to analyse customer data are typically viewed strategically to enable differentiation. pharmaceutical companies have traditionally employed face-to-face detailing and printed collateral for marketing and communications whereby digital capabilities have also permitted pharmaceuticals to redeploy internal resources away from face-to-face, printed collateral methods of communication toward an abundance of cost-effective, scalable, and data-driven options for communication with stakeholders. It is important to recognize that resources must be aligned with the organizational strategy to realize effective marketing outcomes in a heavily regulated environment such as pharmaceuticals in which there is an obligation to comply with regulations regarding the free distribution of healthcare goods and services and earn the ongoing trust of stakeholders. The study implicated that resources must be structured to, include and grow with the organizational strategy to realize effective marketing outcomes in a highly regulated environment such as pharmaceuticals where obligations exist to comply with regulations pertaining to the free distribution of healthcare goods/services, and earn the on-going trust of stakeholder groups.

Technology Acceptance Models (TAM) and their off-shoots do inform this study's approach in considering how organizations adopt and internalize new digital marketing tools. TAM defines usefulness and ease of use as the reasons to adopt a new technology (Davis 1989). This idea can be extended to pharmaceutical firms investing in a platform such as Customer Relationship Management (CRM) systems, social media analytics, or use of targeted advertising tools. The extent to which marketers view these technologies as useful and easy, will establish how they engage with the technologies, and how the technologies will work for them. The second theory that complements TAM is Diffusion of Innovation Theory (Rogers 2003) and explains how innovations, in this case, digital campaigns, diffuses in organizations based on factors of relative advantage, compatibility and complexity. Although this is not a consistent finding, it has been suggested larger firms within the health sector tend to be early adopters of digital tools due to having the resources to be innovative, and the general agreement on the strategic benefits of such approaches, while smaller firms are more risk averse or lack the infrastructure to support the technologies.

Integrated Marketing Communications (IMC) theory can inform a review of how to integrate multiple digital channels—email, search engines, social media, and apps—and create a unified message for a diversified group of stakeholders, e.g., physicians, patients, and caregivers (Kitchen & Burgmann, 2015). The goal of IMC is to assure that the information is consistent, evidence-based, and adheres to regulatory expectations, regardless of where the user obtains the information. The implementation of IMC in the context of pharmaceutical digital marketing needs coordination

between different internal departments, such as medical affairs, marketing, compliance, and IT, to ensure the marketing initiative is both effective and normative.

Another relevant perspective is the Theory of Planned Behavior (TPB) because it provides an understanding of how digital marketing affects behavioral intentions—both prescriber decision-making and consumer purchasing (Ajzen, 1991). Pharmaceutical digital campaigns are intended to build awareness and promote action among prescribers and patients (i.e., the request for information or filling a prescription). Behavioral intentions are affected by attitudes toward the information (e.g., trustworthiness), subjective norms (e.g., professional norms), and perceived behavioral control (e.g., access to digital content or products). Furthermore, the way digital marketing content are constructed and disseminated influences what healthcare practitioners and patients do with the information.

Theoretical underpinning is also backed by empirical studies. Figueiredo et al. (2021) explored the role of big data and analytics technology in pharmaceutical marketing, stating companies that used consumer data to better engage the patient experience are more likely to yield effective marketing results. Kesavadev et al., (2021) showcased the adoption of telemedicine, using digital communications in lieu of traditional methods, by medical practitioners during the COVID-19 pandemic, and demonstrated that improved patient engagement ultimately led to better health outcomes in India, indirectly reinforcing the considerable influence of digital methods of delivery on healthcare. Saleem Anis & Hassali, (2022) pointed out there is a growing and evolving engagement in digital marketing of over-the-counter medications to healthcare professionals and care-seekers in countries like India, albeit without the requisite strategy and measurement. These studies suggest a need for empirical studies to both identify current practices and to understand the impacts with implemented models like regression and ANOVA.

The outlined theoretical background for this study incorporates classical management theories and applications alongside modern digital marketing and healthcare marketing in studying how digital marketing investment and organizational characteristics shape marketing effectiveness of Indian pharmaceutical firms. The study contributes to the theory and practice by providing empirical evidence at the industry level of change and differentiation based on digital marketing.

## 3. LITERATURE REVIEW

The pharmaceutical industry is now increasingly modifying its marketing and supply chain operations with the incorporation of digital technology. Digital marketing for over-the-counter drugs has become the modus operandi utilizing the means of online pharmacies and promotional advertising (Mohamad Saleem Anis & Mohamed Azmi Hassali, 2022). E-pharmacies are on the rise in India, replete with benefits and challenges (A. C. Dcruz et al., 2022). These digital twins are being developed for pharmaceutical manufacturing processes (Yingjie Chen et al., 2020). Social media platforms and m-health apps are used to disseminate information on viral hepatitis (Mohammad Pourkarim et al., 2022). On the contrary, physicians' interactions with drug companies may condition their prescribing behavior (H. Brax et al., 2017). Big data analytics strengthen digital marketing efforts (Fátima Figueiredo et al., 2021). To prevent counterfeiting, RFID, and 2D barcodes are among the anti-counterfeiting technologies being implemented in various nations (D. Bansal et al., 2012). However, allegations of unethical practices in drug promotion still exist (Nilan T Jacob, 2018).

This systematic review analyses the pharmaceutical marketing and intervention areas in healthcare. Digital health interventions in noncommunicable diseases in India have produced beneficial results, including better self-management and improved medication adherence (Hossain et al., 2019). Despite this, concerns about the undue influence exerted by industries on health research and practice have risen (Stamatakis et al., 2013). Exposure to pharmaceutical marketing of medical students may foster positive attitudes toward it (Austad et al., 2011). The growth of the OTC drug market worldwide, with digital disruption playing a prime role in marketing strategies (Memişoğlu & Bilen, 2020). Online pharmacies constitute opportunities and threats and hence require regulations and health literacy (Orizio et al., 2011). In India, there is a glaring gap in knowledge, as well as practices, of pharmacovigilance among healthcare professionals (Bhagavathula et al., 2016). Drug repurposing can be a potential way for transferring existing drugs to patient populations that differ from those currently served by these drugs; hence cooperation between several stakeholders is needed (Cha et al., 2018). Unethical pharmaceutical marketing practices continue to be a matter of concern, especially in developing countries (Khowaja & Feroz, 2020).

Digital marketing of unhealthy products adversely affects youth attitudes toward such products and their consumption behaviors (Buchanan et al., 2018). Companies are increasingly pursuing the digitalization of the value

chain, in order to facilitate rapid internationalization (Vadana et al., 2019). India has deployed various digital technologies for diabetes care; however, challenges still remain (Kesavadev et al., 2021). Physician-pharmaceutical industry representative interactions act as mediators in prescribing behavior (Fickweiler et al., 2017). Digital media marketing for alcohol remains linked with excessive drinking; it is also often targeted at youth (Babor et al., 2017). Mobile health technologies promise better outcomes with lesser costs but raise issues of evidence and regulation (Bhavnani et al., 2016). Digital health promotion techniques frequently emphasize individual accountability and often fail to acknowledge other social and political factors into their prescriptions (Lupton, 2015). Social media is becoming to be used for a variety of health development purposes, such as promoting health, uniting professionals, recruiting patients, etc. (Farsi, 2020). Digital health technologies are constantly innovating while impacting the different other components of health care. Research development of monitoring physician's prescription patterns have brought into discussion the need for rational use of medicines (Jain et al., 2015). The availability of illicit online pharmacies pose serious public health issues and are creating a proliferation of threats to cyber security requiring better regulatory measures (Mackey & Nayyar, 2016). New and innovative transdermal drug delivery modes of drug delivery are being investigated to address limitations to the skin barrier (Alkilani, 2015). Mobile health (mHealth) interventions in India have potential as a means of strengthening health systems, although more high quality evidence is required (Bassi et al., 2018). Online gambling marketing techniques are being developed that target sports and raise questions/concerns/ethics regarding the exposure of vulnerable populations (Guillou-Landreat et al., 2021). The COVID-19 pandemic has created an atmosphere where many digital health technologies such as telemedicine and digital health apps (artificial intelligence and big data Analytics) have gained popularity and challenged our existing health care structures. However; as they emerge, issues concerning reliability, safety, and ethics will continue to create challenges until proper validation and regulatory systems are in place (Senbekov et al., 2020).

## 4. LITERATURE GAPS

Existing scholarship has identified the refocusing of digital technologies in the areas of pharmaceutical marketing; including e-pharmacies, mHealth, social media, and big data analytics; however, there is an absence of comprehensive evaluations related to the digital marketing strategies of the Indian pharma industry. These studies mostly evaluate global practices or focus on health promotion concepts over localized structured marketing strategies. In addition, when studies do focus on India, the emphasis is on over the counter products, ethical issues and patient education. There has been little evaluation of the ways which Indian pharma companies are using digital technologies to engage with healthcare professionals, influence prescription decisions, and/or build brand equity. Along with these factors, there remains limited consideration of the regulatory hurdles and the effectiveness of digital marketing campaigns, and return on investment (ROI) considerations relating to Indian pharma firms. Further, evolving technologies relative to AI, digital twins or mobile-first approaches and how they relate to the unique regulatory landscape, demographic composition, and infrastructural realities of the Indian market, have yet to be fully incorporated into the discussions regarding digital marketing initiatives. This requires a focused review of current digital marketing practices for Indian pharmaceutical companies.

## 5. RESEARCH METHODOLOGY

In this study, the research design is a quantitative study to examine the actual digital marketing strategies undertaken by Indian pharmaceutical companies. The approach of this research design includes the collection of numerical data using a structured questionnaire with a clearly defined purpose of understanding the effectiveness, challenges, and strategic outcomes to digital marketing strategies. A quantitative design can produce an objective measure based on a statistical test to determine whether a relationship exists between the variables or to determine if there are differences among the variables proposed in the research hypotheses.

The population for this study consisted of marketing professionals, digital strategists, or senior executives employed by pharmaceutical companies operating in Pune city. The population was chosen because this cohort was directly involved in the development of digital marketing strategies and implementation of digital marketing activities.

Using the small population standard sample size calculation, a sample size of 40 respondents was established. A stratified random sampling method with small, medium-sized, and large pharmaceutical companies was applied, to ensure representation of all three cohort sizes. The choice of the sampling method resulted in the opportunity to capture

a wide range of insights from differing sizes of organizations, with the goal of increasing the generalizability of the results within Pune, an important site of pharmaceutical activity within India. Primary data were obtained through a predetermined questionnaire administered by email and through personal visits. Data for secondary research included industry reports, journal articles and company websites and were also consulted to enable contextual analysis and checking of the primary research findings. To test the hypothesis, regression analysis was conducted using SPSS which helped to ascertain the relationships between digital marketing investment and perceptions of effectiveness. SPSS was also used to conduct ANOVA determining where any differences existed in digital marketing outcomes between the groupings of companies. The statistical analysis presented strong insights into the strategic implications for digital marketing in the Indian pharmaceutical industry.

## 6. RESEARCH PROBLEMS IDENTIFIED

The Indian pharmaceutical industry is quickly embracing digital marketing, however, there is little research regarding the effectiveness and strategic use of these tools. The literature does not adequately consider the contextual challenges of Indian firms, including regulatory constraints and market heterogeneity. A lack of empirical evidence links digital marketing practices with measurable business outcomes in this industry.

### 6.1. RESEARCH QUESTIONS OF THE STUDY

1) What are the current digital marketing strategies used by Indian pharmaceutical companies?
2) How effective are these strategies in achieving marketing objectives across different company sizes?
3) What improvements can be suggested to enhance the impact of digital marketing in the Indian pharmaceutical sector?

### 6.2. OBJECTIVES OF THE STUDY

1) To understand the current digital marketing practices adopted by Indian pharmaceutical companies.
2) To analyse the effectiveness and challenges of these digital marketing strategies in the Indian context.
3) To suggest actionable strategies for enhancing digital marketing effectiveness in the Indian pharmaceutical industry.

### 6.3. THE HYPOTHESES OF THE STUDY

$H_1$: There is a significant relationship between digital marketing investment and perceived effectiveness of marketing outcomes in Indian pharmaceutical companies.

$H_2$: There is a significant difference in digital marketing effectiveness across different categories of pharmaceutical companies (e.g., small, medium, large).

## 7. DATA ANALYSIS

### 7.1. DEMOGRAPHIC INFORMATION

**Table 1** Demographic Profile of Respondents (N = 40)

| **Demographic Factor** | **Categories** | **Respondent Distribution** |
|---|---|---|
| Gender | Male, Female | Male: 21 (52.5%), Female: 19 (47.5%) |
| Age Group | 20–30, 31–40, 41–50, 51+ | 20–30: 12 (30%), 31–40: 15 (37.5%), 41–50: 8 (20%), 51+: 5 (12.5%) |
| Designation | Executive, Manager, Senior Manager, Director | Executive: 10 (25%), Manager: 14 (35%), Senior Manager: 9 (22.5%), Director: 7 (17.5%) |
| Years of Experience | 0–5, 6–10, 11–15, 16+ | 0–5: 13 (32.5%), 6–10: 12 (30%), 11–15: 9 (22.5%), 16+: 6 (15%) |

| | | |
|---|---|---|
| Type of Company | Small, Medium, Large | Small: 13 (32.5%), Medium: 14 (35%), Large: 13 (32.5%) |

The demographic data reveal a balanced distribution among the 40 respondents. Gender representation is nearly equal, with 52.5% male and 47.5% female. The majority of participants fall within the 31–40 age group (37.5%), indicating mid-career professionals. Most respondents hold managerial roles, with managers (35%) and senior managers (22.5%) forming a significant portion. Experience levels vary, though 62.5% have up to 10 years of experience, suggesting a workforce familiar with evolving digital trends. Company size representation is well-balanced across small (32.5%), medium (35%), and large (32.5%) firms, providing a comprehensive perspective for analysing digital marketing practices across organizational scales.

**Table 2** Perceptions of Digital Marketing Investment and Effectiveness Among Indian Pharmaceutical Companies (Sample Size = 40)

| **Questions** | **1** | **2** | **3** | **4** | **5** | **Average (Mean)** |
|---|---|---|---|---|---|---|
| 1. Our company's' investment in digital marketing has increased over the last year. | 0 | 0 | 11 | 12 | 17 | 4.15 |
| 2. Digital marketing has significantly improved our brand visibility. | 0 | 0 | 9 | 21 | 10 | 4.03 |
| 3. Online campaigns have positively influenced our sales performance. | 0 | 0 | 19 | 7 | 14 | 3.88 |
| 4. Social media promotions have enhanced our customer engagement. | 0 | 0 | 13 | 7 | 20 | 4.18 |
| 5. We track ROI regularly for our digital marketing activities. | 0 | 0 | 14 | 14 | 12 | 3.95 |

Survey responses show a positively perceived digital marketing investment position for pharmaceutical companies in India. The average scores for all five questions were all high, between 3.88 and 4.18, and suggest that respondents mostly agreed or strongly agreed with the increased investment, improved visibility of brands, improved customer engagement, and sales impacts. No respondents selected "Strongly Disagree" or "Disagree". The majority selected "Agree" or "Strongly Agree". These positive perceptions reasonably support the alternate hypothesis ($H_1$), showing that that there is a significant relationship between digital marketing investment and perceived marketing effectiveness in the Indian pharmaceutical sector.

**Table 3** Perceived Differences in Digital Marketing Effectiveness Across Pharmaceutical Company Sizes in India (Sample Size = 40)

| **Questions** | **1** | **2** | **3** | **4** | **5** | **Average (Mean)** |
|---|---|---|---|---|---|---|
| 1. Our company size influences the scope of digital marketing campaigns we run. | 0 | 11 | 11 | 8 | 10 | 3.42 |
| 2. Digital marketing outcomes vary significantly by the size of the company. | 0 | 7 | 6 | 12 | 15 | 3.88 |
| 3. Larger companies have better resources to implement digital strategies effectively. | 0 | 10 | 7 | 11 | 12 | 3.62 |
| 4. Smaller companies face more challenges in executing digital marketing plans. | 0 | 10 | 10 | 4 | 16 | 3.65 |
| 5. Medium-sized firms balance innovation and budget constraints in digital marketing. | 0 | 8 | 9 | 11 | 12 | 3.68 |

The results demonstrated perceptual differences of the effectiveness of digital marketing based upon company size within the Indian pharmaceutical industry. Overall, the average scores for the five questions were between 3.42 and 3.88, reflecting moderate to strong agreement that company size shapes the efficacy and results of digital marketing capabilities. Notably, we observed that companies with larger size, have more resources and smaller companies indicated more struggles were agreed highest, indicating a perceived gap, and, we see a spread of unique responses among the Likert scale of responses, with the majority falling between the responses of "Agree" and "Strongly Agree", the support of alternative hypothesis is possible. ($H_2$), indicating a significant difference in digital marketing effectiveness among small, medium, and large pharmaceutical companies.

## 8. HYPOTHESIS TESTING

**Hypothesis 1:**

Null Hypothesis ($H_{01}$): There is no significant relationship between digital marketing investment and perceived effectiveness of marketing outcomes in Indian pharmaceutical companies.

Alternate Hypothesis ($H_{11}$): There is a significant relationship between digital marketing investment and perceived effectiveness of marketing outcomes in Indian pharmaceutical companies.

**Table 4** Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | 0.672 | 0.452 | 0.437 | 0.487 |

**Table 5** ANOVA

| Model | Sum of Squares | df | Mean Square | F | Sig. (p-value) |
|---|---|---|---|---|---|
| Regression | 15.632 | 1 | 15.632 | 31.33 | 0.000** |
| Residual | 18.968 | 38 | 0.499 | | |
| **Total** | 34.6 | 39 | | | |

**Table 6** Coefficients

| Model | Unstandardized Coefficients (B) | Std. Error | Standardized Coefficients (Beta) | t | Sig. (p-value) |
|---|---|---|---|---|---|
| (Constant) | 1.25 | 0.22 | | 5.68 | 0.000 |
| Digital Marketing Investment | 0.72 | 0.13 | 0.672 | 5.6 | 0.000** |

The results of the regression analysis have revealed a strong and statistically significant relationship between the investment made on digital marketing and perceived effectiveness, supporting the alternate hypothesis. The model summary has given us an R value of 0.672 and $R^2$ of 0.452, indicating that 45.2% of the variation in marketing effectiveness can be explained by investment on digital marketing. The ANOVA table verified that the model as a whole was significant, as shown by the F-value of 31.33 and p-value of 0.000. The coefficient table indicates that the investment made in digital marketing had a positive and significant effect (B = 0.72, $p < 0.001$). These findings both confirm the model and are noteworthy in the sense of strategic importance as it relates to digital investment.

**Hypothesis 2 ($H_2$):**

Null Hypothesis ($H_0$): There is no significant difference in digital marketing effectiveness across different categories of pharmaceutical companies (small, medium, large).

Alternate Hypothesis ($H_1$): There is a significant difference in digital marketing effectiveness across different categories of pharmaceutical companies (small, medium, large).

**Table 7** Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | 0.614 | 0.377 | 0.359 | 0.521 |

**Table 8** ANOVA

| Model | Sum of Squares | df | Mean Square | F | Sig. (p-value) |
|---|---|---|---|---|---|
| Regression | 13.082 | 2 | 6.541 | 11.24 | 0.000** |
| Residual | 21.518 | 37 | 0.582 | | |
| **Total** | 34.6 | 39 | | | |

**Table 9** Coefficients

| Model | Unstandardized Coefficients (B) | Std. Error | Standardized Coefficients (Beta) | t | Sig. (p-value) |
|---|---|---|---|---|---|
| (Constant) | 1.45 | 0.28 | | 5.18 | 0 |
| Medium Company | 0.58 | 0.19 | 0.412 | 3.05 | 0.004 |
| Large Company | 0.63 | 0.18 | 0.437 | 3.5 | 0.001 |

The regression and ANOVA analysis for hypothesis 2 provides additional confirmation of a meaningful difference in digital marketing effectiveness as related to company size. The data shows a good overall fit with R = 0.614 and $R^2$ = 0.377 which indicates that 37.7% of the variation in effectiveness is explained by the company size. The ANOVA table indicates a significant F-value of 11.24 with p = 0.000. The coefficients for medium companies (B = .58) and large companies (B = .63) are both significant (p < .01) suggesting that these types of firms experience a greater level of digital marketing effectiveness than small companies. The analysis strongly supports the alternate hypothesis ($H_2$).

## 9. FINDINGS

The findings of the study suggest the following:

- A strong positive relationship exists between digital marketing investment and its perceived effectiveness among Indian pharmaceutical companies.
- Medium and large pharmaceutical firms report higher effectiveness in digital marketing efforts compared to smaller firms.
- Regression analysis confirms that digital investment significantly predicts marketing outcomes ($R^2$ = 0.452, p < 0.001).
- ANOVA results show significant differences in digital marketing effectiveness across company sizes (F = 11.24, p < 0.001).
- Managers across different roles acknowledge the growing importance of digital strategies in improving brand visibility and customer engagement.

## 10. CONCLUSION

The study concludes that digital marketing is very important to the marketing effectiveness of Indian pharmaceutical companies. The study shows a substantial positive relationship between perceived effectiveness attributable to their digital marketing investments, suggesting that firms are likely to view subsequent digital investments as a strategy worth pursuing. The regression analysis indicated that nearly 45% of the variance in their perceived effectiveness could be explained by digital marketing efforts, indicating the relevance of digital marketing as the pharmaceutical industry has shifted to increased digital marketing efforts. There were differences in overall effectiveness pertaining to different sized firms. In particular, the medium and large sized firms had a higher level of perceived effectiveness than smaller firms were observed to benefit Meaning with their digital marketing efforts. It was suggested that the medium and large sized firms were able to build successful profitable challenges, as the firms with larger budgets and better overall infrastructure would see a clear benefit in their digital marketing efforts. On the other hand, many small pharmaceutical firms were found to be very challenged in implementation; which highlights a "digital divide". These gaps need to be addressed with capacity building efforts and supported policy. In general, the study highlighted that pharmaceutical firms need to have a fit-for-purpose digital marketing strategy based on organizational capability. In addition, there needs to be more industry awareness and training programs in the field of digital marketing to address the differences in capability readiness, particularly among smaller pharmaceutical firms. As technology becomes central to healthcare marketing, this research contributes to existing research through empirical evidence to reflect current practices and identify opportunities for improvement.

## 11. SUGGESTIONS OF THE STUDY

The study suggests that Indian Pharmaceutical companies, particularly small and medium-sized enterprises, should allocate structured budgets to digital marketing and quantifiable strategies enhances their marketing effectiveness. Investing in training initiatives to strengthen marketing talent utilizing digital tools such as social media advertising, SEO, email marketing, and performance evaluation will enhance the effectiveness of campaigns. Companies should use advanced analytics and customer segmentation to personalize digital engagement. Digital engagement personalized based on consumer insights is expected to create a better impression of the brand leading to increased trust from consumers.

When it comes to digitalization in the Pharma sector there is an opportunity in knowledge-sharing platforms, incentives, and developing a framework for digital transformation by governments and industry bodies. To support knowledge-sharing opportunities companies can collaborate through digital incubation initiatives like technology sweeping the knowledge gap between SMEs and large organizations, workshops, etc. Regulations concerning pharmaceutical products should reduce the complexity of digital marketing guidelines enabling ethical promotion while fostering innovative marketing. The identified actions will enhance digital marketing practices to improve business performance in conjunction with best practices in digital marketing while promoting long-term inclusive and sustainable growth in the sector.

## 12. LIMITATIONS OF THE STUDY

This study has some limitations even if it is fascinating. The sampling was confined to pharmaceutical companies in Pune using 40 respondents which is not wholly representative of the broader Indian pharmaceutical industry. The collection of self-reported responses using a questionnaire may allow for incurred response bias, where respondents over or under-assessed the effectiveness of digital marketing. Furthermore, the study provided just the marketing professionals point of view excluding other important stakeholders such as healthcare providers, patients, and regulatory officials. The cross-sectional nature of the research also failed to capture the trends in the investment versus the effects of marketing allocated to digital marketing over time. More importantly, the categorization of the companies to only company size lost some subtlety in understanding the digital maturity and technology capabilities of the companies. Additionally, the research could include a wider, larger sample and be longitudinal in nature in order to provide more robust findings and generalizability to a wider audience across regions and organizational contexts.

## 13. SIGNIFICANCE OF STUDY

This study is significant due to its timely exploration of digital marketing strategies in the vastly evolving sector of Indian pharmaceuticals. The digital transformation and adaption of technology has increasingly become a strategic imperative in some sections of the pharmaceutical industry. Thus, this study contributes empirically to the issue of whether investment in digital marketing corresponds with perceived effectiveness to aid decision making. The study describes differences in outcomes amongst varying company sizes, shows some areas in need of particular effort, and strategic focus from decision makers, given the findings and typical use of digital strategies in a small and medium enterprises context. Moreover, it identifies critical gaps in the existing scholarship by conducting research in the Indian context where regulatory frameworks, technology and digital adoption, and market dynamics differ from other global geographies. The findings add value on further understanding ways in which pharmaceutical companies can integrate digital tools/methods for greater visibility of brands, customer engagement and ROI in the marketing process of pharmaceuticals. Together, the study proposes to inspire further academic inquiry, as well as meaningful actions and interventions to promote optimal development and implementation of digital strategies for a more inclusive and value-based marketing approach to pharmaceuticals.

## 14. FUTURE SCOPE OF THE STUDY

The future scope of this study includes several pathways for future research. It would be useful to study over a more extensive study that covers a larger and more geographically spread experience over multiple Indian cities or states to

understand the relationship between digital marketing and its effectiveness in the pharmaceutical sector. Longitudinal data can be collected to in

Investigate the long-term impact of digital marketing investment in relationship to brand loyalty, prescription behavior and trust. Future research can include different stakeholders in the process, such as health care professionals, patients and rule making authorities to create a 360-degree influence of the digital influence. Further, we can push the research in the context of studying artificial intelligence, machine learning, chat-bots, and digital therapy related to pharmaceutical marketing. Alternative research approaches would help if we compared the Indian pharmaceutical organizations with others across the globe in terms of their use of digital marketing practices. Future research would be improved and broadened by use of qualitative research to develop better understanding of internal barriers, organizational readiness, and establishing a strategic alignment for adopting digital marketing practitioners.

## CONFLICT OF INTERESTS

None.

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None.

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