

# Managing Digital Transformation in Marketing: "Fusion of Traditional Marketing and Digital Marketing"

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## ABSTRACT

This paper aims to go deeper into how a firm executes digital transformation in marketing. The experiences discussed in this article will give insight from a business practice standpoint. The difficulties encountered and the solutions proposed will broaden knowledge and inspire additional research. This paper employs a qualitative technique, with one of Indonesia's significant telecommunications companies serving as the primary case study. Semi-structured interviews were used in this study, with 25 interviews conducted at the senior management level. As a result, this organization is developing digital transformation through digital and traditional marketing. A big challenge is focusing on existing consumers through conventional marketing while reaching out to additional customers through digital marketing. One of the aspects to consider while designing digital technology is the digital divide in some nations.

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## 1. INTRODUCTION

The term "digital" has become a buzzword in today's business world. We cannot deny that the word "digital" has impacted every person on the earth. People are continually exposed to more complicated and intelligent technology in their daily lives - at home, at work, anywhere, anytime - ranging from PC desktops, tablets, and smartphones to robots. At the same time, we are more connected than ever before, thanks to a wide range of communication channels accessible for personal communication, advertising, sharing, social networking, and even learning. We can see how this phenomenon influences how businesses are conducted and how individuals behave due to it.

As a result, it is clear that digital is driving business and winning the war, the firm must be converted to the forefront of the game, or the company will be left behind. To survive and thrive in business, the organization must be responsive to this transformation,

influencing the business plan. The organization must take a strategic approach to respond. "Disrupt" or "be disrupted" are the only possibilities currently.

Marketing is a firm function that designs, develops, promotes, and sells products/services to new and existing consumers. With the "digital wave," the company must revisit its marketing strategy. Can they continue the practice they are doing now, or should they shift from traditional to digital marketing?

## 2. LITERATURE REVIEW

Big Data is defined as a "word that characterizes massive, unstructured data that demands complex techniques and technology to gather, store, distribute, manage, and analyze the information." Typically, the company's problem is determining whether data is valuable and essential to the business.

The processes of collecting and storing evidence of consumer behavior as Big Data, extracting customer insights from Big Data, and applying customer insights to increase dynamic/adaptive capabilities are three resources in Big Data.

The most challenging step is digital transformation, which outlines a company-wide shift that leads to the establishment of new business models that may be unfamiliar to the organization. The firm competes through its business models and can gain a competitive edge. Digital Transformation was classified as multidisciplinary and was examined in information systems, marketing, innovation, and strategy. It was discovered that there are several stages of the digital transition. Digitization, digitalization, and digital transformation are the three steps.

Digitization is to code and process business with IT or digital technology. The final result can be a mobile channel where you can extend the function and change existing business processes, such as new online creation. All customers can effectively connect to the company and change traditional interactions of the company customers. In this step, you often include a company with digital technology. This step acts as a critical element that changes the existing business process, such as communication, distribution, or business management, to capture new business opportunities. A digital description is made to apply digital technology to optimize existing business processes to enhance the operation and user environment to use digital technology to create additional costs for the client. So digitization isn't just about reducing costs. Initiatives also include process improvements that can improve the customer experience.

Transformation into the digital age has far-reaching consequences for the entire organization; it fosters new value production. It is more than just digitization. It re-engineers processes to alter the company's business logic or how value is created. The digital transformation uses digital technology to facilitate interactions between suppliers, consumers, and rivals. With a unique value offer, digital technology may assist in achieving a competitive advantage by changing the organization to exploit current core capabilities or generate new ones.

Traditional marketing is the basic concept of marketing. Traditional marketing is a non-digital way to promote the product or services of a business entity. It relies on offline strategies, and most conventional methods fall under four categories: print, broadcast, direct mail, and telephone. In most cases, the goal is to create brand awareness. The company may take one or more types of traditional marketing as part of its advertising strategy. Usually, it depends on the company's available marketing budget.

When developing digital technology, digital marketing is defined as "building an integration, goals, and quantifiable messaging that will help you attract and acquire the customer."

The primary goal is to promote companies, shape preferences, and increase sales. "Online marketing," "internet marketing," and "web marketing" are all terminology that people use to describe digital marketing.

Digital marketing is a collection of data-driven marketing initiatives that encompass all of the digital channels accessible for promoting a product or service and building a digital brand.

Digital marketing is "a sub-branch of conventional marketing that uses current digital channels to position things like downloaded music and communicates with stakeholders, such as consumers and investors, about a brand, products, and company success."

Data collection, management, and analysis – descriptive, diagnostic, predictive, and prescriptive – to gain insights into marketing performance, increase the efficacy of marketing control instruments, and maximize return on investment (ROI). By applying marketing analytics, the firm may comprehend, identify, monitor, and measure marketing efforts, target audiences, product design, competitive landscape, market trends, and even predict future actions.

### **3. METHOD**

This paper utilizes a subjective strategy and takes advantage of one of the significant telecom suppliers in Indonesia as its essential case investigation. The review uses semi-organized interviews with 25 respondents led by crucial partners from Vice President, Senior Vice President, and C-Level (Chief Operating, Chief Marketing, Chief Technology, and Chief Strategy and Innovation). They were from primary specialty units: marketing, customer value management (CVM), channel management, CRM, network planning, IT development, and business intelligence. The interviewees were painstakingly chosen to restrict the gamble of missing data and one-sided outcomes.

People decided on the meeting technique to acquire data about the subject of interest. It accumulates legitimate and dependable information applicable to the contextual investigation reason and issue. One more benefit of the meeting strategy is expounding further on the inquiries and taking out any false impressions or translations of queries questions.

The meeting likewise empowered adaptability in adjusting, taking on, and changing the inquiries with the open session. The questions can be long and complex. It enables the augmentation of the examinations because of the created individual contact. Moreover, it can give the period expected to fulfill the natural cycle.

Toward the end, the paper is designated to give the best references deductively, see the relationships to the realities the organization is confronting, evaluate the organization's status in dealing with the execution of advanced advertising, and then recognize the stages to mix conventional and computerized promoting.

### **4. DISCUSSION**

#### **4.1. Company**

The Company was laid out during the '70s and is a telecom supplier in Indonesia with comprehensive public inclusion and has around 60 million supporters. For selling the item, it is as yet reliant upon vendors. The organization's vision is to turn into a leading advanced telecom supplier in Indonesia to further develop clients' life quality through computerized and become the second player in Indonesia by consistently conveying practical development.

To follow through on its guarantee of computerized change, fundamentally with non-advanced income (voice, SMS, and information), the organization keeps on seeking after mechanical drives. Cloud-based client care arrangements, new computerized working models, network as an assistance (NaaS) associations, advanced ability improvement, organizations with online entertainment suppliers, progressive way of life application dispatches, etc.

We also perform BTL (Underground Activity), which is controlled chiefly by CVM (Customer Value Management) activities, in addition to the more significant and more general ATL (Promotion Over The Line) income. This functionality generates additional organic revenue for the firm. The campaign is highly targeted and individualized, with SMS and USSD as the primary media. The meetings with senior management lasted many days. The following conversation is a compilation of essential themes and decisions to acquire the most significant points and lessons learned.

According to VentureBeat, 87 percent of data science ideas do not have a chance to become active apps. According to a NewVantage poll, "business adoption" of big data and artificial intelligence efforts is still an essential business barrier for 77 percent of respondents. According to Gartner, by 2022, 80 percent of analytic concepts will not deliver commercial benefits, and by 2020, 80 percent of AI initiatives will be wizard-driven alchemy. According to Gartner, 85% of big data projects fail in the early phases. According to Cisco, just 26% of respondents have succeeded in their IoT projects, while 74% have been unable. "The biggest issue with the analytics process is not knowing what you want from the data," said Deloitte Analytics senior consultant Tom Davenport.

After all, big data drives today's corporate decision-making since massive amounts of real-time data in numerous forms are generated regularly. Businesses can use big data to provide the groundwork for making better, quicker, and more reliable choices. As a result, Big Data is a strategic asset that may help your company succeed. There's a lot to think about, from enhancing operational efficiency to improving customer experience, producing goods, and projecting market demand. However, businesses must know that big data might be meaningless if it isn't handled constructively and responsibly to provide valuable outcomes.

#### 4.2. Company's Focus Area

The lesson gained from a large data project sucked up much money but had little impact on the bottom line. To avoid a repeat of the unsatisfactory situation, the company's marketing and sales teams devise new strategic goals and roadmaps. The project's primary purpose is to provide the groundwork for digital marketing while keeping corporate operations running smoothly.

The company did assessments that covered some focused areas.



Figure 1. Focused Area of Company XYZ in building Digital Marketing

Because the Company's Marketing Group is still running a conventional marketing campaign that earns the most revenue, the Marketing Group planned to merge traditional and digital marketing. Is this the most sensible choice? The firm faces significant challenges in today's data-driven industry. People may better match the desire for agility, flexibility, and innovation with the traditional goal of higher profit, enhanced corporate value, and reduced risk with the help of digital technology.

*Managing Digital Transformation in Marketing: "Fusion of Traditional Marketing and Digital Marketing" (Ankur Singh Bist)*

Digital marketing is being created as a result of this new technology. In Indonesia, many telecommunication firms regard SMS, MMS, and email to be old or outmoded marketing methods. Only when a range of tailored advertising strategies are employed to reach clients using digital technology and digital devices can digital marketing be considered traditional marketing. Digital marketing uses one or more kinds of electronic media to promote a product, such as online commercials, social networking sites, and mobile phones.

The new data mining culture is one of the most significant concerns for businesses. The failure of big data projects is due to a lack of cultural understanding. When a firm decides to go digital or transition, it must do so with managerial backing. This is not going to be an easy journey for the business.

Organizations suffer long-term consequences due to version risk, inadequate client focus, and separated thinking. It is no longer required to address these cultural challenges in the digital economy. It is essential. According to a McKinsey poll of global leaders, digital culture has three drawbacks. 1. Functional and departmental fragmentation; 2. Fear of taking chances; 3. Difficulty formulating a clear consumer opinion and acting on it. Culture and behavior are the main hurdles for attaining digital goals, according to 33% of respondents.

Every employee and management must learn not to learn to adopt a firm's digital culture. Everyone must continue to innovate, be risk-aware, make data-driven decisions, form cross-functional teams, and be willing to collaborate with external networks. Finally, every employee must be customer-focused.

Another issue that the company faces is a shift in mentality. For the most part, employees of the company are already at ease. As a result, the function of leaders becomes vital, even crucial. Unfortunately, many executives overlook or undervalue the role of culture in digital projects. When a firm transforms, it often necessitates significant changes. Finally, the business must evolve into a digital enterprise.

It is always beneficial to have workers educated about the company's difficulties to build agreement since they will understand "why." They will eventually have to leave the silo, the enemy of agility and teamwork.

One of the most pressing concerns facing businesses today is the widening digital skills divide. Technical, business, and project management skills are all needed. This has an impact on the productivity and competitiveness of firms. One of the primary causes is that the organization lacks sufficient personnel to fulfill various vital responsibilities in the digital marketing mode. When a business is at this level of "digital marketing practices," it is missing out on possibilities and cannot design and execute successful plans. There is no other option for businesses but to be aware of the digital world's future expectations and be willing to invest in their knowledge and abilities. Companies must improve their digital maturity. You will rapidly fall behind if you do not do so.

Human talents are perhaps the most well-known component in allowing businesses to maximize their Big Data analytics efforts. Because of the enormous variations between industries, the Company is having difficulty finding workers who possess the necessary technical, business management, and soft abilities.

The steady influx of big data into a company's database necessitates that businesses be ready to manage it all. It's one thing to have many items in many formats, but a corporation shouldn't be overburdened with information. Companies must, however, be able to identify whether data is "business relevant." As a result, the corporation must revert to its original objectives. What are the most critical and vital information for customers, revenue generation, and revenue? Your organization will require experienced personnel to handle data and generate commercial value. Understanding the data collection, filtering, and data analysis interpretation necessitates specialized knowledge and experience that only firms with actual expertise in their sector and task have.

Nonetheless, the Company now has consumer data and may get deeper insights. It enables them to identify unique profiles and create a character for their marketing initiatives. It's the next stage in engaging customers.

The organization concluded that thinking and working, as usual, was not an option based on prior experience. They must learn to "not learn" to abandon their old business practices. Companies are also looking into their business procedures since digital marketing necessitates a well-coordinated multi-functional workforce. They should reflect and improve team cooperation, resulting in a faster and more effective decision-making process.

This is also difficult because I think my present job is adequate. In overall, I believe the firm is performing well. So why mess with something already good? Leading firms, in most situations, have well-functioning divisions. They've reached the "safe zone." They can outshine their rivals. On the other hand, if the board requires more significant standards, Organization will not meet them without dialogue and cooperation. This is a traditional silo setup.

"The discovery, interpretation, and sharing of relevant patterns in data" is how analytics is defined. Marketing analytics is to generate insights that can help organizations better understand customers, their thinking patterns, and how they might align with their needs and aspirations. Segmentation, customer happiness, churn rate, and other customer contact data are examples of marketing analytics.

Marketing analytics may help businesses assess the efficiency of their brand and consumer interactions and generate loyalty and develop new goods. Because there are many marketing analytics, a firm should have specific analytics goals in mind, such as customer segmentation, customer happiness, product development, channel preference, CPC growth, and campaign creation.

Marketing analytics are only guesses, but drawing the appropriate conclusions will help your organization reach out to more consumers and markets while also reducing risk. Companies can measure the impact of marketing adjustments and use the data to make better-educated marketing decisions. However, the corporation is likely to be surprised. Companies recognize the need for change management. This is because businesses are beginning to employ analytics for personas and next-generation offers (NBOs) based on real-time, non-digital, and digital and existing consumer data. Who put the generated analytical model to use in a marketing tool.

Big Data Analytics (BDA) is described as "the analysis of data in five dimensions (volume, speed, variety, validity, and value) to develop actionable insights into long-term value, monitor performance, and gain a competitive edge." organizing, processing, and complete analyzing data. As a result, organizations must be able to gain information by converting data into information, which is an early stage of transformation. They must thus discover ways to speed up the learning cycle.

We broadened the channel to digital and proceeded with marketing after opting to merge current marketing with digital marketing. Businesses have targeted and reached customers directly through traditional marketing, starting with the most pre-built channels, mobile applications, and high-volume email. The purpose of digital marketing, on the other hand, is to encourage people to find them. It would be best if you were connected to the internet and knowledgeable about the channels utilized to reach it effectively in digital marketing. The majority of people accept the conventional approach of using non-digital media.

For a minute, ignore the mysterious figures in your company's quarterly reports. It looks excellent, but it also provides information regarding the efficiency of the company's marketing activities. Metrics are required by businesses to tell a story and give a more thorough picture of their marketing activities. The board is currently working on it.

To assess and track the success of their marketing initiatives, businesses begin to develop and construct key performance indicators (KPIs). On the other hand, the measurements must be in line with the objectives of your company. As a result, pick KPIs with business value or effect. Businesses are beginning to use analytics to track their marketing efforts. Unique website visits, page views, search engine traffic, bounce rate, and conversion rate are some of the most critical metrics in digital marketing. These indicators rely heavily on consistency and continuity to function. The firm is still looking for a more powerful grip to deal with it. Controlling and analyzing requires training. By

progressively enhancing MVPs based on consumer data, you can swiftly offer MVPs to your customers while also increasing your company's agility.

The way organizations communicate with consumers and stakeholders has evolved due to technological advancements. Its importance cannot be overstated. It enhances competitive advantage and aids in developing strategy, and growth is beneficial on both a strategic and operational level.

The ability to contact clients is one of the most exciting outcomes of the technological revolution. On the other hand, the consumer must be viewed as a breach of market and marketing norms. Customers have more power over interactive internet media, information, and communication procedures. Traditional marketing and communication strategies are losing their effectiveness. Traditional marketing, however, continues to be the Commission's primary source of revenue. However, technological advancements are opening the way for new methods to market and interact with clients. Marketers are compelled to operate in a complicated and ever-changing environment where they no longer have complete control over their media and content.

Table 1. Assessment on Readiness of Digital Marketing of the Company

|                            | Traditional Marketing  | Digital Marketing   | What the Company can Do  |
|----------------------------|--|---|--|
| <b>Business Objective</b>  | Focus on incremental revenue to organic revenue and reduction of churn rate  | <ul style="list-style-type: none"> <li>Build foundation for digital marketing and later digital transformation</li> <li>Start to generate revenue from blended traditional and digital marketing</li> </ul> | Define clear business objectives and communicate across the company  |
| <b>Culture</b>             | Business as usual and sometime siloed  | Collaboration of sales, marketing, and technology   | <ul style="list-style-type: none"> <li>Management sponsor</li> <li>Embrace the "culture change" through training for instance</li> </ul>   |
| <b>People</b>              | More talents with typical telecom knowledge and skills   | Digital skillset in technology, business, management and soft skills  | Train and/or recruit talents with relevant skillsets   |
| <b>Customer Data</b>       | <ul style="list-style-type: none"> <li>Cellular standard customer data (demography, and usage services)</li> <li>Real time data</li> </ul> | Digital data (relevant ones and aligned with business objective)  | <ul style="list-style-type: none"> <li>Collect, gather, store, process both non-digital and digital data</li> <li>Identify relevant data</li> </ul>  |
| <b>Business Process</b>    | Available  | Modified or even new business processes   | Combine business processes which manage both traditional and digital marketing   |
| <b>Marketing Analytics</b> | Based on usage   | Based on rich real time non-digital and digital data  | <ul style="list-style-type: none"> <li>Develop analytical models using non-digital and digital data. Including persona (segmentation)</li> <li>Apply seamlessly traditional and digital marketing campaigns</li> </ul> |
| <b>Marketing Campaign</b>  | Traditional campaigns with SMS, USSD and email   | Digital campaign via digital channels   | Put traditional and digital marketing campaign as single journeys to improve customer seamless experience  |
| <b>Measurement</b>         | More on incremental revenue and churn rate   | Digital KPIs  | Define blended KPIs for traditional and digital marketing  |
| <b>Technology</b>          | Campaign management system (CMS) with integration to non-digital channels  | Digital marketing technologies  | Enhance system capabilities of the legacy system to accommodate digital marketing  |

With innovation Additionally, the Company is supposed to deal with data frameworks, smooth out regulatory activities, lessen activity costs, enhance, further develop client support and make an upper hand.

The organization, as of late, assessed its inheritance frameworks and accomplices/merchants to recognize the right innovation and promote devices and prerequisites. This is a significant interaction as accomplices/sellers are specialists that help organizations execute and keep up with advanced advertising. The organization's governing body has fostered a remarkable idea that consolidates conventional and computerized showcasing. While examining activity on the board for blended customary and computerized advertising views, an organized rundown of choices organizations can make in their execution is completed. Table 1 shows the aftereffects of the conversation. The objective is to convey a showcasing effort with the equivalent and pertinent message

to clients across all channels to guarantee a consistent client experience. Clients will feel a similar encounter both disconnected and on the web.

## 5. CONCLUSION

The Company aims to balance conventional marketing efforts and the power of data in the digital era to maintain a customized, relevant, and customer-centric customer experience.

Notwithstanding the colossal notoriety of advanced promotion, not every person utilizes all aspects of the Internet. By offsetting computerized advertising with customary showcasing, the organization looks for new chances to develop its business with advanced promotion while at the same time holding its current faithful clients with conventional promoting while at the same time conveying more prominent worth. This methodology assists clients in withdrawing in with the organization. They will be loyal clients. In advanced promotion, the organization centers around drawing the consideration of its ideal interest group and utilizing online entertainment to transform them into faithful clients. While in conventional advertising, the organization conveys the messages to individuals as expected under the circumstances, including those who are not your objective clients. Computerized showcasing isn't the be-all and end-all advertising. Subsequently, conventional showcasing is as yet to be considered a feature of a generally promoting plan.

The organization may reach a bigger audience through social media and websites while still using traditional marketing to get the local audience by combining conventional and digital marketing.

As a result, the decision isn't whether to focus on conventional or digital marketing but which tools from each sector can help you achieve your goals. "It depends," is the response. Because many companies have failed to implement digital marketing, the Company should plan the implementation in phases to minimize risks and allow time to monitor and evaluate marketing performance. Marketing can do this by defining clear business objectives, embracing a digital culture across the Company, and conducting assessments on digital skill gaps, customer data readiness, business processes, and marketing technology.

In terms of data, the Firm must acquire, analyze, and process non-digital and digital data constructively using the appropriate technology so that the data can be used and monetized, allowing the company to gain a competitive edge in the market.

While supporting business, the company should think about implementing marketing analytics. The company's goals determine the type of analytics. In an ever-changing digital world, the company must adapt and strategize responses and continue to measure marketing efforts with relevant Key Performance Indicators (KPI).

Businesses will need to combine online and conventional ways to satisfy the demands of their clients better if they are to be successful.

Given that not everyone has access to the internet, customers have preferences in terms of how they purchase products and interact with the company. The company's readiness to implement digital marketing, blending traditional and digital marketing, is the better strategy with an omnichannel model for delivering messages to customers to create a seamless customer experience and maintaining the current trend while also obtaining new business.









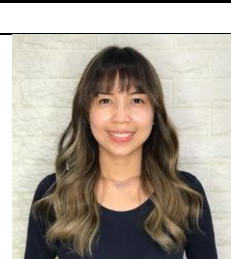



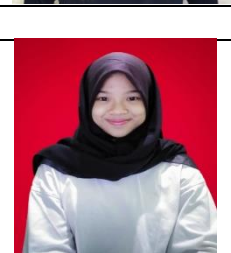





## REFERENCES

- [1] D. Reinsel, J Gantz & J. Rydning, "Data Age 2021: The Digitization of the World from Edge to Core," IDC White Paper, November 2018, pp. 3.
- [2] Busca L, Bertrandias L. A framework for digital marketing research: investigating the four cultural eras of digital marketing. *Journal of Interactive Marketing*. 2020 Feb 1;49:1-9.
- [3] Warokka A, Sjahruddin H, Sriyanto S, Noerhartati E, Saddhono K. Digital marketing support and business development using online marketing tools: An experimental analysis. *International Journal of Psychosocial Rehabilitation*. 2020 Jan 1;24(1):1181-8.
- [4] Behera RK, Gunasekaran A, Gupta S, Kamboj S, Bala PK. Personalized digital marketing recommender engine. *Journal of Retailing and Consumer Services*. 2020 Mar 1;53:101799.
- [5] Saura JR. Using data sciences in digital marketing: Framework, methods, and performance metrics. *Journal of Innovation & Knowledge*. 2021 Apr 1;6(2):92-102.
- [6] Hofacker C, Golgeci I, Pillai KG, Gligor DM. Digital marketing and business-to-business relationships: a close look at the interface and a roadmap for the future. *European Journal of Marketing*. 2020 May 19.
- [7] Dewi NP. Digital marketing strategy on travel tourism businesses in marketing 4.0 era. *International Research Journal of Management, IT and Social Sciences*. 2020;7(3):58-64.
- [8] Wren DA, Bedeian AG. The evolution of management thought. John Wiley & Sons; 2020 Jul 8.
- [9] Al-Shawabkeh R, Rumman AA, Al-Abbadi L, Abu-Rumman A. The intervening role of ambidexterity in the knowledge management project success connection. *Management*. 2020 Oct 1;18(3):56-66.
- [10] Czinkota MR, Kotabe M, Vrontis D, Shams SR. *Marketing Management: Past, Present and Future*. Springer Nature; 2021 Aug 24.
- [11] Brammer S, Clark T. COVID-19 and management education: Reflections on challenges, opportunities, and potential futures. *British journal of Management*. 2020 Jul;31(3):453.
- [12] Gelfand JM, Armstrong AW, Bell S, Anesi GL, Blauvelt A, Calabrese C, Dommasch ED, Feldman SR, Gladman D, Kircik L, Lebwohl M. National Psoriasis Foundation COVID-19 Task Force guidance for management of psoriatic disease during the pandemic: Version 2—Advances in psoriatic disease management, COVID-19 vaccines, and COVID-19 treatments. *Journal of the American Academy of Dermatology*. 2021 May 1;84(5):1254-68.
- [13] David VE, John Y, Hussain S. Rethinking sustainability: a review of Liberia's municipal solid waste management systems, status, and challenges. *Journal of Material Cycles and Waste Management*. 2020 Sep;22(5):1299-317.
- [14] I. M. Nasution, B. K. Bintaro, C. S. Kesumawati, M. Zahruddin, and E. A. Nabila, "Implementation technology for development of a brand communication in company pt. xyz," *Aptisi Transactions on Technopreneurship (ATT)*, vol. 4, no. 1, pp. 17–25, 2022.
- [15] M. K. Peter, M. D. Vecchia, *New Trends in Business Information Systems and Technology: Digital Innovation and Digital Business Transformation*, Springer International Publishing; Springe, Year: 2021, pp.251-265.
- [16] Wessel L, Baiyere A, Ologeanu-Taddei R, Cha J, Blegind-Jensen T. Unpacking the difference between digital transformation and IT-enabled organizational transformation. *Journal of the Association for Information Systems*. 2021 Jan 8;22(1):102-29.
- [17] J. Heikal, V. Rialialie, D. Rivelino, and I. A. Supriyono, "Hybrid model of structural equation modeling pls and rfm (recency, frequency and monetary) model to improve bank average balance," *Aptisi Transactions on Technopreneurship (ATT)*, vol. 4, no. 1, pp. 1–8, 2022.
- [18] P. Rashid, A. S. Bist, A. Asmawati, M. Budiarto, and W. Y. Prihastiti, "Influence of post covid change in consumer behaviour of millennials on advertising techniques and practices," *Aptisi Transactions on Technopreneurship (ATT)*, vol. 3, no. 2, pp. 85–92, 2021.
- [19] P. A. Sunarya, A. Williams, A. Khoirunisa, A. S. Bein, and D. M. Sari, "A blockchain based online business intelligence learning system," *Blockchain Frontier Technology*, vol. 1, no. 01, pp. 87–103, 2021.
- [20] F. Sutisna and T. Handra, "The theory of planned behavior influences online shopping behavior," *APTISI Transactions on Management (ATM)*, vol. 6, no. 1, pp. 52–61, 2022.
- [21] Morkovkin DE, Gibadullin AA, Kolosova EV, Semkina NS, Fasehzoda IS. Modern transformation of the production base in the conditions of Industry 4.0: problems and prospects. In *Journal of Physics: Conference Series* 2020 Apr 1 (Vol. 1515, No. 3, p. 032014). IOP Publishing.
- [22] Li X, Yu L, Chen H, Fu CW, Xing L, Heng PA. Transformation-consistent self-ensembling model for semisupervised medical image segmentation. *IEEE Transactions on Neural Networks and Learning Systems*. 2020 Jun 1;32(2):523-34.
- [23] Feroz AK, Zo H, Chiravuri A. Digital transformation and environmental sustainability: A review and research agenda. *Sustainability*. 2021 Jan;13(3):1530.
- [24] M. W. Akira, H. Haritsah, A. Zulfia, and E. Prajatelista, "Mechanical and tribological properties of nano-sized al2o3 particles on adc12 alloy composites with strontium modifier produced by stir casting method," *ADI Journal on Recent Innovation*, vol. 3, no. 1, pp. 9–20, 2021.
- [25] M. Azmi, M. S. Shihab, D. Rustiana, D. P. Lazirkha et al., "The effect of advertising, sales promotion, and brand image on repurchasing intention (study on shopee users)," *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, vol. 3, no. 2, pp. 76–85, 2022.
- [26] Ikram M, Ferasso M, Sroufe R, Zhang Q. Assessing green technology indicators for cleaner production and sustainable investments in a developing country context. *Journal of Cleaner Production*. 2021 Nov 1;322:129090.
- [27] Nguyen HT, Hoang TG, Nguyen LQ, Le HP, Mai HX. Green technology transfer in a developing country: Mainstream practitioner views. *International Journal of Organizational Analysis*. 2021 Feb 4.
- [28] Chen L, Chen P, Lin Z. Artificial intelligence in education: A review. *Ieee Access*. 2020 Apr 17;8:75264-78.

- [29] Zhang J, Tao D. Empowering things with intelligence: a survey of the progress, challenges, and opportunities in artificial intelligence of things. *IEEE Internet of Things Journal*. 2020 Nov 19;8(10):7789-817.
- [30] Acs B, Rantalainen M, Hartman J. Artificial intelligence as the next step towards precision pathology. *Journal of internal medicine*. 2020 Jul;288(1):62-81.

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