

Research Article

The Impact of Marketing Practices on NGO Performance: The Pestel Model Effect

Worakamol Wisetsri¹, Krishnabhaskar Mangalasserri², Luigi Pio Leonardo Cavaliere³,
Praveen Mittal⁴, M. Kalyan Chakravarthi⁵, Kartikey Koti⁶, Ashish Gupta⁷, S. Suman Rajest⁸,
R. Regin⁹

Abstract

As political conflicts and uncertainty in many developing countries are becoming more frequent, asylum seekers are increasingly numerous. Since affected parties are refugees and host countries, humanitarian and non-governmental organizations play a large role in most host communities. Despite their nonprofit nature, NGOs have a huge need for resources NGOs to carry out their missions and achieve sustainability to serve as many refugees as possible. This study reflects the important role that marketing plays in NGOs in achieving the above goals and is a marginalized concept for most NGOs' managers and owners. Marketing also serves a social role in addition to sustainability for NGOs. Since these organizations have to attract capital, they also have to attract personnel. Key support of humanitarian organizations lies in voluntary work, donations and benevolent participation in charitable activities. To attract community awareness and involvement, these organizations should promote their causes. Social marketing, marketing concepts and strategies will do this. Despite the resource constraint, this research will elaborate and discuss the impact of marketing practices on NGOs at various levels and on different means and limitations of marketing in NGOs.

¹ Associate Professor, Department of Manufacturing and Service Industry, Management, Faculty of Business and Industrial Management, King Mongkut's University of Technology North Bangkok, Bangkok Thailand, drkapook@gmail.com

² Adjunct Faculty in Marketing and Marketing communication at Skyline University Sharjah UAE, CUCA Ajman UAE and University of West London UAE Campus, krishnabhaskar.mangalasserri@gmail.com

³ Department of Economics, University of Foggia, Via Romolo Caggese, Foggia FG, Italy, luigi.cavaliere@gmail.com

⁴ Assistant Professor, GLA University, Mathura, India. praveen.mittal@gla.ac.in

⁵ School of Electronics Engineering, VIT-AP University, Amaravathi, India. kalyanchakravarthi.m@vitap.ac.in

⁶ Associate Professor, Acharya Bangalore B-School, Bangalore University, Bangalore, India.

⁷ Research Scholar, Department of Commerce, University of Lucknow, Lucknow, UP, India. ashishbondgupta@gmail.com

⁸ Researcher, Vels Institute of Science, Technology & Advanced Studies, Chennai, Tamil Nadu, India.

⁹ Assistant Professor, Department of Computer Science and Engineering, Adhiyamaan College of Engineering, Tamil Nadu, India.

Keywords: *Impact of Marketing, Practices on NGO Performance, Pestel Model Effect, Businesses and Firms.*

Introduction

We quote businessdictionary.com: The management mechanism by which products and services pass from the idea to the consumer [1-5]. If we were to go through the business concept of marketing solely to describe the marketing definition clearly. Its coordinates four components known as the four marketing:

- Commodity recognition, option and growth,
- The price calculation,
- Selecting the medium of delivery to hit the location of the consumer.

The advertising plan should be built and applied. "The organization makes its appearance in engineering events to support the device and is widely publicized on the Internet. T.V [26-11]. Marketing is focused on market thinking and satisfaction with consumers. Marketing is distinct from sale because "sale is about the tools and strategies of getting customers to exchanges for their goods. It's not about the nature of the trade [12-17]. This was the concept of corporate promotion, focused on their practices and plans. The majority of businesses and firms. The organization will be the NGO, the client, the donor ARD society, the products and/or services, and the standard of the business's service if we connect any ideas from the previous concept with the nonprofit environment [18-27]. These are the four as of marketing:

- Defining, choosing and cultivating a trigger.
- Recognition of the population impacted.
- the selection of the region impacted and the channel of delivery for disadvantaged persons.
- Designing and executing an image creating plan to win the goodwill and interest of donors' funds and community.

Customer Wants Meets

The universe will be at the road to your door if you create a better mousetrap." And it would likely be profitable for companies who produce goods and services that suit their unique needs. However, it requires more than the market hypothesis that clients are happy with what they seek [28-35]. Firms taking the time to define consumer segments in a certain way and take measures to obtain insight by market analysis, one-on-one experiences and customer reviews are likely to ensure that anything they do resonates with the public [36-42].

- Selecting the correct price: it is impossible that Lexus will sell Rolex watches and Kmart will begin selling them. Nevertheless, pricing choices are important to marketing success and enable some brand values to be developed and adhered to. The firms would opt to offer high-volume, low-risk, low-volume and any price point in the meantime. Pricing assessments must therefore be focused on realistic industry research and other available strategic alternatives [43-52].
- Access: access is the marketing mix's "location." Consumers must be willing to access the goods and services that they want; otherwise that all the sacrifices produced by the company are useless to produce a strong product at the right price. Access can be a perfect venue, comfortable moments, front-desk employees that respond instantly to the telephone and simple to order electronically in today's technical age [53-62].
- Successful promotion: If the target group does not realize that the right quality is accessible, the best price would still not thrive. That's when it comes to advancement. Businesses must define and choose the engagement methods they want to target these audiences at the required time and location [63-72].

Social networking, for example, is possibly not the right method to have with an ageing community, and newspapers are probably not the best way to enter the university sector. The chosen contact approach is the correct one for the desired audience by deliberate choices " [73-81].

NGOs would have to adopt the following matrix to connect the above marketing practices to the nonprofit world:

- Consumer needs meeting: understanding who the demographic impacted is (the focus segment), the requirements for their insecurity and, as a result, their needs. In addition to these needs, the NGO is organizing a workshop [82-89].
- Selecting the best price: it has a lot to do with budgeting problems in NGOs. Each trigger and, therefore, every community affected has its own "cost." Here, we mean the requisite expenditure for operating on the intended cause through pricing. Suppose the target demographic in the host community is war refugees that ignored the essential needs of displacement, for example. In that case, an agency might meet basic food provisions of approximately eight households for one full month for the sum of \$1,000 [90-95]. On the other side, the \$1000 could barely fund insurance costs and court processes for a harmed victim, whether the target group were women experiencing domestic abuse. Therefore, the NGO shall create the time budget for the function and project it has selected [96-101].
- Access: ensure access to the core of the community involved through an agency. The analysis of the region with the largest number of casualties and the creation of an open community facility, or the expansion of its operation in that region, will do this by getting out to the field and targeting the areas of disadvantaged citizens [102-109].
- Productive promotion: for an NGO, the promotion of picture creation will be more successful and can be done through various activities that will be addressed later.

Basic Marketing Theories

Traditionally the selling of small ideas and logic may be regarded as analytical science. However, given the lack of an internationally clear marketing strategy, there are many marketing-driven practices in both benefit and nonprofit industries. The SWOT Studies, the Maslow hierarchy of requirements, PESTEL Analysis and the picture creation, will be highlighted in this portion. Many firms and organizations using SWOT research, so who did the idea come up? "The American firm and executive consultant was Albert Humphrey. During his work at the Stanford Research Institute (1960–70), he developed a strategy team system called the SOFT analysis, known as the SWOT analysis.

SWOT stands for, as some would already know:

- S – Strengths
- W – Weaknesses
- O – Opportunities
- T – Threats

and is illustrated as follows:

SWOT theory can be applied simply as it seems to evaluate strengths, weaknesses, chances and threats affecting a company, a marketing or any other kind of projects. Once the project's objective has been established, management identifies the internal and external factors that will be positive or negative on the overall objective

because every business or organization must deal with internal and external factors. The analysis is divided into two sections; one internally identifies the organization's strengths, and weaknesses and the first externally identify opportunities and threats. The first is an internal analysis. The Strengths element looks for the organization's strongest, what kinds of human / financial resources/knowledge it possesses that can assist it with the mission's goal, whatever relations and relationships it has, how much and with whom it has negotiated leverage etc.

The Opportunities aspect (External/Positive Influence) looks at what influences and improvements an organization's competitive environment might use, which vulnerabilities can it take advantage of in its rivals, if emerging technology will become available, which different markets/segments will open up to it, etc. Factor Deficiencies show the worse of the organizations, what essential services are obsolete as there is little preparation for their employees, where they are, what partnerships and associations they could have, yet not. Factor threats identify factors that may damage the organization by other "competitors," potential new legislation which might adversely impact its interests, social changes that might threaten it, possible damages from the economic cycle, etc. Factor threats are identifiable. Once this study has been applied, the organization can and must benefit from turning a threat into a strength and a weakness. To Maslow's hierarchy of needs, "Abraham Maslow, a human-behaving psychology expert, created it. The hierarchy was first established to illustrate the connection between the fundamental needs of men and human wishes".

The following is visualized in figure 1:

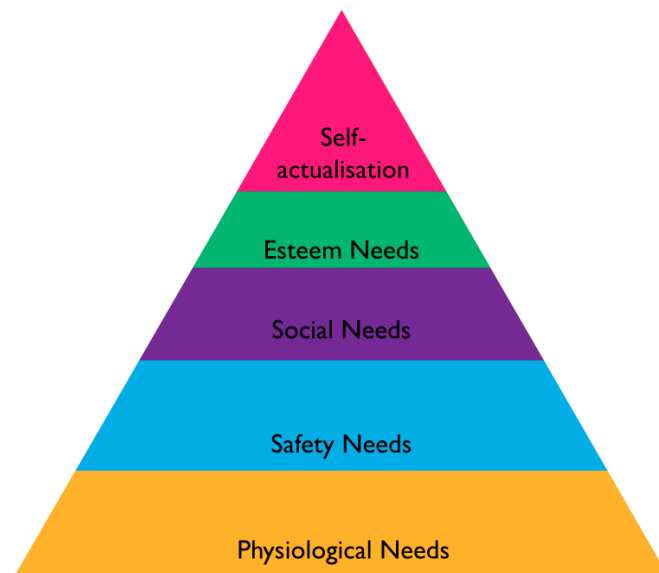


Figure 1. Maslow's Hierarchy of Needs

The pyramid is a hierarchy classified into five categories. To state that before fulfilling those fundamental needs, humans will not follow further wishes, and as each of the most significant downward demands is satisfied, we move up the hierarchy. We can meet the fundamental necessities of humanity at the bottom.

- Physiological requirements, essential human requirements, including diet, water, sleep and so on, will do without.
- Protection requirements: economic, human, medical, medical at work, etc.
- Social needs: social cohesion, friendly and family connections, social inclusion.

- Estimation needs respect, self-esteem, trust, self-fulfilment.
- Self-refreshment: a person would usually aspire to realize his / her full potential after meeting all the previous needs.

Marketers utilize this matrix to identify their target consumer desires and needs to influence their audience. Marketers, therefore, get a specific understanding of their intended audiences and formulate their respective campaign campaigns. However, it is important to bear in mind that the needs and wishes may change, especially in times of economic and political change. That is why advertisers must hold their campaign up-to-date to retain its validity. We also elaborated hypotheses in the previous two paragraphs to analyze the project and the objective. Next, we move to the organization's environment. Analysis of Pestel is a tool that allows marketers to analyze and monitor an organization's external macroenvironmental factors. The outcomes of the SWOT review are related to the fact that these outcomes help advertisers recognize risks and vulnerabilities.

PESTEL means: PESTEL

- P – Policy
- E – Company.
- S – State – social.
- T – scientific technologies
- E – Biological.
- L – Legal Vocabulary

And the following is visualized:

Constitutional factors: who and how the government intervenes with the affairs of the company. This includes foreign policy, democratic security, labour law, environmental law and so on. If political conditions influence their operations, organizations can predict potential developments, respond to the current circumstance and plan their policies in conjunction with them.

- Economic conditions: economic factors influence the performance of an organization in businesses and enterprises. It involves economic activity, interest, exchange rates, inflation, and so on. They can be broken into macro and microeconomic. The government has macroeconomic reasons, while microeconomic factors determine how citizens invest their incomes.
- Institutional and social-cultural elements include people's common perceptions and values. They include demographic increase, modification, health literacy, attitudes to the profession, etc. Social influences influence the degree of awareness among advertisers what drives buyers.
- Tech Factors: nowadays the rapid intrusive technical transition has a big impact on how we sell our products or services, firstly through different manners of manufacturing goods and services, secondly through new forms in which goods and services are delivered and supplied, and thirdly through new ways of communicating the goods and services to the target segments.
- Environmental factors: raw material limitations, emissions concerns and corporate ethics are just some of the marketer's problems. Consumers now demand the responsible and natural origins of the goods they buy.

- Legal considerations: legal factors include fair opportunities, publicity requirements, protection of goods and facilities, and each nation has its laws and rules.

As simple as it seems, Brand creation dictates how the corporation creates an image and role in customers' minds. Today, "pictures" are considered essential at multiple stages since this definition provides too much to speak about. In marketing, that is the way the brand appeals to its objective and develops long-term relationships. The core practice is to build a professional appearance from the very beginning. For example, the first move to start the journey is to choose a simple, consistent and readily identifiable name for the company. Secondly, it makes the caller feel relaxed. Finally, it understands that the service to be given is tailored to respond politely and simply to the business's name accompanied by the responding person's name.

In comparison, when addressing a professionally documented sounding message when respondents are inaccessible, the company's regard for customer loyalty is much in evidence. Fourth, team members can become professionals with what they do. As strange as that may seem, the team can describe the mission and cause of the organization in a single, clear sentence, then memorize it and repeat it in every contact with the public, to describe in a consistent, memorable way what their organization does and thus place the organizations in the minds of people.

Low-Budget Marketing

Normally, publicity is the last item an NGO will invest in. However, it is not difficult to create a successful picture inexpensively. "Someone asked me last week," What effective publicity tactics are there for an NGO ...? "I normally respond promptly to an email, but this email has been submitted to me in my thought hat. Below I replied the individual who asked the question ... "said Sanjeev Singhai, co-owner of the Video & Graphic Design Company, Market Strategist, Sales Manager and Advertisement Specialist. "There is no other commodity or brand that varies from NGO Marketing Approach, and it requires similar measures." The above statement says a ton about this study's comprehensive intent.

Having made plain the purpose behind the creation of the NGO, it can be described as a slogan in one phrase. It should offer a sense of optimism and have basic principles that the NGO stands for. This summary illustrates how the NGO can make a clever and cost-effective improvement in culture or the present case.

Specialists typically consider selling what consumers want and/or need for creativity. It's the same with NGOs; advertisers should care about what consumers want to improve and what they don't want now. Marketers would start at this stage by persuading citizens that this NGO is their agent and will allow contributions and charitable work. What several organizations may then forget or miss is to convey respect for the efforts of individuals. Despite suggestions, companies appear to crash. Sending a thank you card is important and can improve marketing outreach when, for example, a gift or assistance is obtained. In addition, citizens who contribute also engage more with the cause of the association and may be able to learn more about its success. In addition, alerts can give you the feeling that you have added to the organization's progress.

Furthermore, there are even more concepts and methods of commercializing the cause of non-governmental organizations, and interestingly, certain methods may be contrary to what other stakeholders prefer to think and do or what the old marketing system believes in. First of all, the world's world face is the first image it would leave in citizens' minds, and it may be clarified in the architecture of the office/centre. Given the old school's cautious design of a respectable position and luxury furniture, an NGO could do the exact opposite

inexpensively. Without this, citizens (including donors) realize that the money from the gift is used to support people in need rather than waste comfort on the office. This implies more contributions. Without this, it is important that a nonprofit office may be in poor shape. By only operating their job from home, managers will go much further! (The true face of a company to the world is its Level of Service and its effect on culture, its publicity when it considers meetings at partner locations or in conference rooms with a partner-conscious image!

In addition to the workplace, internet marketing and marketing are available: web, social, and blog. The first experience of the company would possibly be noticed or viewed electronically. For, e.g., a decent website or blog is more accessible and impressive than a premium office and can attract a larger audience. Moreover, several very small firms invest the capital to build and manage their email networks only so that they will sound a little more professional to utilize the free internet email facilities while picking carefully a name that looks professional and yet contributes to the same outcome which can become a part of the marketing mix. It is also really critical how the company sounds. For example, for less than \$10 a month, voice mail would encourage calls to leave a message even though the respondent is online, beginning from how the company addresses the request. If a voicemail or an answering machine is being used should be up-to-date, simple, crisp and professional.

On the other hand, a little creativity will create a standardized "look" of an organization that can be achieved as cheaply as practicable. By creating a specific emblem and picking a recognizable kind and colour to add to letterheads regularly, plans, brochures, etc., the organization, by visual memory, is profoundly incorporated into the people's minds. Save money when increasing the publicity will save a ton of printing fees for "linking up" the press with letterheads, proposal cover, brochures, etc. or products printed with the same kind of paper and ink colour together at a time.

Voluntary labour is an economic aspect for an NGO; employee happiness too. Unconsciously, happy workers represent a positive picture of their organization. The Internet, though, is not the only way for doing no-budget marketing. Although that much of the typical offline approaches can be pricey, advertisers have identified other tactics below the line to open up fresh viewpoints like advertising, public relations, social network marketing and so forth. Colours are another innovative, inexpensive concept that might support NGOs. Let it count colour all of it, be it an office or a page. Colours and optimism offer an optimistic feeling

Applying Marketing in Non-governmental Organizations

Depending on their degree of knowledge and participation in the marketing industry and because just 17 percent of global NGOs have marketing departments, NGOs can focus on the least expensive, more efficient marketing methods while contemplating letting the world know their existence, good cause and ethical methods of service. However, the number of NGOs with a marketing department is because there is nothing or it is not considered a key job. Therefore, we will address some marketing practices for NGOs in this segment.

We will find that most NGOs also lack sufficient access to current commercial media by utilizing conventional marketing tools, such as newspaper and brochure records. However, NGOs can potentially apply certain specific methods for carrying out their marketing and fundraising activities. First of all, an NGO should host activities in which publicity should function well. It would boost local visibility and will collect money. For example, a company might host expositions or galleries for homemade items, such as belts, folders, sackcloth and so on (for example, in corporations with schools). The NGO should ensure that these goods are manufactured from

environmentally sustainable products and list them to produce a clearer image. The selling of such items, which in turn cost the company incredibly little, would raise income for its programs and illustrate its talent base and performance. Women's activities for psychosocial assistance and emotional and passionate bonding are other illustrations of community-led marketing. Given the nonprofit aspect of these activities, it is also possible for these non-governmental organizations to raise awareness and meet citizens, such as Haldi Kumkum, a social meeting in India, where married women swap turmeric and vermilion powder to wish their husbands long lives. In addition, NGOs will arrange activities such as tree planting programs, raise knowledge and recognition and highlight their environmental care. Secondly, maintaining a good partnership with employees and associates represents a cost-efficient marketing strategy that, contrary to some of them, improves the NGO's reputation by word-of-mouth marketing. In addition, transferring cases to other NGOs using a standardized interagency transfer method (with other reasons and missions convenient to the case) enhances the organization's visibility and efforts to showcase in a supportive and profitable manner.

Thirdly, NGOs will Partner with Profit-making Firms

When the nonprofit and profit function together, as seen in the image above: the NGO, the company, and the customer, these outcomes must be exemplary and favourable for all three groups. NGOs may work with companies to empower women or citizens at risk in the technical sectors, such as agriculture, in combination with the advantage of the knowledge interchange. This is the case with several NGOs: Treatment, ActionAid, Oxfam, Catholic Relief, the Children's Cancer Center Lebanon (CCCL), a collaborator of Dali, a polished business that donates 1 \$every time you buy a nail polish bottle to the CCCL. Complementing the lower budget strategies, companies must begin with a stationery kit. Select one or two colours in letterheads and corresponding envelopes, printers with logos and the NGO mission for their clear graphic pictures, and print calendars. This allows the NGO to hit the masses and increase consciousness. Develop a booklet that expresses the company's social effectiveness and offers a distinct graphic picture. Based on paper content, the expenditure may be tracked. It would inspire volunteers to plan annual functions and festivals to improve their volunteerism and the exposure of NGOs. Last but not least, yearly T.V. shows and mainstream advertising (and social media campaigns) assist groups to more widely promote their cause.

We apply first to the SWOT study, with other marketing practices previously elaborated in above and NGOs could use. Suppose a company takes a new initiative, opens a new hub for the city or just has a good view of where it is, its capa. In that case, For example, Dorcas Assist Relief and Development conducted a brainstorming campaign in February 2016, which included all staff. On opening the new Dorcas Community Center at Aley, Mount Lebanon, the general meeting was determined. The social connection between current headquarter staff and the new Aley Centre's team acted as a full day for brainstorming the SWOT matricule for the new centre. Both members were present.

NGOs should focus their activities on the Maslow Hierarchy of Needs more strongly on the wellbeing of beneficiaries. NGOs cannot have alternatives to the very secondary needs of people while the essential human needs of their people are not fulfilled to be fair concerning the marginalized community. Therefore, specifications differ from level to level. Organizations should also give security to hungry people (if they cannot satisfy their psychological needs). Still, they cannot certainly help an individual who dies of hunger with social

and self-realization. In addition to its dishonest character, that would result in the organization's bad name expanding among recipients and thus within the entire Society.

The climate of the NGOs undoubtedly has a big effect on them. While one aspect of the PESTEL does not extend to NGOs, other elements play an important role. For political purposes, such as the Caritas Lebanon Migrants Centre, the Makhzoumi Base, the Aide Médicale Internationale (PU-AMI) Première Urgence and the Dorcas Aid Relief and Development, organizations are currently engaged in projects with refugees in reaction to the Syrian crisis. The centre is funded by further grants from the Ministry of Social Affairs (MOSA) and the municipality, so the host population in Aley district accepts the Dorcas community centre. Dorcas was able to pursue a winterization project owing to winter in the mountains and the technical development that contributed to the Center being in regular touch and management under the headquarters of Libya and the headquarters of Lebanon being in continuous contact and management under the Dutch office.

Furthermore, the following three campaign strategies may be taken into account by NGOs:

- Societal marketing is a philosophy that seeks to satisfy the desires of the category involved and the company's requirements, taking the long-term objectives of the community into account.
- Marketing cause, which requires the activities of a successful and nonprofit company focused on reciprocal advantages, as described above.
- Marketing alliance that relies on long-term collaboration with goals and stakeholders rather than short-term priorities.

Fast tip: unexpectedly, changing an organization's name might draw great interest, but it's a costly way of using it.

The distinction between advertisement and contact in a non-governmental agency is to be briefly discussed. When he speaks about marketing to an owner or boss of a Ngo, he/she usually believes that they should take over from their current communications department, so all of them name marketing together and incorrectly. They name this whole thing marketing. Communications represent more preparation than an implementation marketing approach. Marketing is a discipline that guides organizations through service creation, target groups, plans, and distribution channels. A marketing strategy involves strategic strategies' including public affairs, publicity, social networking, and promotions. In brief, commercial strategy and policies may be regarded, while interactions are executive facets. For, e.g., communications are communications when an NGO says, "we're distributing products." If MOSA is sending a note early on for disseminating specific statistics, MOSA is spreading the message locally, taking some images and publishing them on its mediums. Therefore, two feet are a successful strategy: promotion and coordination. Both principles are linked and better achieved and a balanced endeavour to reach a good balance between the two.

Positive Effects of Marketing Practices on Non-governmental Organizations

Why do we build a business plan, set up a marketing department and use marketing strategies in NGOs? Does it truly affect the NGO positively? Why will we use ads in an organization that does not offer goods as our primary goal? "Marketing is focused on corporate thinking and satisfaction of consumers. Marketing varies from that of the transaction because (in the words of the former marketing professor of the Harvard Business School, Theodore C. Levitt) "Advertising includes the tricks and tactics of people exchanging their cash for the

commodity. It is not linked to the principles the exchanging is for it. According to this argument, advertisement seems to be less like getting customers to pay for a particular product/service, rather than exciting the product/service and meeting the people's desires. We will research on both levels, 1) exposure, picture and local knowledge, 2) collaborators and donors, the positive impact of the marketing practices listed above in this research.

Visibility, Image and Local Awareness

Visibility is a core aspect of NGOs: the more local citizens are conscious of the NGO's existence, and the public understands the good work, the more attention they get and their greater influence. Therefore, apart from the financial dilemma, one of the crucial priorities of an NGO is to be welcomed in the Society in which it works. It can help accomplish this purpose by focusing on its exposure and photographs through such marketing activities.

By depending on the NGO's help from Maslow's hierarchy of needs, beneficiaries would feel thankful and thus prevent derogatory chatter between the local and affected citizens. Beneficiaries get the exact help mostly needed: as soon as the services they currently have access to weigh the pyramid, the agency, identifying and meeting their desires, will favourably affect them, which will undoubtedly improve their prestige. Additionally, the usage of other image-building methods, such as the NGO logo, motto, service (answers the telephone, explanations of what the company is doing), portraying the members, the appearance of the company, etc. Also, altering the organization's very identity will increase visibility. We note when, for example, LibanCell, Lebanon's leading mobile operator, abruptly turned the name into 'MTC-touch' and then into 'Touch.' The NGO is gradually cultivating a positive picture of itself through the implementation of business practices such as corporate marketing and employee treatment.

Result

Two main considerations in the NGOs community are collaborators and donors. Donors are a large source of funding for organizations and play a critical role in improving the standard of the service rendered by their sponsored programs within the humanitarian system. Although partners are a vital link in the transparency chain, they complement the organization's operations, if appropriate, and provide NGOs with their credibility. Treatment for a non-governmental organization draws sponsors and stakeholders and thereby guarantees the stability and viability of the organization. Evaluating the capabilities, vulnerabilities, possibilities and dangers facing the company lets it predict the possible hazards or problems and exploits all the resources and opportunities. When the corporation understands just what it is doing and what it will face, it will dramatically improve its operations and efficiency, contributing to good exposure, transparency and financing outcomes.

Applying partnership marketing and concentrating on long-term ties with all stakeholders and also recipients can, on the other side, ensure more funding and a stronger profile. In addition to the above, we cannot overlook marketing practices that increase visibility/imagery and the commitment of donors. Factoring the NGO, NGO centre/office architecture and coordinated activities and exhibits and promising marketing positively influence NGOs and volunteer work, representing an operation to make a budget and a good reputation. PESTEL (Political, Social, Technical, Environmental and Legal)

As with many other principles or techniques, there are drawbacks to implementing marketing methods in NGOs. The economic aspect, for example, is still to be taken into consideration when researching NGOs, considering

the significance of the PESTEL assessment. The financial dilemma is the first axiomatic constraint that goes beyond the mind of the researcher. Here we can not overlook that the advertisement idea is a phenomenon that must be materialized to profit from the outcomes. Therefore, marketing activities typically must be implemented generously, preferably without contemplating financial and budgetary concerns much. At the same time, most NGOs have this concern and are bounded by clear budget lines, generally identified by the donor.

Moreover, as many people will now realize, the marketing environment is commonly considered able to utilize media to affect the aim, often violating those boundaries. Marketing strategies nowadays, for example, rely on the potential of women to draw audiences, whether through seduction or anatomy or daily control, something NGOs, and in particular the women's liberation, fully deny. The NGOs' point of view on this topic focuses on gender equality at each stage. We find the following findings in a cross-tabulation of the interviewees' gender to whether NGOs can submit marketing:

Conclusion

Based on the study report provided herein, further information and understanding would have been obtained. However, the hypothesis is everywhere, whether in this analysis or anywhere, that may occur. What truly matters is the application of the principle. Suppose the NGO in question remained already when it began. In that case, the most critical thing to do is examine its environment and location inside the environment, and there are a variety of approaches. Most NGOs extend marketing practices outside the pages of this paper. Surprisingly we figure out what I.S. marketing is all about as we dig at the outcomes and material of this report. It is acknowledged, the knowledge that it is marketing, which is lacking. When NGOs are conscious of and embrace marketing, they will build marketing teams and recruit practitioners who will contribute to make these already in place activities more successful and lead to more beneficial outcomes for their survival.

References

1. Pandya, S.; Ambient Acoustic Event Assistive Framework for Identification, Detection, and Recognition of Unknown Acoustic Events of a Residence, *Advanced Engineering Informatics*. Elsevier.
2. <http://www.sciencedirect.com/science/article/pii/S147403462030207X>
3. Ghayvat, H.; Pandya, S.; Awais, M. ReCognizing SUSpect and PredictiNg ThE SpRead of Contagion Based on Mobile Phone LoCation DaTa (COUNTERACT): *A System of identifying COVID-19 infectious and hazardous sites, detecting disease outbreaks based on Internet of things, edge computing and artificial intelligence, Sustainable Cities and Society*
4. D.S. Hooda, Keerti Upadhyay and D.K. Sharma, "On Parametric Generalization of 'Useful' R-norm Information Measure" *British Journal of Mathematics & Computer Science*, Vol. 8(1), pp. 1-15, 2015.
5. Pandya S, Wakchaure MA, Shankar R, Annam JR. Analysis of NOMA-OFDM 5G wireless system using deep neural network. *The Journal of Defense Modeling and Simulation*. 2021. doi:10.1177/1548512921999108
6. D.S. Hooda, Keerti Upadhyay and D.K. Sharma, "A Generalized Measure of 'Useful R-norm Information", *International Journal of Engineering Mathematics and Computer Sciences*, Vol 3(5), 1-11, 2014.

7. Awais, M.; Ghayvat, H.; Krishnan Pandarathodiyil, A.; Nabillah Ghani, W.M.; Ramanathan, A.; Pandya, S.; Walter, N.; Saad, M.N.; Zain, R.B.; Faye, I. Healthcare Professional in the Loop (HPIL): Classification of Standard and Oral Cancer-Causing Anomalous Regions of Oral Cavity Using Textural Analysis Technique in Autofluorescence Imaging. *Sensors*, 2020, 20, 5780. <https://doi.org/10.3390/s20205780>
8. D.S. Hooda, Keerti Upadhyay and D.K. Sharma, "Bounds on Cost Measures in terms of 'Useful' R-norm Information Measures" *Direct Research Journal of Engineering and Information Technology*, Vol.2 (2), pp.11-17, 2014.
9. Patel, C.I.; Labana, D.; Pandya, S.; Modi, K.; Ghayvat, H.; Awais, M. Histogram of Oriented Gradient-Based Fusion of Features for Human Action Recognition in Action Video Sequences. *Sensors* 2020, 20, 7299.
10. D.S. Hooda and D.K. Sharma, "Lower and Upper Bounds Inequality of a Generalized 'Useful' Mean Code Length" *GAMS Journal of Mathematics and Mathematical Biosciences*, Vol. 4(1), pp.62-69, 2013.
11. Ghayvat, H.; Awais, M.; Pandya, S.; Ren, H.; Akbarzadeh, S.; Chandra Mukhopadhyay, S.; Chen, C.; Gope, P.; Chouhan, A.; Chen, W. Smart Aging System: Uncovering the Hidden Wellness Parameter for Well-Being Monitoring and Anomaly Detection. *Sensors* 2019, 19, 766. <https://doi.org/10.3390/s19040766>.
12. D.S. Hooda, Keerti Upadhyay and D.K. Sharma, 'Useful' R-Norm Information Measure and its Properties" *IOSR Journal of Electronics and Communication Engineering*, Vol. 8, pp. 52-57, 2013.
13. Barot, V., Kapadia, V., & Pandya, S., QoS Enabled IoT Based Low Cost Air Quality Monitoring System with Power Consumption Optimization, *Cybernetics and Information Technologies*, 2020, 20(2), 122-140.
14. D.S. Hooda, Sonali Saxena and D.K. Sharma, "A Generalized R-Norm Entropy and Coding Theorem" *International Journal of Mathematical Sciences and Engineering Applications*, Vol.5(2), 385-393, 2011.
15. Sur, A., Sah, R., Pandya, S., Milk storage system for remote areas using solar thermal energy and adsorption cooling, *Materials Today*, Volume 28, Part 3, 2020, Elsevier, Pages 1764-1770, ISSN 2214-7853, <https://doi.org/10.1016/j.matpr.2020.05.170>.
16. D.S. Hooda and D.K. Sharma, "Bounds on Two Generalized Cost Measures" *Journal of Combinatorics, Information & System Sciences*, Vol. 35(3-4), 513-530, 2010.
17. H. Ghayvat, Pandya, S., and A. Patel, "Deep Learning Model for Acoustics Signal Based Preventive Healthcare Monitoring and Activity of Daily Living," *2nd International Conference on Data, Engineering and Applications (IDEA)*, Bhopal, India, 2020, 1-7, doi: 10.1109/IDEA49133.2020.9170666

18. D.K. Sharma and D.S. Hooda, "Generalized Measures of 'Useful' Relative Information and Inequalities" *Journal of Engineering, Management & Pharmaceutical Sciences*, 1(1), 15-21, 2010.
19. Pandya, S., Shah, J., Joshi, N., Ghayvat, H., Mukhopadhyay, S.C. and Yap, M.H., 2016, November. A novel hybrid based recommendation system based on clustering and association mining. In *Sensing Technology (ICST), 2016 10th International Conference on*, 1-6.
20. D.S. Hooda and D.K. Sharma (2010) "Exponential Survival Entropies and Their Properties" *Advances in Mathematical Sciences and Applications*, Vol. 20, pp. 265-279, 2010.
21. Pandya, S., W. Patel, H. Ghayvat, "NXTGeUH: Ubiquitous Healthcare System for Vital Signs Monitoring & Falls Detection", *IEEE International Conference, Symbiosis International University*, December 2018.
22. D.S. Hooda and D.K. Sharma, "Generalized 'Useful' Information Generating Functions" *Journal of Appl. Math. and Informatics*, Vol. 27 (3-4), 591-601, 2009.
23. Ghayvat, H., Pandya, S., "Wellness Sensor Network for modeling Activity of Daily Livings-Proposal and Off-Line Preliminary Analysis" *IEEE International Conference, Galgotias University, New Delhi*, December 2018.
24. D.S. Hooda and D.K. Sharma, "Non-additive Generalized Measures of 'Useful' Inaccuracy" *Journal of Rajasthan Academy of Physical Sciences*, Vol. 7(3), 359-368, 2008.
25. Pandya, S., Ghayvat, H., Shah, J., Joshi, N., A Novel Hybrid based Recommendation System based on Clustering and Association Mining, *10th IEEE International Conference on Sensing Technology and Machine Intelligence (ICST-2016)*, Nanjing, China, November 2016.
26. D.S. Hooda and D.K. Sharma, Generalized R-Norm information Measures. *Journal of Appl. Math, Statistics & informatics (JAMSI)*, Vol. 4 No.2 , 153-168, 2008.
27. Dilip Kumar Sharma, "Some Generalized Information Measures: Their characterization and Applications", Lambert Academic Publishing, Germany, 2010. ISBN: 978-3838386041.
28. Pandya, S., W. Patel, An Adaptive Approach towards designing a Smart Health-care Real-Time Monitoring System based on IoT and Data Mining, *3rd IEEE International Conference on Sensing Technology and Machine Intelligence (ICST- 2016)*, Dubai, November 2016.
29. Wisetsri, W. (2017). Spornosexual: Self-Esteem theory present body characteristics by online media. *Research and Development Journal Suan Sunandha Rajabhat University*, 9(2): 24- 33.
30. Pandya, S., Ghayvat, H., Kotecha, K., Wandra, K., Advanced AODV Approach For Efficient Detection And Mitigation Of WORMHOLE Attack IN MANET, *10th IEEE International Conference on Sensing technology and Machine Intelligence (ICST-2016)*, Nanjing, China, November 2016.
31. Wisetsri, W.(2020).The Perception of Brand Personality in the Context of Hotel of Undergraduate Students. *Journal of Multidisciplinary in Humanities and Social Sciences*, 3(1): 1-12.

32. Pandya, S., H. Dandvate —New Approach for frequent item set generation based on Mirabit Hashing Algorithm, *IEEE International Conference on Inventive Computation technologies (ICICT)*, 26 August, India, 2016.
33. Wisetsri, W., & Maaz, U. D.(2020). The Influence of Leadership, Work Motivation and Organizational Culture on Job Performance. *International Journal of Psychosocial Rehabilitation*, 24(5): 7336-7350.
34. Pandya, S., Patel, W., Mistry, V., i-MsRTRM: Developing an IoT based iNTELLIGENT Medicare System for Real-time Remote Health Monitoring, *8th IEEE International Conference on Computational Intelligence and Communications Networks (CICN-2016)*, Tehari, India, 23-25th December 2016.
35. Shaheen, R., Ağa, M., Rjoub, H., & Abualrub, A. (2020). Investigation of the Pillars of Sustainability Risk Management as an Extension of Enterprise Risk Management on Palestinian Insurance Firms' Profitability. *Sustainability*, 12(11), 4709.
36. Wisetsri, W. (2017). *Man And Society (1st ed)*. Bangkok: King Mongkut's University of Technology North Bangkok.
37. Hesami, Siamand, Bezhan Rustamov, Husam Rjoub, and Wing-Keung Wong. "Implications of Oil Price Fluctuations for Tourism Receipts: The Case of Oil Exporting Countries." *Energies* 13, no. 17 (2020): 4349.
38. Pandya, S., Shah, J., Joshi, N., Ghayvat, H., Mukhopadhyay, S.C. and Yap, M.H., 2016, November. A novel hybrid based recommendation system based on clustering and association mining. *In Sensing Technology (ICST), 2016 10th International Conference on*, 1-6.
39. Ibnou-Laaroussi, S., Rjoub, H., & Wong, W.K. (2020). Sustainability of Green Tourism Among International Tourists and Its Influence on the Achievement of Green Environment: Evidence from North Cyprus. *Sustainability*, 12(14), 5698.
40. Vijai C.& Wisetsri, W.(2021). Rise of Artificial Intelligence in Healthcare Startups in India. *Advances In Management*. 14(1) March (2021): 48-52.
41. Alfadli, A., & Rjoub, H. (2020). The impacts of bank-specific, industry-specific and macroeconomic variables on commercial bank financial performance: evidence from the Gulf cooperation council countries. *Applied Economics Letters*, 27(15), 1284-1288.
42. Pandya, S., Vyas, D. and Bhatt, D., A Survey on Various Machine Learning Techniques, *International Conference on Emerging trends in Scientific Research (ICETSR-2015)*, ISBN no: 978-81-92346-0-5, 2015.
43. Alkhurshan, M., & Rjoub, H. (2020). The scope of an integrated analysis of trust switching barriers, customer satisfaction and loyalty. *Journal of Competitiveness*, 12(2), 5.
44. W. Wisetsri, "The Perception of Brand Personality in the Context of Hotel of Undergraduate Students", vol. 3, no. 1, pp. 1-12, Jun. 2020.

45. Erülgen, A., Rjoub, H., & Adaher, A. (2020). Bank Characteristics Effect on Capital Structure: Evidence from PMG and CS-ARDL. *Journal of Risk and Financial Management*, 13(12), 310.
46. Pandya, S., Wandra, K., Shah, J., A Hybrid Based Recommendation System to overcome the problem of sparsity, *International Conference on emerging trends in scientific research*, December 2015.
47. Listiningrum, H. D., Wisetsri, W., & Boussanlegue, T. (2020). Principal's Entrepreneurship Competence in Improving Teacher's Entrepreneurial Skill in High Schools. *Journal of Social Work and Science Education*, 1(1), 87-95.
48. Mehta, P., Pandya, S., A review on sentiment analysis methodologies, practices and applications, *International Journal of Scientific and Technology Research*, 2020, 9(2), pp. 601–609
49. A.K. Gupta, Y.K Chauhan, and T Maity, "A new gamma scaling maximum power point tracking method for solar photovoltaic panel Feeding energy storage system," *IETE Journal of Research*, vol. 67, no.1, pp.1-21, 2018.
50. Alwreikat, A.A., & Rjoub, H. (2020). Impact of mobile advertising wearout on consumer irritation, perceived intrusiveness, engagement and loyalty: A partial least squares structural equation modelling analysis. *South African Journal of Business Management*, 51(1), 11.
51. A.K. Gupta, Y.K Chauhan, and T Maity and R Nanda, "Study of Solar P.V. Panel Under Partial Vacuum Conditions: A Step Towards Performance Improvement," *IETE Journal of Research*, pp.1-8, 2020.
52. Kumar, S., Kumar, P., Wisetsri, W., Raza, M. & Norabuena-Figueroa, R.P. (2021). Social entrepreneurship education: Insights from the Indian higher educational courses. *Academy of Strategic Management Journal*, 20(S1),1-14.
53. Esmaeil, J., Rjoub, H., & Wong, W. K. (2020). Do Oil Price Shocks and Other Factors Create Bigger Impacts on Islamic Banks than Conventional Banks? *Energies*, 13(12), 3106.
54. A.K. Gupta, "Sun Irradiance Trappers for Solar P.V. Module to Operate on Maximum Power: An Experimental Study," *Turkish Journal of Computer and Mathematics Education*, Vol. 12, no.5, pp.1112-1121, 2021.
55. Alhodiry, A., Rjoub, H., & Samour, A. (2021). Impact of oil prices, the U.S. interest rates on Turkey's real estate market. New evidence from combined co-integration and bootstrap ARDL tests. *Plos one*, 16(1), e0242672.
56. Yıldız, B.F., Hesami, S., Rjoub, H., & Wong, W.K. (2021). Interpretation of Oil Price Shocks on Macroeconomic Aggregates of South Africa: Evidence From SVAR. *Journal of Contemporary Issues in Business and Government*, 27(1), 279-287.
57. U. Zulfiqar, S. Mohy-Ul-Din, A. Abu-Rumman, A.E.M. Al-Shraah, and I. Ahmed, "Insurance-Growth Nexus: Aggregation and Disaggregation," *The Journal of Asian Finance, Economics and Business*, vol. 7, no. 12, pp. 665–675, Dec. 2020. <https://doi.org/10.13106/jafeb.2020.vol7.no12.665>

58. A.K. Gupta, T. Maity, H. Anandakumar, and Y.K Chauhan, "An electromagnetic strategy to improve the performance of P.V. panel under partial shading," *Computers & Electrical Engineering*, Vol. 90, pp.106896. 2021.
59. Al-Shqairat, Z.I., Al Shraah, A.E.M., Abu-Rumman, A., "The role of critical success factors of knowledge stations in the development of local communities in Jordan: A managerial perspective," *Journal of Management Information and Decision Sciences*, vol. 23, no.5, pp. 510-526, Dec. 2020. DOI: 1532-5806-23-5-218
60. A.K. Gupta, Y.K. Chauhan, and T Maity, "Experimental investigations and comparison of various MPPT techniques for photovoltaic system," *Sādhanā*, 43, 8, 1-15, 2018.
61. N.A. Jalil, H.J. Hwang, and N.M. Dawi, "Machines learning trends, perspectives and prospects in education sector," in *ACM International Conference Proceeding Series*, 2019.
62. N.A. Jalil, P. Prapinit, M. Melan, and A. Bin Mustaffa, "Adoption of business intelligence - Technological, individual and supply chain efficiency," in *Proceedings - 2019 International Conference on Machine Learning, Big Data and Business Intelligence, MLBDBI 2019*, 2019.
63. N.A. Jalil and H.J. Hwang, "Technological-centric business intelligence: Critical success factors," *Int. J. Innov. Creat. Chang.*, 2019.
64. D.K. Sharma, B. Singh, R. Regin, R. Steffi and M. K. Chakravarthi, "Efficient Classification for Neural Machines Interpretations based on Mathematical models," *2021 7th International Conference on Advanced Computing and Communication Systems (ICACCS)*, 2021, 2015-2020, doi: 10.1109/ICACCS51430.2021.9441718.
65. Ujjainiya, L., & Chakravarthi, M.K. (2015). Raspberry-Pi based cost effective vehicle collision avoidance system using image processing. *ARPJ. Eng. Appl. Sci*, 10(7).
66. Chakravarthi, M.K., Tiwari, R.K., & Handa, S. (2015). Accelerometer-based static gesture recognition and mobile monitoring system using neural networks. *Procedia Computer Science*, 70, 683-687.
67. Chakravarthi, M.K., Pannem, V.K., & Venkatesan, N. (2014). Real-time implementation of gain scheduled controller design for the higher-order nonlinear system using LabVIEW. *International Journal of Engineering and Technology*, 6(5), 2031-2038.
68. Chakravarthi, M.K., & Venkatesan, N. (2015). Experimental validation of a multi model PI controller for a non linear hybrid system in LabVIEW. *Telkomnika*, 13(2), 547.
69. Chakravarthi, M.K., Gupta, K., Malik, J., & Venkatesan, N. (2015). Linearized P.I. controller for real-time delay dominant second-order nonlinear systems. In *2015 International Conference on Control, Instrumentation, Communication and Computational Technologies (ICCICCT)*, 236-240.
70. Ganesh, D., Naveed, S.M.S., & Chakravarthi, M.K. (2016). Design and Implementation of Robust Controllers for an Intelligent Incubation Pisciculture System. *Indonesian Journal of Electrical Engineering and Computer Science*, 1(1), 101-108.

71. Pannem, V.K., KalyanChakravarthi, M., & Venkatesan, N. (2015). Validation of integer and fractional order P.I. controllers for a real-time non-linear process. *In 2015 Global Conference on Communication Technologies (GCCT)*, 84-89.
72. Mohammed, S., Naveed, S., Chakravarthi, M.K., & Venkatesan, N. (2015). Comparative study of controller performance for different real-time hybrid models. *In 2015 Global Conference on Communication Technologies (GCCT)*, 39-44.
73. Chakravarthi, M.K., Vinay, P.K., & Venkatesan, N. (2015). Design and simulation of the internal model controller for a real time nonlinear process. *Indian Journal of Science and Technology*, 8(19), 1-6.
74. N. A. Jalil and K. Kian Yeik, "Systems, design and technologies anxieties towards the use of self-service checkout," in *ACM International Conference Proceeding Series*, 2019.
75. B. Singh, N.A. Jalil, D.K. Sharma, S.R, K. Kumar and D. Jebakumar Immanuel, "Computational systems overview and Random Process with Theoretical analysis," *2021 7th International Conference on Advanced Computing and Communication Systems (ICACCS)*, 2021, 1999-2005.
76. Rao, A.N., Vijayapriya, P., Kowsalya, M., & Rajest, S.S. (2020). Computer Tools for Energy Systems. *In International Conference on Communication, Computing and Electronics Systems*, 475-484.
77. Gupta J., Singla M.K., Nijhawan P., Ganguli S., Rajest S.S. (2020) An IoT-Based Controller Realization for P.V. System Monitoring and Control. In: Haldorai A., Ramu A., Khan S. (eds) *Business Intelligence for Enterprise Internet of Things. EAI/Springer Innovations in Communication and Computing*. Springer, Cham
78. Sharma M., Singla M.K., Nijhawan P., Ganguli S., Rajest S.S. (2020) An Application of IoT to Develop Concept of Smart Remote Monitoring System. In: Haldorai A., Ramu A., Khan S. (eds) *Business Intelligence for Enterprise Internet of Things. EAI/Springer Innovations in Communication and Computing*. Springer, Cham
79. Ganguli S., Kaur G., Sarkar P., Rajest S.S. (2020) An Algorithmic Approach to System Identification in the Delta Domain Using FAdFPA Algorithm. In: Haldorai A., Ramu A., Khan S. (eds) *Business Intelligence for Enterprise Internet of Things. EAI/Springer Innovations in Communication and Computing*. Springer, Cham
80. Singla M.K., Gupta J., Nijhawan P., Ganguli S., Rajest S.S. (2020) Development of an Efficient, Cheap, and Flexible IoT-Based Wind Turbine Emulator. In: Haldorai A., Ramu A., Khan S. (eds) *Business Intelligence for Enterprise Internet of Things. EAI/Springer Innovations in Communication and Computing*. Springer, Cham
81. Rajasekaran R., Rasool F., Srivastava S., Masih J., Rajest S.S. (2020) Heat Maps for Human Group Activity in Academic Blocks. In: Haldorai A., Ramu A., Khan S. (eds) *Business Intelligence for Enterprise Internet of Things. EAI/Springer Innovations in Communication and Computing*. Springer, Cham

82. S. Suman Rajest, D.K. Sharma, R. Regin and Bhopendra Singh, "Extracting Related Images from E-commerce Utilizing Supervised Learning", *Innovations in Information and Communication Technology Series*, pp. 033-045, 28 February 2021.
83. Souvik Ganguli, Abhimanyu Kumar, Gagandeep Kaur, Prasanta Sarkar and S. Suman Rajest, "A global optimization technique for modeling and control of permanent magnet synchronous motor drive", *Innovations in Information and Communication Technology Series*, pp. 074-081, 28 February 2021.
84. Jappreet Kaur, Tejpal Singh Kochhar, Souvik Ganguli and S. Suman Rajest, "Evolution of Management System Certification: An overview", *Innovations in Information and Communication Technology Series*, pp. 082-092, 28 February 2021.
85. R. Regin, S. Suman Rajest and Bhopendra Singh, "Spatial Data Mining Methods Databases and Statistics Point of Views", *Innovations in Information and Communication Technology Series*, pp. 103-109, 28 February 2021.
86. K. Sharma, B. Singh, E. Herman, R. Regine, S.S. Rajest and V.P. Mishra, "Maximum Information Measure Policies in Reinforcement Learning with Deep Energy-Based Model," *2021 International Conference on Computational Intelligence and Knowledge Economy (ICCIKE)*, 2021, pp. 19-24, doi: 10.1109/ICCIKE51210.2021.9410756.
87. F. Arslan, B. Singh, D.K. Sharma, R. Regin, R. Steffi and S. Suman Rajest, "Optimization Technique Approach to Resolve Food Sustainability Problems," *2021 International Conference on Computational Intelligence and Knowledge Economy (ICCIKE)*, 2021, pp. 25-30, doi: 10.1109/ICCIKE51210.2021.9410735.
88. G.A. Ogunmola, B. Singh, D.K. Sharma, R. Regin, S.S. Rajest and N. Singh, "Involvement of Distance Measure in Assessing and Resolving Efficiency Environmental Obstacles," *2021 International Conference on Computational Intelligence and Knowledge Economy (ICCIKE)*, 2021, pp. 13-18, doi: 10.1109/ICCIKE51210.2021.9410765.
89. D.K. Sharma, B. Singh, M. Raja, R. Regin and S.S. Rajest, "An Efficient Python Approach for Simulation of Poisson Distribution," *2021 7th International Conference on Advanced Computing and Communication Systems (ICACCS)*, 2021, pp. 2011-2014, doi: 10.1109/ICACCS51430.2021.9441895.
90. K. Kankaew, S. Phalaunnapat, T. Ekachat and B. Sitikarn, "Service Attributes Attracting the Choice of Passenger: a Comparative Study of Low-Cost Carriers in Thailand," *Linguistica Antverpiensia*, vol. 2021, no. 1, 2021.
91. Metwaly, A.F., Rashad, M.Z., Omara, F.A., & Megahed, A.A. (2014). Architecture of multicast centralized key management scheme using quantum key distribution and classical symmetric encryption. *The European Physical Journal Special Topics*, 223(8), 1711-1728.
92. Farouk, A., Zakaria, M., Megahed, A., & Omara, F.A. (2015). A generalized architecture of quantum secure direct communication for N disjointed users with authentication. *Scientific reports*, 5(1), 1-17.

93. Naseri, M., Raji, M.A., Hantehzadeh, M.R., Farouk, A., Boochani, A., & Solaymani, S. (2015). A scheme for secure quantum communication network with authentication using GHZ-like states and cluster states controlled teleportation. *Quantum Information Processing*, 14(11), 4279-4295.
94. Wang, M.M., Wang, W., Chen, J.G., & Farouk, A. (2015). Secret sharing of a known arbitrary quantum state with noisy environment. *Quantum Information Processing*, 14(11), 4211-4224
95. Zhou, N.R., Liang, X.R., Zhou, Z.H., & Farouk, A. (2016). Relay selection scheme for amplify-and-forward cooperative communication system with artificial noise. *Security and Communication Networks*, 9(11), 1398-1404.
96. K. Kankaew, "The Competence that Satisfy Us: Agribusiness and Airlines Business Management Cases," *E3S Web of Conferences*, vol. 175, no. 13032, 2020.
97. K. Kankaew, "The Evolution of Agribusiness Management Values from Labor to Brain Mechanism that Shape Leadership Style," *E3S Web of Conferences*, vol. 175, no. 13033, 2020.
98. Zhou, N.R., Li, J.F., Yu, Z.B., Gong, L.H., & Farouk, A. (2017). New quantum dialogue protocol based on continuous-variable two-mode squeezed vacuum states. *Quantum Information Processing*, 16(1), 1-16.
99. Abdolmaleky, M., Naseri, M., Batle, J., Farouk, A., & Gong, L.H. (2017). Red-Green-Blue multi-channel quantum representation of digital images. *Optik*, 128, 121-132.
100. Naseri, M., Heidari, S., Baghfalaki, M., Gheibi, R., Batle, J., Farouk, A., & Habibi, A. (2017). A new secure quantum watermarking scheme. *Optik*, 139, 77-86
101. Heidari, S., Naseri, M., Gheibi, R., Baghfalaki, M., Pourarian, M. R., & Farouk, A. (2017). A new quantum watermarking based on quantum wavelet transforms. *Communications in theoretical Physics*, 67(6), 732.
102. Nagata, K., Nakamura, T., & Farouk, A. (2017). Quantum cryptography based on the Deutsch-Jozsa algorithm. *International Journal of Theoretical Physics*, 56(9), 2887-2897
103. K. Kankaew, "Mindset Development by Applying U Theory and Religious Concept in Educational System: Thailand as Case," *E3S Web of Conferences*, vol. 164, no. 12002, 2020.
104. K. Kankaew, "The servicescape of air transport terminal that affecting passenger's satisfaction," *IOP Conference Series: Mater. Sci. Eng*, Vol. 918, 012001, 2020.
105. K. Kankaew and P. Trerattanaset, "Contingency theory: the analysis in air transportation on anterior, amid, and afterwards the pandemic in Thailand," *IOP Conference Series: Mater. Sci. Eng*, Vol. 918, no. 012047, 2020.
106. Nagata, K., Nakamura, T., Geurdes, H., Batle, J., Abdalla, S., & Farouk, A. (2018). Creating Very True Quantum Algorithms for Quantum Energy Based Computing. *International Journal of Theoretical Physics*, 57(4), 973-980.

107. Abulkasim, H., Farouk, A., Hamad, S., Mashatan, A., & Ghose, S. (2019). Secure dynamic multiparty quantum private comparison. *Scientific reports*, 9(1), 1-16.
108. Abulkasim, H., Alsquaih, H.N., Hamdan, W.F., Hamad, S., Farouk, A., Mashatan, A., & Ghose, S. (2019). Improved dynamic multi-party quantum private comparison for next-generation mobile network. *IEEE Access*, 7, 17917-17926
109. Farouk, A., Alahmadi, A., Ghose, S., & Mashatan, A. (2020). Blockchain platform for industrial healthcare: Vision and future opportunities. *Computer Communications*, 154, 223-235.
110. Zhu, F., Zhang, C., Zheng, Z., & Farouk, A. (2021). Practical Network Coding Technologies and Softwarization in Wireless Networks. *IEEE Internet of Things Journal*, 8(7), 5211-5218.