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# Communication Management

*Edited by František Pollák,  
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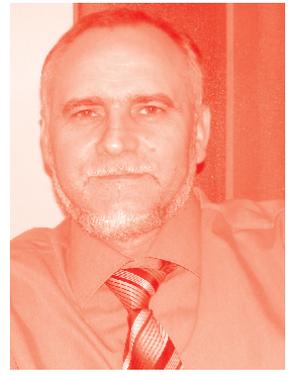
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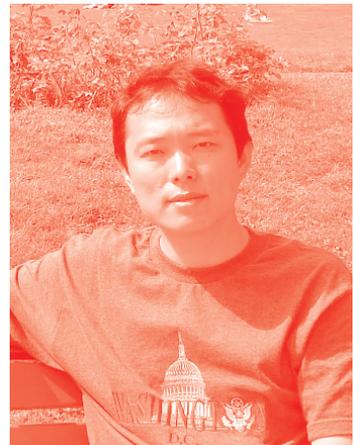
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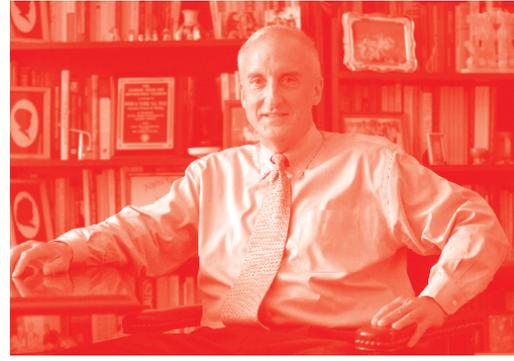
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Communication Management

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Edited by František Pollák, Jakub Soviar and Roman Vavrek

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Aykut Ekiyor, Fatih Altan, Bertha Molina-Quintana, Antonio Vaamonde-Liste, María Berta Quintana-León, Ngozi Okpara, Anca Constantinescu-Dobra, Mădălina-Alexanda Coțiu, Chandra K. Massner, Sataporn Roengtam, Arshia Kaul, Ritika Guaba, František Pollák, Jakub Soviar, Roman Vavrek, Alexander Rozanov, Anna Chebotareva, Vladimir Chebotarev, Abdel Raheem Naser, Elena Danilina

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# Meet the editors



Dr. Pollák deals mainly with the issue of corporate reputation in the context of its sustainable development. His most significant academic achievements include the Best Paper Award - GBC 2015, Excellence Award - Megatrends and Media 2016, Best Paper Award - AAR17 New York Conference 2017, and a Quality Recognition Award for placing in the top 25 most downloaded articles from Research Leap in 2018. Dr. Pollák holds memberships in various organizations, including the World Association of Young Leaders.



Dr. Soviar's pedagogical and research activities are focused on cooperation management, marketing management, marketing communication, sociology, social psychology, and market research. He has been a member of several Slovak, European Union, and international research projects (e.g., Central Europe Research to Innovation Models, Central European Research and Development Area, H2020). He is also a member of the Slovak Marketing Association. Dr. Soviar is the author and co-author of more than seventy publications.



The academic activities of Roman Vavrek can be divided into several categories. His publications have been devoted to analyzing the use of multi-criteria methods in the public and private sectors involving a wide range of mathematical-statistical methods. He has been responsible for the implementation of international/national projects involving institutions from e.g. Poland, Ukraine, Czech Republic, or Slovakia. He has been conducting seminars and lectures since 2011 in the national (Slovak) and English languages. He has also completed several internships, research studies, and Erasmus mobility's at home as well as abroad, e.g. Greece, Turkey, Romania, Spain, the United Kingdom.



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# Preface

For decades we have been confronted with estimates and predictions of the possible impact of innovations on the global market. With concepts where traditional retail turns into a form of showroom, respectively even further in the predictions, that retail, as we know it today, will disappear completely. The customer, therefore, gets the space to create a product according to their ideas and needs. This method gives the customer a sense of product and even brand development. Businesses, therefore, obtain data for the needs of targeted communication with their target groups. Based on customer behavior, businesses then analyze customers' habits, ways of preferred presentation, and taste.

Entrepreneurship through customer care is part of modern business strategy textbooks, where online is no longer only recommended, but rather required. At the end of 2019, it was inconceivable that brick- and-mortar stores could be temporarily closed by the decision of governments. The unprecedented situation of the first half of 2020 cleared the market in an unthinkable way. As a result, small- and medium-sized companies have been faced with the difficult task of finding new ways of communicating with customers as well as new ways of selling goods and providing services. Online business today does not fill the position of an ancillary service, but under the pressure of circumstances it has become a necessary part of the tools for the basic survival of companies across the global economies. Traditional companies built on history-proven foundations and forms of sales no longer have a choice.

The situation surrounding the COVID-19 pandemic has also alerted traditionalists and staunch opponents of social networks. However, it should be borne in mind that this situation is not the result of market formation or the global market economy, but rather is an externality, the black swan that only a few risk managers anticipated. From a financial point of view, the term "reserve fund" has taken first place in the value ranking of corporate strategy. Once a term envisaged only by multinational companies, it has become an essential part of the management of small- and medium-sized companies. Creating a financial reserve to cover short-term outages is also not the answer. The pandemic has created a new chapter in global risk management that is moving into the microeconomy in response to customer retention, considering real-time government actions. The level of preparedness of companies for unexpected circumstances will be verified only by the fact itself. If we look at the repeatability of similar externalities, we find that we have a decimal sinusoid here. This fact creates the possibility of a model of preparation for a given situation, although it should be noted that each pandemic brings new inputs to economic analysis.

At present, consumers are placing greater emphasis on online communication at the level of their comfort whereby interactions result only from everyday needs. However, in a time of the pandemic, companies are forced to take measures that do not come as market impulses, but rather as state regulations. All these acts in business management function as a catalyst for innovation.

Within this context, even the concept of corporate assets has become multidimensional.

*Communication Management* is an edited volume of chapters written by scholars researching various areas of marketing and management sciences. It presents several issues of marketing management within the limits of marketing communication. Starting from the issue of communication channels and basic sensory apparatus for processing information and stimuli, the book continues with a description of the issue of social media in the time of accelerated digitization. The last chapter introduces the reader to the issue of marketing communication in a sharply non-standard environment. The topic itself creates the opportunity to seek qualitative knowledge for future in-depth research into the impact of the COVID-19 pandemic on both national and transnational economies.

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Section 1

Selected Perspectives of  
Communication Management

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# Communication Channels

*Anca Constantinescu-Dobra and Mădălina-Alexanda Coțiu*

## Abstract

The scope of the chapter is to discuss changes in usage of digital communication channels before and during the Covid-19 pandemic. Consumers in both industrial and fast-moving consumer goods markets are considered. The chapter comprises a suggestive overview, followed by conclusions on trends expected in digital communication channels usage due to the shifts in consumer behavior caused by the pandemic. Digital communication channels analyzed include websites, sales pages, social media platforms, as well as e-mail marketing, and blogs. Consumers in Generations X, Y and Z, and their preferences for the different communication channels are analyzed. Results indicate an increased interest of all generations for social media, especially following the Covid-19 pandemic. E-mail marketing also remains an important communication channel across all three generations, while the interest in websites and blogs varies. All consumers favor high quality, attractive content displayed irrespective of the communication channel used. Trends identified suggest the interest for online shopping and online engagement with brands will remain sustained after the lift of the various restrictions imposed by the pandemic. It is therefore important that brands ensure a strong online presence and engage with their audiences based on their consumers preferred communication channels.

**Keywords:** communication channels, corona virus, generations X, Y and Z

## 1. Introduction

The intensification of international competition among companies and the brands' interest for engaging in successful market communication determines an increased interest for digital communication channels, compared to the other elements of the communication strategy. Apart from delivering brand and company information, communication channels also play an important role in leveraging consumers' attitudes by creating a favorable image for the company and its products. This can be accomplished nowadays by disseminating information via reliable, independent sources such as user-generated content that is shared on blogs or forum posts, comments on social media platforms, YouTube etc. Such content, shared by ordinary users or influencers, is meant to involve consumers in company decisions, as well as creating interesting and engaging activities for them (i.e. fun events that create positive feelings towards the brand etc.).

Communication channels have a strong impact on the entire value chain. This role was made even more important by the Covid-19 pandemic which has led to communication channels turning into powerful differentiators in the fierce competitive landscape. Digital communication channels became effective tools for companies to position themselves on the market, especially because they allow brands to engage and interact with their consumers directly. Furthermore, online

communication channels are flexible and allow companies to present their consumers with customized information across the different target segments. Finally, costs associated with online communication channels are independent of the amount of information, distance, or dispersion aimed for.

Communication budgets, for both traditional and digital means, have registered a 5% cut across the world after the onset of the Covid-19 pandemic [1]. The ratio between traditional and online communication spending has started to favor digital communication beginning 2015, with a difference that has now reached 15%. Some other trends regarding digital communication channels that have been observed globally in the past couple of decades include:

- Commercial advertising has lost in importance because it does not have the cyber qualities of sensitivity, adaptability, flexibility, and ability to capture the market's reaction. Advertisements are considered a monolog devoid of natural feedback, which would bind the company's customers; [2].
- The newest form of communication through advertising has been based on the emotional dimension of the relationship between the company and the client, on dialog, on the active participation of the public. [2, 3] share this view, emphasizing that the role of advertising in the 21st century is to make the public feel involved, to look at the issues that advertising is raising;
- Digital communication channels have witnessed a continuous development since 2015, revealing a budget increase of 2%/year [1];
- The use of noncommercial communication has intensified due to the flexibility of the various channels and their effectiveness. Therefore, the share in communication budgets has increased. Lately, various companies chose to associate brands with events initiated by other organizations or social campaigns (social assistance, medical research etc.). In the context of such associations, companies emphasize how they serve the common good or guarantee the quality and fairness of prices, that they have ethical policies and respect the human dignity of employees, that they build direct and constant relationships with different categories of public etc.
- Companies increased their efforts to support and enhance internal communication. This was mostly because internal communication has been identified as a driver of employee motivation. At the same time, because of the expansion of user-generated content and reviews, companies also allot increased budget to managing crisis situations determined by negative comments.

The onset of the Covid-19 pandemic has accelerated these trends and determined new shifts in terms of digital communication channels usage. We therefore propose an overview chapter aimed at providing a synthesis of currently available research regarding online communication channels and their use for reaching marketing objectives following the Covid-19 pandemic. The content proposed is based on secondary data analysis retrieved from scientific articles and various industry reports and analyses. A search in online academic databases (i.e. Springer, Taylor and Francis, Sage) and Google Scholar was conducted between March and April 2021. The keywords used included: online marketing channel, covid-19, generational cohorts, X, Y, Z generation, shifts/trends in online marketing channels usage during the pandemic, social media/website/blog/forum use during the pandemic. Only English language articles published between 2000 and 2021 were

selected. These were then complemented with relevant statistics and industry reports analyzing the use of online communication channels and any shifts and new trends determined by the Covid-19 pandemic.

The focus of this chapter is to analyze and discuss consumers use and preferences for online communication channels before and during the Covid-19 pandemic, as well as identify new trends emerging in this area. The chapter provides valuable insight for marketing professionals, researchers and company executives for SMEs interested in how to best allocate financial resources to maximize online market presence and customer engagement with their brand.

The specific objectives of the chapter are to:

- a. discuss the specific preferences of Generations X, Y and Z in using online communication channels.
- b. analyze shifts in consumer behavior and online communication channels usage determined by the Covid-19 pandemic.
- c. provide a discussion of emerging trends regarding online communication channels usage across different generational cohorts to support marketing professionals and other executives in maximizing market presence and customer engagement with their brand.

## 2. Preferred communication channels across target segments

Digital communication channels refer to means of engaging in the online environment. They include [2, 4]:

- Company websites including a specific landing page (or a microsite),
- Online advertising which includes search advertising, graphic online advertising, as well as interstitial advertising
- User-generated content,
- Social media
- Sponsorship and affiliate marketing, online communities,
- E-mail marketing,
- Mobile marketing,
- Web conference.

We will briefly present the specifics of each channel and then discuss them in connection with the different target segments we chose to analyze.

1. *The website of a company*, as a communication channel, must be adapted to the potential customers' need for information. Most authors agree that every company that intends to build an online presence should start with a website. These are mainly dedicated to public relations, and informative advertising for products, and companies, as well as for developing a personalized relationship with consumers.

The landing page or *the microsite* is an individual website that is connected to the main site. It is useful for call to actions strategies or for companies that need additional efforts to sell products with low demand.

2. *Online advertising* refers to advertisements placed in online environments (e.g. websites, search pages etc.). It includes search advertising, graphic and interstitial advertising.

*Search advertising* refers to paid advertising that appears in search engines (e.g. Google, MSN, Yahoo and others) to guide the customer to the product or service they need. It also encompasses relevant links to company content.

*Graphic advertising* can be an image or a graphic with different shapes (usually a small rectangular box) that incorporate text and/or images. Companies pay for these ads to be placed on websites with good traffic rates, to boost audience. Therefore, if there is a well-known website of an idea, a place, a person or a company, brands are likely to choose it to place their graphic advertising there aiming to increase brand visibility among the target group.

*Interstitial ads* appear between website pages or when the visitor switches to another website. These advertisements can be videos or animations.

3. *User-generated content* refers to specific videos uploaded on platform such as YouTube, MySpace Video, and Google Video. Consumers and advertisers can upload ads and videos that millions of people can then share.

4. *Social media - Studies* reveal that the social media channels have gained popularity during and after the Covid-19 crisis. Mason [5], Samet [6] sustains that social media have become more used by US adults, while Kumar [7] revealed a transformation of this channel towards an electronic marketplace, that also groups (beside integrated marketing promotional messages) consumers networks, opinion leaders and subject matter experts. Emmons [8] sustains that recent years have seen a shift in the approach of social media channels from “us versus them” to a “we” relation.

5. *Online communities - Companies can promote themselves by sponsoring special content on websites with information from certain fields, such as financial news, automotive etc. Also, they can make alliances and affiliate programs or sustain online communities [4]. Many companies sponsor online communities (like blogs or forums) in which their members post beliefs, ideas, feedback, and discussions related to the company's products. Discussions, opinions and engagement in such communities provide valuable information to companies as they occur in neutral environments, where consumers feel safe to express their true opinions on the company, its products etc.*

6. *E-mail marketing refers to personalized marketing communication delivered via e-mail. It is used for a constant communication with an engaged client and can be very efficient, especially for calls to action.*

7. *Mobile marketing refers online marketing deployed via mobile devices. It gives marketers the opportunity to customize messages based on demographics and reveals a continuous growth.*

8. *Web conference -This category of communication channels includes the actions of directly contacting potential customers by the sales agents of a company, to present their offer, to persuade and to close a transaction.*

Studies show digital communication channels are used differently by consumers, based on their demographic data. We will discuss these particularities considering the different generational cohorts which have been described in the literature.

Social generations refer to “communities of people that are born in the same period and share the same cultural experiences” [9]. Six generations have been identified in the literature between 1920 and up to now. The oldest generation is the so-called Silent generation or Traditionalists – they were born between 1920 and 1945. They have lived through the second world war and have a high need for security. They are now all retired, live rather simple lives and have high respect for authority [10]. The next generation is the Baby boomers. Born after the second world war, between 1945 and 1965, they are highly competitive, accept working long hours and have positive traits such as consensus building and effecting change [9, 10]. This cohort is followed by Generation X born between 1966 and 1979. This generation is characterized by strong independence and self-reliance. Both of their parents were generally working so they were trusted to take care of themselves from an early age [11]. They grew up in the age of TV and increasing rates of divorce. They have a high sense of accomplishment and a strong need for social recognition [12]. The next cohort is Generation Y. They are also known as Millennials and were born between 1980 and 1995. They are proficient in multitasking, are self-confident and ask for flexible working hours. They treasure work-life balance and tend to switch jobs more often than previous generations [9]. Millennials are followed by Z Generation. They were then born between 1996 and 2016. Born in the age of internet, they have had access to electronic devices since their early childhood. The last generation known is the Alpha generation. Starting with 2016, they are the first generation to have been born entirely in the 21st century and their traits are yet to be discovered [13].

For our analysis, we will focus on Generations X, Y and Z. We chose these three generations because of their size and purchasing power. At the same time, they are the three generations most actively engaging with digital communication channels. In the following sections, we will discuss the different preferences the three generations have had for digital communication channels, as well as any shifts in preferences that may have occurred because of the disruptions caused by the COVID-19 pandemic. The chapter will conclude with an analysis of the implications such changes may have for companies targeting these consumers.

## **2.1 Generation X**

Born between 1966 and 1979, Generation X represent 32% of the workforce [14]. Having been active on the labour market for a while, they hold higher positions, such as senior-level managers, and find themselves at the peak of their buying power [14, 15]. They are generally busy and focused on juggling children and careers [16]. Family and friends are particularly important for this generation, and they appreciate work-life balance [17]. At the same time, most of them are focused on saving for retirement and old age. Because of this, research indicates representatives of Generation X react positively to bargains, coupons, and sales, as well as free trials [14, 18, 19].

Approximately one quarter of all online shoppers (23%) are from Generation X [14]. Shoppers in this generation have a strong interest in researching sellers, products, and services. They research businesses online, and tend to read more reviews, and visit more opinion sites than any other generation [15, 19]. It is therefore important that companies have up-to-date and easy to navigate through websites, where consumers can find answers to their questions. Studies also recommend websites to contain robust search functionalities to support consumers in

their research, as well as well-managed live chat functions that enable the company to answer any inquiries quickly [15]. Generation X consumers favor websites over blogs and microblogs. Most consumers in this generation indicated they do not use blogs and microblogs at all (42%), or only use them occasionally (43%) [17].

In terms of digital communication channel usage, studies show Generation X consumers “have fully embraced digital media” [19], being almost as present in this environment as Millennials. At the same time, Generation X users remain active e-mail users. In fact, e-mail and Facebook represent their preferred communication channels in the online environment [14, 18]. They check their e-mail frequently, both at home and at work [14, 16, 18]. In terms of social media, approximately 80% of Generation X representatives have a Facebook account which they mostly use for accessing news and for remaining in contact with family and friends [14, 19]. It is also worth noting that these consumers spend more time weekly on all devices than younger generations. Statistics show they tend to spend an average of 21 hours/week using their smartphones, 9 hours/week on their laptops and 4 hours/week on their tablets [15]. Generation X consumers also remain users of the traditional media (radio and TV) much more than any of the two other generations under analysis [19].

These traits and preferences of Generation X have a series of implications for the way brands connect with them. First, because Generation X users have been born in the age of TV, it is important to note they are used to video content. Studies recommend brands to engage with these consumers using highly visual content and videos. Furthermore, research suggests Generation X users are prone to sharing interesting videos across social media, thus increasing a company’s reach [15]. Second, considering their propensity to conduct extensive research before making a purchase, it is important companies invest in well-functioning, attractive websites that include search functions. Furthermore, given that X Generation users spend considerable amounts of time across multiple devices, companies should optimize their websites for tablet and mobile use. Third, considering users communication preferences in the online environment, companies should direct their digital advertising efforts towards e-mail and Facebook. Search engine ads are also a channel that consumers in this generation respond positively to [15], given their inclination towards research conducted via the Internet.

## **2.2 Generation Y**

Born between 1980 and 1995, Millennials have witnessed the rapid advance of information technology and globalization, reaching maturity in the “digital age” [17, 20]. They generally grew up in families with two working parents which ensured good conditions for their personal development. They value independence, creativity, innovation, and development [17]. They are well-educated and tech-savvy, as well as quick to adopt new technologies [19, 21]. They appreciate speedy devices and expect to find information quickly and easily [14]. They are also described as the “most visually sophisticated of any generation” [21].

Generation Y consumers are brand loyal, yet socially conscious and seeking to make ethical buying choices [16]. They prefer buying from companies that help people, communities, and the environment [22].

Millennials are the most targeted demographic in the marketing industry [22]. Yet, they are generally distrustful of commercial advertising and influenced by their peers [19]. Like Generation X consumers, Millennials conduct considerable research and comparison before making a purchase [19]. Generation Y consumers are three times bigger than Generation X [22] and hold 200 billion dollars in buying power [16]. They are the least frequent in-store shoppers, being active users

of e-commerce [16]. They spend approximately 2.000 dollars/year for online purchases [14].

In terms of digital communication channel usage, Millennials are present on most social media networks including Facebook, Twitter, Instagram, LinkedIn, and even TikTok. They use social networking much more often than Generation X [17]. Their favorite social media network is Facebook, followed by Instagram [19]. Because of their extensive social media usage and trust they place in peers' opinions, Millennials tend to respond positively to paid advertisements and promotions on social media, as well as reviews and user-generated content [19, 22]. They enjoy high-quality advertisements containing pleasant graphics [22]. Coupons and side-panel ads are the favorite form of advertisement Millennials respond to [22]. At the same time, they strongly dislike pop-up ads which they consider annoying [22]. Current surveys indicate 51% of Millennials discover a new brand via Facebook, 18% via Twitter and 15% through other social networks [White, M. quoted in 22]. Users also discover new brands through online ads (24%), company websites (30%) and blogs (15%) [White, M. quoted in 22]. At the same time, studies show Millennials are prone to engage in conversations about products and services. Studies conducted previously indicated that 56% of Generation Y consumers discuss products and services via social media networks and use their peers' opinions and comments to assess products and services, with one study pointing out that consumer reviews are trusted up to twelve times more than descriptions provided by the manufacturer [22]. As loyal consumers, Millennials also react positively to rewards and loyalty programs [16].

Regarding company websites, it is important they load quickly and have simple, professional layouts, adapted for mobile use [14, 22]. This is mostly because Millennials value convenience and easy access to information. For the same reason, studies indicate Millennials favor websites and brands that offer customer service features which include texting that they regard as a convenient communication method [14]. At the same time, Millennials are likely to perform repeat website visits if the company offers competitive pricing, coupons, and good shipping rates [22].

Unlike Generation X users, Millennials are not frequent e-mail users and do not watch television. They are however present on streaming platforms such as Netflix, which they consider more appealing than traditional television [19].

The characteristics listed above suggest that when addressing Generation Y consumers, companies ought to focus on meeting them in the online environment where Millennials seem to spend most of their time. When targeting Generation Y it is important companies use honest messages, encourage reviews, and address Millennials' inclination towards loyalty programs and rewards.

### **2.3 Generation Z**

Generation Z consumers were born between 1996 and 2016. Their upbringing has occurred in a digital society, a fact that has strongly influenced their preferences in connecting with each other, as well as brands. Generation Z consumers perceive themselves as adaptable and connected to many different people [23]. At the same time, because they grew up in the digital society and they have been exposed to more digital content and information than any generation before, Z Generation consumers seem to have become more selective regarding the content they decide to engage with, than other consumers [24]. Studies indicate Generation Z consumers allocate approximately eight seconds to sort through and assess the various information they are being exposed to [24]. At the same time, these consumers seem to be more concerned about their privacy in the online environment,

as well as more skeptical in terms of the truthfulness and value of the content they are being presented with than Generations Y and X. Studies show they tend to “respond positively to brands that are more relational, and therefore, are perceived as authentic” [23, p. 70].

From the point of view of their buying power, Generation Z accounts for 40% of global consumers with a spending power of 143 billion dollars [23]. Their buying decisions tend to be influenced by friends and family, and they allot more importance to quality, than brand loyalty [19]. They are highly comfortable with online shopping [23].

In terms of communication channels, Generation Z consumers actively favor the online environment. This group spends more time online than any generation before them. In a recent study, Generation Z teenagers indicated they were “almost constantly online” (45%) or they were online “multiple times a day” (44%) [24]. Time spent online is mostly split between social media and e-mail. This is to a certain extent surprising as e-mail is often regarded as a more traditional means of online communication, characteristic of Generation X, rather than Z. Despite this, a recent study shows that most Z Generation users check their e-mail multiple times a day (58%), or at least once a day (81%), mostly when on the go, or to pass the time [18, 24]. Most users (66.9%) receive less than 20 e-mails/day [Campaign Monitor]. These aspects are important from two perspectives. On the one hand, these statistics suggest e-mail remains an attractive means of communication for this generation, including for marketing purposes. On the other hand, the reduced number of e-mails this group receives daily may indicate less competition for their attention than in the case of other media.

As mentioned previously, Z Generation users are very present on social media. A recent study indicated that 90% of respondents use social networks all the time or a few times a day [17]. Unlike Generations X and Y which reported large use of Facebook, Z Generation users are more focused on Instagram, Twitter and TikTok [14], as well as Youtube and Snapchat [24]. This group does not have one preferred online platform as was observed for Generations X and Y, but are multi-channel users. They will consume different type of content across the different platforms they use [24]. For example, studies show they may use Snapchat for capturing real-life moments, use Facebook for information purposes and Instagram to share their aspirations [24]. This means companies should avoid sending the same message across all platforms. Brands should consider a rounded digital marketing campaign, rather than focusing on each channel individually [24].

Regarding brand engagement, Generation Z users favor social media and e-mail, followed by in-person interactions, advertisements, chat features and company blogs and websites [24]. It is important that websites and blogs are adapted for mobile use [18], while e-mails should be relevant to them and not spam [24].

Generation Z consumers are largely influenced by content favoring quality and authenticity over price [18]. They react positively to visually pleasing content including images, Gifs, memes [19, 25] as well as behind the scenes and product demonstration videos [19]. Therefore, Z Generation users enjoy Youtube, Instagram and Snapchat considerably [24]. At the same time, like Generation Y users, Z Generation consumers respond positively to user-generated content, and opportunities to take the lead in creating and sharing content [21, 25]. It is also important to remember Generation Z users filter content rapidly, so it is important that content offered to them is highly engaging from the beginning. This group dislikes “blatant advertising” [19].

The characteristics presented above suggest that companies should develop integrated communication strategies aiming at combining communication channels to increase brand exposure, by building on the specific characteristics and user

interests for each of these channels. At the same time e-mails and in-person interactions should be considered carefully as a means of maximizing connection with Z Generation users.

### 3. Communication channels shifts during the Covid-19 pandemic

During the Covid-19 pandemic considerable restrictions were imposed across the globe in terms of consumers' mobility and interactions with one another or product and service providers. In this context online communication channels have gained importance by offering consumers a bridge over the restrictions that had been imposed. For example, social media has offered consumers a means to remain connected to each other, as well as brand, and has also transformed itself into a marketplace that offered communities shorter distribution chains and rapid access to information. Many local businesses entered and rapidly adapted this new online marketplace to make themselves known in their community and ensure their survival during the pandemic. Furthermore, companies also identified online communication channels (e.g. websites, e-mail communication etc.) as an important tool to remain connected with their consumers, educate them on crisis management, and contribute to reducing anxieties among their consumers. In the following paragraphs we will analyze the changes that occurred in the usage of the various online channels during the Covid-19 pandemic while also considering the characteristics of each social generation.

A market research with 450 respondents concluded that the Covid-19 crisis triggered the cutting down of communication budgets across most companies [26]. Furthermore, for the US market, traditional communication channels have shrunk by 12% in 2020, online channels grew by the same percentage [27].

In addition, another recent survey indicates many companies reduced their communication budgets, and 61% changed their short-term communication strategy [26]. Experts assert that the lack of a long-term communication strategy may negatively impact companies' growth and development. This is because the lack of such a strategy can affect customer loyalty. Specifically, loyalty depends to a great extent on the company's image, on what the customer believes or knows about it. And this brand image, in turn, is the result of all the communication about the product to which the consumer is exposed. Instead of renouncing strategies, companies should focus on unpaid communication as well and ensuring organic growth by offering multi-channel qualitative content.

In terms of digital communication channels, the greatest change caused by the Covid-19 pandemic was registered for websites. A global research with a sample of 1.000 executives indicated websites registered a 15% increase in December 2020 in comparison with the same period of 2019 [28]. Despite dwindling sales, e-commerce has registered a 14% growth during the pandemic.

A good website must build trust, be up to date and customer friendly. Apart from content related to the products and services offered, the website should also convey companies' objectives, history, products, mission, and vision for different target segments. The main challenge in designing a website is to create an attractive layout that offers interactivity and acts as a vector for building loyalty. Websites should also have a balanced composition and offer an easy-to-understand user experience [29]. These traits were required for a successful website both before and during the Covid-19 pandemic.

An extensive literature insists on the competitive advantage that a company can obtain through online services that can be made available to buyers through professional websites. This channel supports companies to decrease operating costs, raise

profits, boost customer portfolios, customize services, while also contributing to distribution flexibility, improving the quality of marketing research, and developing complementary businesses [29]. Results of research on website profitability conducted by Nielsen, an expert in websites evaluation, show that improving a website (i.e. content that supports building trust and transparency, interactivity, layout and navigation path) can be 50 times more profitable than in the case of poorly built websites [29]. There are distinct methods for evaluating the functionality, performance, ease of use and accessibility of websites. For each complex variable, the evaluation can be done from the perspective of the software developer and the end user. Functionality and performance are rather technically subjective, while ease of use and accessibility are mostly assessed from the user's perspective.

In terms of paid advertising on social media channels, this has encountered ups and downs, depending on the various sectors of activity. Industries such as travel and hospitality, indoor events (cinema, social activities) retail, events, and conferences, as well as logistics faced strong declines in their activities and consequently, the communication channels were also affected [30]. A higher online presence was registered in the health care and online medicine sector, along with online fast moving consumer goods delivery services, videoconferencing, online streaming, and entertainment (Netflix, HBO go, Spotify) or online outlets.

Online advertising was not a channel that developed during the pandemic more than before [1]. It can be paid or unpaid inserts (because banner exchanges are common) online. Most frequently used online advertisements during the Covid-19 crisis were: sponsorship of a site or sections of a site, insertion of marketing messages in e-mail, and interstitials. It is worth noting that pop-up ads are generally considered annoying, and users block them. During the pandemic, 46% of users declared they found them boring and did not watch them [31].

Other globally conducted research [28] reveal a change in the main scope of communication campaigns during the pandemic. Therefore, communication executives prioritized the following *objectives*:

- Gaining new interested customers (especially when the competition was faced with a digital weaknesses);
- Retaining existing customers and make them loyal;
- Driving sales;
- Maintain engagement with internal and external audience;
- Building and reinforcing brand awareness and brand attitude;
- Remaining top of the mind for existing and potential clients.

We can conclude that channels which provide brand consolidation in the mind of prospective clients and a better exposure for existing clients represent the winners for companies in time of crises.

Regarding B2B communication, web conference channels remained an important tool both before and during the Covid-19 pandemic. This was due to its specific features that allow for personal relationship and interaction between people. By practicing direct marketing, a company can have an important competitive advantage, which allows it to better understand customer expectations and thus customize its offers. The company's online documents are basic tools used by these channels because they enforce trust in the company and strengthen its credibility.

Participation in trade events, specialized communities, and exhibitions allow the company to engage the existing and potential customers.

Executives stress out a shift in digital channels importance, due to their profitability. Another research [26, 28] suggests that the channels preferred during and after Covid-19 times were:

- Social media (organic and paid)
- Websites with content marketing
- Webinars
- Advertising on retail webs/apps
- Advertising on publishers' webs
- Paid search
- E-mail marketing
- Online video (organic and paid)

Brands adopted more helpful and human approaches in their online communication, being sensitive to the clients' state of mind. Most effective communication is mainly oriented towards engaging actors in social content, leadership thought, direct customer outreach, corporate social responsibilities [26].

Although digital communication channels became more useful for companies, there are still concerns related to cybersecurity and personal information security.

#### **4. Changes in communication channel preferences across target segments following the COVID-19 pandemic**

During the Covid-19 pandemic various restrictions on circulation and lockdowns were imposed across the globe. This led to people remaining isolated in their homes, with limited contact with their families, friends and loved ones [26]. Furthermore, the restrictions imposed to prevent the spread of the virus also affected the way in which people conducted their daily activities including work, education, entertainment, healthcare, shopping etc. Faced with this situation, consumers have responded to the pandemic by altering their daily behavior and routines [32]. When dealing with limited mobility, consumers turned increasingly to the online environment. This has taken the form of remote work and education, increased use of e-commerce, delivery applications, social media, streaming and gaming platforms, to name just a few. We will discuss in the paragraphs to come, the changes that occurred across Generations X, Y and Z in terms of communication channel usage during the Covid-19 pandemic.

As argued in the previous section, the three generations are active users of the online environment, including websites and blogs, e-mail, and social media. The onset of the pandemic with the restrictions that this triggered has led to an increase in social media usage for all three generations. A research conducted in Italy [26], indicated that social media usage during the first lockdown increased by 110% for Generation Y users, and up to 114% for Generation X consumers. At the same time, Generation Z users have continued to rely on social media as their main form of

communication [23]. The most used social media, regardless of age, education, and gender during the pandemic has been Youtube, followed by Whatsapp, Instagram, Facebook and Messenger [26]. At the same time, Generation X used media such as LinkedIn, Whatsapp Zoom, Microsoft Teams and Skype more often than Generations Y and Z. This may be caused by the fact that X generation consumers are older and hold higher professional positions thus favoring media that have longer market presence (i.e. Skype) or focus on professional networks (i.e. LinkedIn) [26]. Generation Z users favored Instagram, TikTok, Youtube, Messenger, Snapchat, and Pinterest [26, 33].

The use of Instagram and TikTok registered a 45% increase for Generations Y and Z. X Generation consumers also used these platforms, although the increase was smaller (33%) [26].

In terms of buying behavior, consumers across all generations turned towards online shopping, especially due to its contactless process [34]. E-commerce increased between April–June 2020 from 16 to 27% of retail in the US and from 18 to 30% in the UK [32]. This shift was more pronounced among Z and Y Generations where 33% of consumers increased their online spending vs. 23% in Generation X [32]. In general, consumers shopped online to ensure the required products for house consumption and other personal needs, but also as a distraction or leisure activity [35]. The same research [35] indicates these hedonic motives have been more present in the case of Z Generation consumers than Generation Y. Another study indicates that 13% of Z Generation consumers made their first online purchase during the pandemic [36]. Consumers across all generations also tried new brands in the context of the pandemic (66% in the case of Y and Z generations and 43% in the case of Generation X) [35].

When deciding where to shop online during the pandemic, research suggests social media remains an important channel for targeting shoppers [36]. At the same time, word of mouth and referrals continue to remain important across Generations Y and X, especially given the fact that online shopping does not allow product testing and the two generations' inclination towards extensive research before making a buying decision [36]. At the same time, discounts and rewards for loyalty and referrals remain important for both X and Y Generations [36]. Social media also plays an important role among Z Generation users. Advertisements on social media have influenced the buying decision during Covid-19 for 60% of Generation Z users compared to 25% for Generations X and Y [33]. Users across all three generations continue to prefer high quality video ads, and product offers which feel genuine and authentically fit the platforms where they are presented [33, 36].

## **5. Discussion of trends that affect communication channels**

The Pandemic set some immovable rules regarding digital communication channels. Businesses must remain more than ever connected with the customers through miscellaneous means to products and distribution channels.

Also, the communication channels strategy must be pragmatic and performant, by driving important outputs. Businesses must adapt to find the customers, wherever they are and in the manner that they want to be approached. Furthermore, companies need to offer a “consumer-centric” experience on the navigation journey and facilitate omni-channel engagement. This also means that customers expect to choose their one channel. Additionally, the customers participate to communicate the companies positioning [37].

The quick rise of efficiency analytics tool available for digital channels, determine that programmatic advertising will be used not only by media agencies, but

smaller brands executives too. The real time bidder will be deployed in a greater extent, being a way to auction for an advertising space [9].

Innovation became crucial element in digital channels strategies by making the communication creative to keep brands relevant. Emotional communications, society involvement, and struggles to create an inclusive and more equitable future can bring recognition to a brand during a time of crisis. For example, a study on 25.000 persons reveals the clients' need to be informed under uncertainty condition and to be educated to diminish the effects of the crisis [38].

Artificial intelligence will bring more benefits for customers as well as for communication executives. The first advantage can be by facilitating the built or consolidation of a CRM (customer relationship management) through collection the users' information from different platforms. If companies can easily process big data about customer' behavior, strategies for communication channels can also be rapidly adapted to the needs of the audience. Secondly, in combination with virtual reality or augmented reality receptors can interact in a more complex manner with the brand, creating at the same time extraordinary experiences along with a greater sense of loyalty [39, 40]. Thirdly, chatbots can improve customer service by offering answers simultaneously, regardless the time zones. They can also enable customization of messages for e-mail marketing or how and where an advertisement is displayed based on clients' profiles. The content displayed for each communication channel can also be adapted based on the data available, thus leading to increased user engagement.

## **6. Conclusion**

The chapter provides an overview of current data available regarding consumer preferences for digital communication channels before and during the Covid-19 pandemic, and the impact of such preferences for companies' marketing efforts.

The Covid-19 crisis affected communication channels irrevocably, with lasting effects. First and foremost, the pandemic has determined an increase in consumers' expectations of trust from the companies they choose to purchase from. While the pandemic has determined a considerable increase in e-commerce, it has also led to a rising importance of electronic word-of-mouth and referrals as a means of consumers researching brands and products. Consumers require honest information and trustworthy processes. Secondly, the pandemic has determined an increase in the importance attributed to some digital communication channels such as websites, social media, web conferences, and videos. This was mostly because these channels were the ones to bridge the gap which emerged between consumers, their peers, brands, and companies due to the various restrictions imposed to counteract the spread of the Covid-19 virus. The pandemic has brought an increase in social media and e-commerc usage across all three consumer generational cohorts that we analyzed. Consumers expect high quality and visually pleasing websites, graphics, and advertising, which is delivered using the digital communication channels that each generation cohort utilizes. Brand messages should be adapted to the specifics of each digital communication channel used and speak the language of the generational cohort they are being addressed to.

Another important consequence of the sanitary crisis was the companies' acknowledgement of the importance of digital marketing and communication to engage consumers, build trust relationships and loyalty, even in times of crises. This has led to digital communication budgets being revitalized after the first wave of the pandemic. Focus was directed towards increasing customer loyalty by offering various possibilities for interaction with the brands. The pandemic has also revealed a radical movement towards the digitalization of digital communication channels

by integrating artificial intelligence in providing relevant and customized information. Furthermore, the process of interchanging channels can benefit from artificial intelligence and machine learning techniques to ensure growth in the efficiency and effectiveness of communication. Chatbots and virtual reality deliver more added value and a pleasant experience for receivers.

Lastly, results show companies should continue to strive for creativity and innovation when conveying their brand's values to consumers, while also engage in emotional communication, promote social engagement, and strive for an inclusive and more equitable future.

Some limitations were encountered when developing the chapter. Access to data and statistics regarding digital communication channels during the Covid-19 pandemic was to a certain extent limited due to the novelty of this sanitary crisis and its impact on consumer behavior. Most data available focused on the use of websites and social media, while information regarding online advertising, blogs, sponsorships, and affiliated marketing during this period remains limited. We believe further research should be conducted on how the pandemic affected consumers use of online communication channels during the pandemic. Further studies should also approach the trends that emerged for digital communication during the Covid-19 pandemic and assess the extent to which these trends will continue as life starts to resemble the pre-pandemic period, as well as the impact they will have on companies' marketing presence and consumer engagement.

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The authors declare no conflict of interest.

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# Sensory Marketing

*František Pollák, Jakub Saviar and Roman Vavrek*

## Abstract

The issue of sensory marketing is a relatively new concept in managerial science. Due to the competitive environment of the global market, companies are confronted with the constant need to find effective approaches that will allow them to maintain a competitive advantage in the fight for the customer. One such approach is the application of sensory marketing tools to brand-building processes. The aim of the chapter is to bring the issue of sensory marketing closer to the general professional public. The chapter also focuses on the pointing out the fact that only by taking into account the specifics related to sensory marketing, the process of building a brand becomes holistic and sustainable. The theoretical framework describes the basic foundations of the issue. The empirical part presents a description of the selected experiment from a series of five experimental investigations performed to verify the theoretical assumptions in practice. From the point of view of the findings, it can be stated that targeted stimulations of the senses have a significant impact on the overall experience of individuals. Through the synthesis of theoretical and practical knowledge, it was possible to compile a model for the application of knowledge to business practice.

**Keywords:** senses, smell, touch, taste, hearing, sight, consumer behavior, innovation, competitive advantage

## 1. Introduction

The issue of sensory marketing is relatively new concept in managerial science. Especially when we consider that marketing as we know it today has its roots in the first half of the twentieth century [1]. The first signs of sensory marketing can be seen in times of transformation of marketing from its production to product form. Product marketing analyzes suggest that the comprehensive change in approach was largely initiated by the increase in economic prosperity in the 1970s.

The year 1970 cannot only be described as a year of a sharp increase in the popularity of branded goods but also as a year of the beginning of the transformation of marketing strategies. Businesses have gradually discovered that it is the product brand that can be a source of profit, and so all marketing attention has shifted to building brand identity. The sensory aspects of the products were taken into account only insignificantly. The full integration of sensory marketing into the portfolio of product managers did not occur until the arrival of the new millennium [2]. In the professional literature [3], we encounter the statement that within the strategy of differentiation, marketers began to use new tools that quite surprisingly disrupted traditional schemes. These tools have greatly improved product perception while enhancing the brand's memorability in the minds of customers.

According to Boček et al. [4], sight, touch and taste have long been an integral part of product marketing. However, the term “sensory” or “multi-sensory”

marketing did not appear until the time when brand owners and marketers focused on the action of the other two senses, and thus smell and hearing. For a long time, a strict increase in turnover was one of the main priorities of companies interested in sensory marketing. However, it is different today. For many businesses, it is just as important to create a consumer relationship with the brand as to simply be able to stimulate their purchases. Thanks to sensory marketing, the factor of human perception and its subjectivity appears in the business strategy of companies. Sensory marketing focuses mainly on customer experiences. It is based primarily on practical knowledge, in which the experience of the brand (product or service) is perceived holistically. The human senses play an important role in consumer behavior and are therefore at the heart of marketing activities that emphasize the creation of sensory experiences [5]. Kovanda [6] defines sensory marketing as a subdiscipline within marketing, which focuses on building a brand by targeted stimulation of the consumer's senses through the application of various procedures and technologies. Randhir et al. [7] see sensory marketing not only as a tool for measuring and clarifying consumer emotions but also as an opportunity to take advantage of new market challenges that help to ensure the long-term success of a product. According to Nízka [8], it is important to affect all the human senses. This is the only way to create a differentiated perception of the product in the customer's mind compared to the competing product. By this procedure, it is possible to significantly contribute to building a product's psychological competitive advantage in the market. The main task of sensory marketing is therefore to monitor how the individual senses of the customer affect his/her shopping behavior and to what extent they influence his/her purchasing decisions [2].

The aim of this chapter is to present the issue of sensory marketing from the point of view of its theoretical, but also practical applications. In the following sections, the human senses will be introduced as the factors in sales promotion. Based on this theoretical overview, practical applications of the issue will be presented through selected results of qualitative research, conducted in the form of simple experiments. Based on theoretical and practical knowledge, the basic model of application of sensory marketing tools to business practice will be presented at the end of the chapter.

The presented research is carried out as a part of an extensive study of the issue of reputation management to examine the relevant factors that affect sustainable brand development.

## **2. Senses as factors in the promotion**

The senses allow people, as well as all living beings, to know the world around them from the very beginning of their existence. They also accompany them throughout their lives. That is why stimulating the senses can be an effective way to influence customer behavior. However, it is important to understand that how the individual senses work. In the next part of the chapter, we will briefly discuss all five senses, focusing in particular on their meaning and the role they play in people's lives. For each of the senses, we will then approach its application within the processed topic.

### **2.1 Smell and the scent marketing**

The smell can be considered as the first-developed sense. According to various studies, after birth, the baby perceives his/her mother primarily by smell, based on which he/she can identify her [9]. According to Hultén et al. [5], the smell was

considered to be the least researched human sense. The studies of the Nobel Prize winners in physiology or medicine in 2004, Richard Axel and Linda Buck, brought considerable scientific progress. In addition to new knowledge, Axel and Brooks have discovered that people can distinguish and remember more than 10,000 different scents. Their scientific studies have for the first time identified olfactory receptors in the human body. More importantly, they have shown that humans have innate about 1000 different genes that help to encode individual olfactory receptors [2].

Krishna further argues that the uniqueness of smell in comparison with other senses lies in its direct connection with memory. This physical, as well as nervous proximity of the systems, is the primary reason that we can keep the information gained by the smell in our memory much longer than we can keep in our memory the information we obtain through other sensory sensations. Lindström [10] considers smell to be one of the most important and most sensitive senses. He believes that up to 75% of human emotions are generated by smell. Whether a scent evokes positive or negative emotions in a person depends primarily on his individual memories, which are associated with the scent. These memories are based on previous experience, which can make a scent pleasant for one person and not for another.

Within the marketing of the senses, the smell is represented by scent marketing. According to Pajonk and Plevová [11], scent marketing is also known as aroma marketing or olfactory marketing. It is also one of the latest trends in general marketing. From the point of view of support processes, it is a series of events in which it is possible to stimulate customers' shopping behavior through the influence of appropriately selected scents. The fragrance has been a marketing tool since ancient times, even though it was initially a by-product of another activity. Only over time did the scent begin to be used in a targeted way to evoke emotions in the target customer. A person who is in a state of a pleasant mood is subsequently more affected by such stimulation [12]. As aroma has a relatively strong effect on subliminal perception, it is important that the customer's subconscious mind combines a perceived scent with something positive and motivating. According to Vesecký [13], this is exactly the whole essence of scent marketing. According to Boček et al. [4], the presence of a fragrance that matches the theme and the products in the store has both a positive effect on the evaluation of the place itself, as well as on the evaluation of the products sold in the place. Some studies even confirm that the diffusion of the scent can affect the time spent in the store. Vesecký [13] also states that in principle the use of aroma marketing can be divided into two basic categories. The first is the product use of the fragrance, which can directly influence the customer's purchase decision. According to Krishna [14], these are products that have their own specific scent. However, often it is not just about the scent of the product as such, but rather about associating the scent with a specific brand, thanks to which the brand can build its own identity and thus differentiate itself from the competition. Lindstrom [10] mentions the aroma of marketing in the product used as an example of car manufacturers and their "new car scent". Many people consider this fragrance to be one of the most joyful aspects of the purchase itself. The smell is even perceived as a much greater manifestation of a novelty than the shine and purity of the vehicle. In reality, however, there is no such thing as the smell of a new car. It is just an artificial idea or a successful marketing ploy that is directly played with the human senses and imagination. This fragrance of novelty can also be found in an aerosol sprayer, through which the interior of the vehicle is impregnated before it leaves the production line. The second category focuses on spatial use, the main task of which is to create a pleasant environment for the customer and thus increase his willingness to perceive the offer or new impulses from the trader [13]. Vysekalová and Mikeš [15] cite as an example

of spatial use of marketing old Viennese cafes, in which every morning before opening the floor of the room are sprinkled with freshly ground coffee, which is then swept into cracks and gaps in the floor, thanks to which the first-morning guest is welcomed by the delicious aroma of fresh coffee. Krishna [14] adds another category for the use of fragrance in marketing, namely, the use of promotional items. In the case of cooperation between Starbucks and Omni hotels, it is about placing fragrant stickers in local newspapers that hotel guests receive every day. The stickers contained the scent of blueberry muffins. The goal is to motivate customers to buy muffins, thereby increasing their sales at the Starbucks coffee shop, which was located directly on the hotel premises. Another example is the insertion of fragrances into direct mails through microencapsulation processes that are activated when the mail is opened.

## **2.2 Touch and the tactile marketing**

The importance of touch has already been demonstrated in many studies. One of the best known, however, is Harry Harlow's experiment to find out if a child wants more from a mother's touch or nutrition. Macaque cubs were used for the research, which had to choose between two monkey imitations of the mother. One was made of wire, but provided the young with food, while the other was covered with a terry cloth, pleasant to the touch, but unlike the first, it had no milk. However, the results were unambiguous, the examined pups preferred to stay close to the cloth mother [2]. According to Grunwald [16], touch is an integral part of the healthy development of every youngster, but it does not lose its importance even in adulthood. It can be considered as the core of perception and the basis of communication with the world around. This most intimate sense accompanies people throughout their lives.

Hultén et al. [5] summarize academics' knowledge that touch can be felt through tactile receptors located in the skin. At any touch, these receptors send signals to a specific area of the cerebral cortex. This in turn allows human beings to feel and recognize heat, cold, roughness, smoothness, pain, or many other feelings.

Within the marketing of the senses, touch is represented by tactile marketing. Hultén [17] states that the aim of the strategy of using touch is primarily to strengthen the identity and image of the brand. This is done through the physical and mental interaction of the brand with the customer. Touching the products makes them easier to remember. This act also raises the expectation that customers will develop a positive relationship with the products. The possibility of touching products can even lead to impulsive purchases. At the same time, this fact is one of the answers to the question why some products are much more difficult to sell without physical contact and thus, for example, via the Internet, compared to products that can be caught or tested [18]. Gallace and Spence [19] state in their work that this is due to the "need for touch". Individuals with a higher need for touch are less likely to prefer shopping online than those with a lower need for a touch scale. Peck and Wiggins [20] distinguish between the instrumental and self-serving need for touch. They found that the effect of touch affects some people more than others. The fundamental difference lies in the individual preferences of customers, especially in the acquisition and subsequent use of information obtained directly through touch. Some customers prefer to evaluate products through physical contact and are even more frustrated if they cannot touch the product during shopping. Based on this, the mentioned need for touch is divided into two dimensions, namely instrumental and self-serving. For people with a higher instrumental need, touch is an opportunity to obtain relevant product information that they cannot obtain in any other way. For example, by reading the package leaflets or by visual inspection. Conversely, people with a high self-serving need tend to touch

products only because it provides them with a degree of enjoyment. These people focus more on the sensory aspect of touch than on its very meaning. Boček et al. [4] consider the touch of the product and its grasp as a very important gesture in the purchasing process. The possibility of contact brings the customer closer to the product. This relatively new trend is leading manufacturers to constantly look for new efficient and impressive materials. Consistently selected materials that are used for a given product must arouse the consumer's desire to grasp the product and then use or consume it. One example is Microsoft, which has created a set of computer mice and keyboards with an imitation leather surface that is much more pleasant to the touch than a regular plastic surface.

### **2.3 Taste and the taste marketing**

According to Krishna [2], human beings distinguish five basic tastes, namely sweet, sour, salty, bitter and umami. However, to be able to accurately distinguish between different tastes, we must involve all five senses. Therefore, when we cannot smell the food or see it, we can hardly recognize an apple from a potato or a red wine from a coffee. One of the reasons for this limited ability is the similarity of tastes. Based on this, it can be said that taste is largely dependent on other senses.

Taste is perceived primarily through the taste buds on the tongue. Research shows that the best taste capacity is found in newborns, in whom the taste buds are even on the inside of the cheeks. An adult has about 10,000 different taste receptors that register and send information to nerve cells. These then transmit individual signals directly to the brain [5].

Within sensory marketing, the taste is represented by taste marketing. The aim of taste-based marketing is to increase the quality of the product perceived by consumers and thus create new sources of inspiration that will affect the imagination and taste experience of the consumer [4]. Dani and Pabalkar [3] argue that food and drink tend to be strongly associated with happy or positive memories and that is why the taste aspects of marketing should not be neglected. Randhir et al. [7] consider taste marketing to be effective and relatively often used to influence customers through samples and tastings. Customers are more willing to buy a product they have already tried and tasted, rather than one they do not know. Taste marketing, therefore, of course, primarily concerns food products and their continuous improvement. Whether it's refining the natural scent or creating new taste harmonies. The current trend is to explore very subtle nuances and non-traditional connections in terms of flavor and composition of food products. An example is the French festival Chaumont-sur-Loire, where the menu presented an original and creative taste combinations of ice cream sundaes, such as mint with spruce, rose with lychee, apricot with ginger and the like [4]. According to Hultén [17], taste as one of the sensory strategies represents, as in previous cases, much more than just the taste itself. It is a symbiosis of all five senses. What the product looks like, smells like, sounds like how it is felt, it all merges into a concept called taste. For this reason, taste is often associated with the multisensory perception of the customer, which builds on the aforementioned interplay and synergies between different senses. Boček et al. [4] cite as an example sparkling candies that crack in the mouth, thereby stimulating the perceptions and feelings of the consumer. Or lightweight, aerated chocolate that evokes a feeling of lightness. This is where the impact of tactile marketing can be seen. Martin [21] adds that the synthesis of touch and taste is a bit stronger. It is based on the case of Mondelez, which launched a wave of criticism by deciding to change the classic rectangular shape of "Cadbury's Dairy Milk" chocolate products to slightly curved. However, the original chocolate recipe has been preserved. Nevertheless, many customers complained that the newly shaped chocolate

tasted too sweet. Another proof of the interaction of two different senses is Professor Charles Spence's experiment, in which participants had to assess whether the tasted potato chips are more or less crunchy, as well as whether they are more or less fresh. Participants were given headphones, through which the sounds of crunching were gradually released during consumption, in various frequencies and intensities. Most volunteers agreed that potato chips taste different. Chips in which volunteers heard louder, higher and more penetrating crunching were in most cases rated as fresher compared to those in which the sound of crunching was much softer. In fact, it was the same product, the only difference being the different sounds, which evoked different characteristics in the minds of consumers [22]. Randhir et al. [7], in turn, mention the importance of linking flavors and colors, which plays an important role, especially in the product packaging design process. Researchers have found that there is a relationship between taste and color. People associate certain tastes such as sweet, sour, hot and salty with shades of red, green, blue or yellow. The case of Coca-Cola also shows how significant the color of a product's packaging can be on the perception of its taste. The company has created a limited edition of white cans. However, customers did not welcome this change with enthusiasm. Many even claimed that the company had changed the drink's recipe.

#### **2.4 Hearing and the audio marketing**

Richtáriková [23] classifies hearing among the sensory organs that develop first in humans. As early as the twelfth week from conception, the child can distinguish between individual vibrations and resonances, even though the ears are not yet formed during this period. Human life is full of sound information to which a person is exposed every day.

Sounds activate the emotional part of the brain, which in turn creates feelings and emotions, forming a person's mood. It is a process that takes place subconsciously and continuously 24 h a day [24]. Thus, according to Hultén et al., the sense of hearing is constantly active and cannot be switched off. Human beings live in symbiosis with sound and through it largely determine the individual dimensions of their lives. They are even able to memorize certain sounds for a long time and then recall them in conjunction with memories that relate to the moment of the initial hearing.

Within sensory marketing, the sound is represented by audio marketing. Marketers have been using sound for quite some time to increase the power of point-of-Sale enjoyment. From the pulsating music of teen stores to the soothing sounds of running water in luxury spas, the sound is at the heart and an important part of experiential shopping [2]. Kovanda [6] refers to an article in the *Journal of Applied Psychology* in which its authors have shown that typical French and typical German music has a significant influence on consumer behavior. If French music is currently playing in the supermarket, customers are more likely to buy French wines. If there are any German songs, customers prefer German products without realizing the influence of music on their choice. According to Siekela [9], properly chosen music in the store can lead to a strengthening of the overall atmosphere and also promotes the feeling that the customer belongs to the environment. Krishna [2] also argues that music also affects the perception of the time customers spend in the store. If they like the music playing in the background, they feel like they have spent less time in the store. However, the opposite is also true, and so if the music is unpleasant for customers, they tend to say that they spent more time in the store, even though they were only in the store for a short time. The tempo of the songs has a similar effect on the perception of time. Kovanda [6] justifies this by the fact that fast music increases the number of heartbeats per minute, which can arouse the

body. This excitation can be explained as the acceleration of the operation of the “inner mental clock” compared to the perception of the passage of objective time. It is also important to choose the volume of the scenery or the distribution and intensity of the music. For example, in fitting rooms, the music should play quieter than in the sales area. While loud music can create a pleasant atmosphere in a store and encourage customers to buy, in fitting rooms such music can be distracting [9]. Batey [25] adds that in addition to creating a sales atmosphere or increasing sales, music is also used as part of the brand identity or audio logo. The use of sound or music tracks as part of the product affects the perception of the brand and also helps to increase its recognizability. Compared to visual instruments, music is judged to be more effective and more memorable. While customers may not be able to draw a brand’s logo from memory, they will probably be able to sing a few tones from its audio logo. A successful, albeit a largely specific example of linking music to brand identity, is Unilever, which has decided to invest in packaging redesign under its Ax/Lynx brand based on research confirming the effect of aerosol sound on the perception of the pleasure or power of deodorants. The aim was to change the entire nozzle technology, with the result that today the sound of the Ax/Lynx spray intended for young men sounds much louder when applied than the soft sound of women’s deodorant Dove [22].

## **2.5 Sight and the visual marketing**

Hultén et al. [5] argue that vision is something we must learn. In fact, a newborn baby looks at the world upside down because it takes quite a long time for the brain to learn to turn the image right up.

Dani and Pabalkar [3] consider sight to be the strongest of the five senses, as up to 80% of the information is obtained through it. The connection between the brain and the eyes is very fast. Human beings need only 45 ms to visually identify an object standing in their field of vision.

Within the marketing of the senses, sight is represented by visual marketing. Randhir et al. [7] state that visual marketing strategies focus on the meaning of sensory expressions such as color, light, theme, graphics, but also spatial arrangement. Together, they participate in the creation and evaluation of the identity of the brand. From these sensory expressions, Pajonk and Plevová [11] subsequently define two primary aspects, namely color and light. Marketers pay increased attention to this aspect in visual marketing. Both aspects perform several functions. It is, for example, an effort to arouse the customer’s interest, optimize the conditions of purchase, or achieve compliance between the offer and consumer expectations. In the professional literature, we also encounter the statement that the perception of colors is given by the prehistoric period of harvesting and hunting when women needed to distinguish the shades of ripe and unripe berries. At present, human beings follow certain established codes and thus stop at red, green means safety, yellow and black mean risk. Everyday activities are based on color signals [15]. According to Pajonk and Plevová [11], consumers are aware of colors based on subliminal perception. The human mind creates color associations and thus models opinions before one realizes what he is really looking at. Based on this, it can be stated that colors play an important role in shaping perception. Dannhoferová [26] states that the color image that the visual system conveys to people does not correspond exactly to reality. It is not only affected by the quality of vision, but also by the experiences of individuals themselves. The perception of colors is different for each person and changes throughout life. Last but not least, colors also have a symbolic meaning associated with a certain cultural environment, which is, with certain exceptions, permanent. Properly chosen colors can positively affect the

identity of the company and the brand. The aim is to ensure that colors evoke positive feelings in customers while making it easier to identify the brand [5]. Nagy [27] cites the Financial Times, which has been printed on salmon-colored paper since 1893, as an example of brands for which color is an integral part of their corporate identity. This helps them to differentiate themselves from the competition. Another example of how a company can express its values in color is Google, which has chosen to use playful rainbow colors for its logo. However, the order of colors is interrupted by the green letter L, which brings a message to the logo that the company does not follow the prescribed rules, but brings something new. Boček et al. [4] point to the fact that colors can also affect other sensory perceptions. There are associations between color and specific scent, and any deviation creates inconsistencies. For example, the combination of vanilla with a blue-green color. Another example is linking colors with sounds. It has been shown that a certain degree of illumination in a color environment partially attenuates unpleasant sound frequencies. Therefore, in a noisy environment with sharp tones, it is advisable to use darker colors, and vice versa, lighter colors in an environment with lower sound frequencies. Similarly, it is possible to work in connection with other senses, when individual tastes correspond to certain colors, or when colors can affect the perception of weight, area or volume. Another important factor in visual sensations is the intensity of light. Pajonk and Plevová [11] claim that the light is used in the store primarily to facilitate orientation, thanks to a sufficient level of brightness and contrast. Furthermore, it should contribute to the creation of a pleasant atmosphere that will have a positive effect on the psyche of customers. Its task is also to draw attention to the goods and thus increase its attractiveness. Palfiová [28] divides lighting in the store into basic and accent. The task of basic lighting is primarily to achieve the required level of light in the room, according to basic hygiene and safety standards. Accent lighting is given by the specific requirements of the store, but also by the type and nature of the exhibited goods. Emphasis is also placed on the angle of illumination, intensity and color shade of light.

### **3. Experiment: the influence of sight on the perception of product value**

Whether as academics or as practitioners, we are now increasingly encountering applications and the use of senses in marketing. However, the issue as such still provides considerable scope for discovering new contexts [29–31]. This part of the chapter will present a partial output of a series of experiments that, based on qualitative research, produced empirical material for the development of a basic model for the application of sensory marketing tools to business practice. The main goal of the series of experiments was to identify the influence of human senses on customer behavior. By decomposing the given goal, it was possible to define 5 sub-goals dedicated to clarifying the influence of:

- scents to perceive the purity of the environment,
- texture of the material to perceive the specific situation,
- taste to perceive the performance evaluation,
- sound to perceive the price of the product,
- sight to the perceive of the product value.

As part of the presentation of selected findings, we will approach both the process and the results of the experiment. The present experiment focused on the evaluation and quantification of the influence of sight on the perception of the product value. Sight is considered to be the strongest of all the senses, as up to 80% of information is obtained through sensory perception.

### 3.1 Characteristics of the research sample

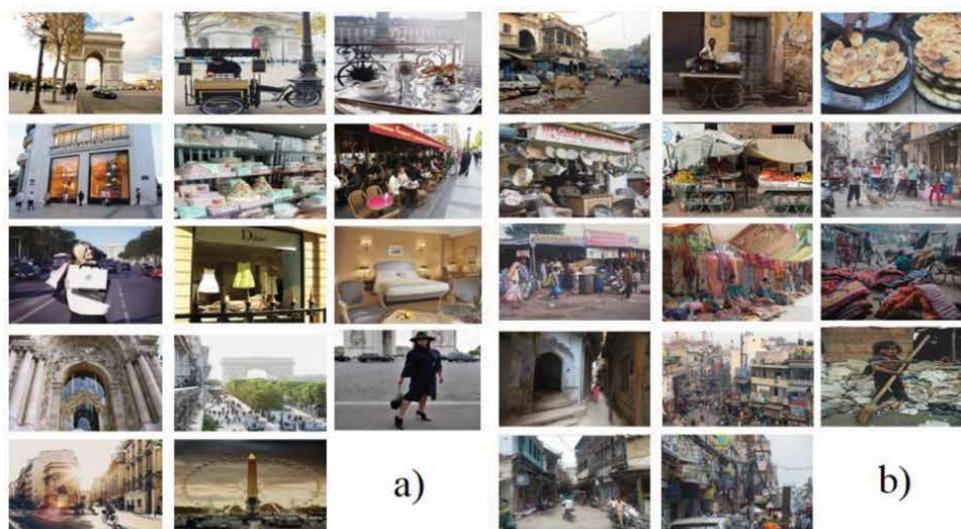
The research sample consisted of university students of the bachelor's study program focused on business and entrepreneurship in the age range from 17 to 25 years. In such a specific group, the passivity of sensory perception is eliminated, which gradually worsens with age in most human senses. The possibility of thematic incompatibility from the point of view of the composition of the experiments is also eliminated. For the purposes of the experiment, the students were divided into three groups, namely two experimental samples (in this case 2 separate series of images) and one control group. The total number of participating students was 47. The number of tested persons within individual groups was given by the spatial and procedural possibilities of the experimenters.

### 3.2 Characteristics of the course of the experiment

The experiment was carried out in the sequence of projection of sensory-stimulating presentation and a subsequent reference video. Within the two experimental samples, participants were stimulated based on two different presentations shown in the preview of the following **Figure 1**.

The purpose of the presentations was to stimulate the perception of the participants in the experiment. Each presentation consisted of a group of fourteen different images thematically defining the nature of the stimulation.

The first set of images in **Figure 1a** is based on the Paris theme and it aimed to evoke in the participants of the experiment feelings associated with luxury or a higher standard of living.



**Figure 1.**  
Visual stimulation: (a) luxury; (b) poverty. Source: [32].

The second presentation is shown in **Figure 1b** showed the poor part of an undefined Indian city, thematically it was supposed to evoke diametrically different associations. Subsequently, the participants of the experiment were shown a reference video, which took the form of a virtual tour of the model apartment.

The control group was shown a reference video without prior sensory stimulation. A preview of the video can be seen in the following **Figure 2**.

For the purposes of the experiment, the experimenters tried to present a neutral product for subsequent evaluation, which in this case represented an empty apartment. Apart from the kitchen unit and the basic bathroom equipment, the apartment did not contain any other disturbing elements. As the intention of the composition of the reference video was to eliminate as much as possible the influence of the apartment equipment on the overall perception of its value.

After a short virtual tour of the apartment, the participants of the experiment had to use a scale to evaluate how the apartment affected them (on an 11-degree Likert scale ranging from very cheap (-5) to very luxurious (+5)).

### 3.3 Methods used for processing the results of the experiment

Verification of the set goal was carried out by evaluating two research hypotheses, namely:

**RH<sub>1</sub>**: *We assume statistically significant differences in the evaluation of individual experimental groups at the level of the mean value, resp. distribution function.*

**RH<sub>2</sub>**: *We assume statistically significant differences in the evaluation of the experimental groups and the control group at the level of the mean value.*

The research hypotheses were statistically verified by a set of 3 tests, namely:

- Mann-Whitney test (Eq. (1)):

$$U' = n_y n_x \frac{n_y (n_y + 1)}{2} - R_y, \text{ pričom platí } U = n_y n_x - U'. \quad (1)$$



**Figure 2.**  
Reference video. Source: [32].

where  $n_x$ —number of observations, resp. the extent of the  $x$ th file;  $n_y$ —number of observations, resp. the extent of the  $y$ th file;  $R_y$ —the sum of the order of the  $y$ th file;  $U, U'$ —test statistics.

- Kruskal-Wallis test (Eq. (2)):

$$Q = \frac{12}{n(n-1)} \sum_{i=1}^I \frac{T_i^2}{n_i} - 3(n+1) \quad (2)$$

where  $n$ —number of observations, resp. file range;  $n_i$ —number of observations in the  $i$ th group;  $T_i^2$ —the total number of orders in the  $i$ th group.

- Kolmogorov-Smirnov test (Eq. (3)):

$$D_{n_1, n_2} = \sup_{-\infty < x < \infty} |F_{1, n_1}(x) - F_{2, n_2}(x)| \quad (3)$$

where  $F_{1, n_1}(x)$ —empirical distribution function of the first choice;  $F_{2, n_2}(x)$ —empirical distribution function of the second choice.

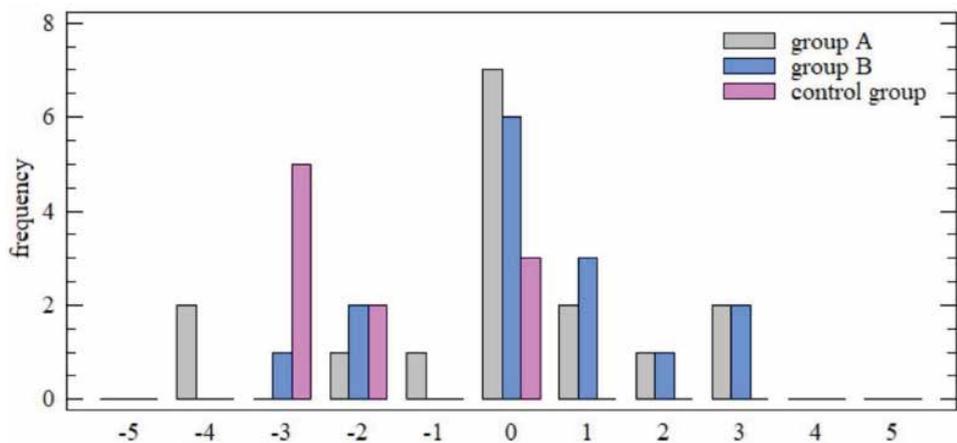
All analyzes and calculations were realized in MS Excel, Statistica 13.4 and Statgraphics XVIII.

#### 4. Experiment evaluation

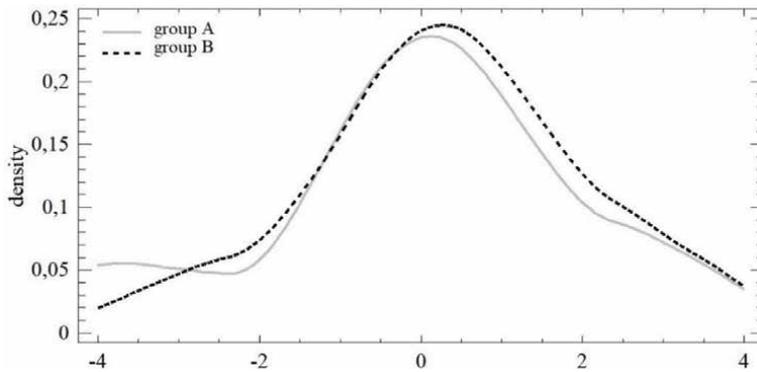
The results of the performed experiment are characterized using basic moment characteristics and subsequently statistically verified using the apparatus of methods identified in the previous section. The following **Figure 3** shows the response rates of each group of experiment participants.

As can be identified from **Figure 3**, we observe the largest number in the mean value of the presented scale, which is at the same time in the case of both experimental groups their mode ( $\hat{x}_A = \hat{x}_B = 0$ ).

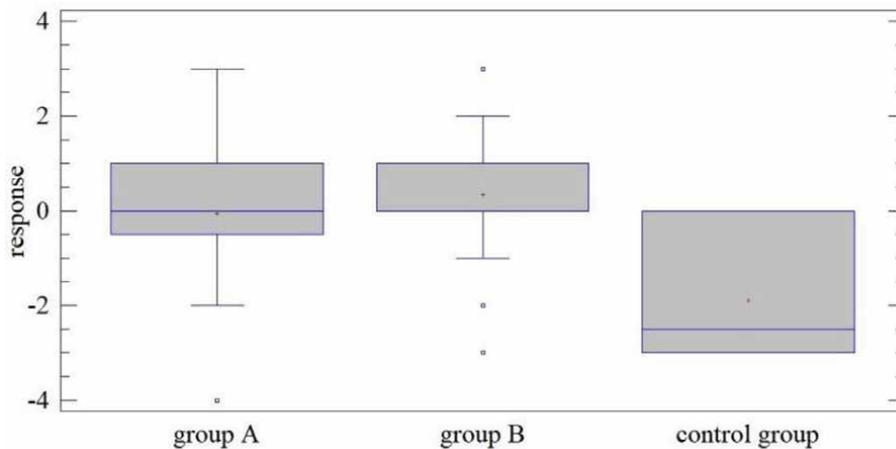
In the case of the control group, the most numerous scales selected is  $-3$ . The agreement in the case of experimental groups is also monitored at the level of variance ( $R_A = R_B = 4$ ).



**Figure 3.** Frequency of responses of individual groups of experiment participants. Source: own calculations.



**Figure 4.** Comparison of the distribution function of experimental groups. Source: own calculations.



**Figure 5.** Box plot answers of each group of experiment participants. Source: own calculations.

**Figure 4** shows the distribution function within the experimental groups as follows:

As can be seen in **Figure 4**, the differences in the distribution functions of the two experimental groups are minimal, resp. none ( $K-S = 0.487$ ;  $p = 0.051$ ).

At the same time, we monitor compliance at the level of mean values ( $W = 132.5$ ;  $p = 0.620$ ).

We state that the set of presented images in **Figure 1a** and **b**, namely, luxury and poverty visual stimulations does not have a statistically significant effect on the subsequent evaluation.

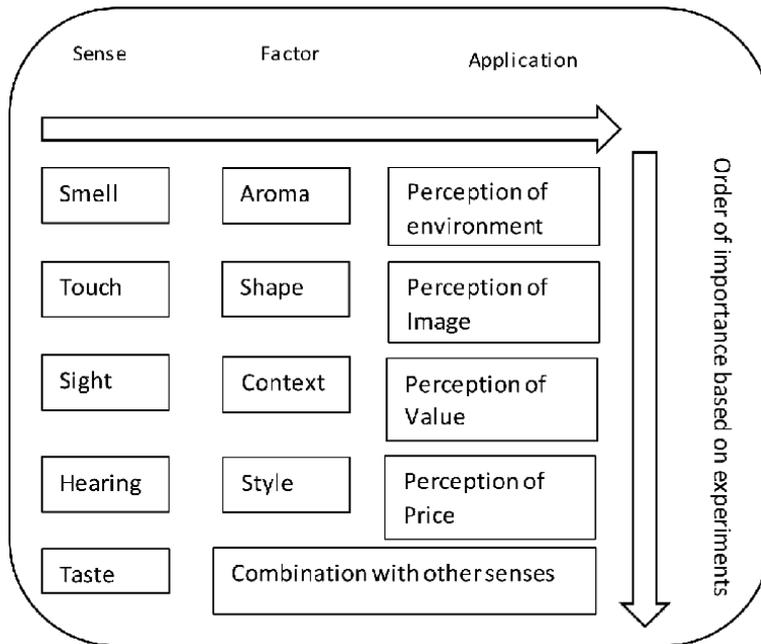
Research hypothesis **RH<sub>1</sub>** is *rejected*.

The conclusions resulting from the evaluation of frequencies (**Figure 3**) are reflected in the structure of the results captured by the box graph (**Figure 5**) as follows:

We observe the already confirmed relationship between the two experimental groups and their statistically significant difference compared to the results of the control group ( $Q = 9.049$ ;  $p = 0.011$ ).

Research hypothesis **RH<sub>2</sub>** *cannot be rejected*.

The set of presented images in **Figure 1**, regardless of their nature, influenced the subsequent evaluation of the reference video. Thus, the influence of sight on the perception of the value of the product was confirmed.



**Figure 6.**  
 Model of application of sensory marketing tools. Source: own processing based on [32].

## 5. Model of application of sensory marketing tools

Based on a theoretical examination of the issue and subsequent empirical verification of the effectiveness of sensory stimulation to influence consumer behavior, it was possible to compile a basic model of the application of sensory marketing tools in business practice. The model is formed by the investigated senses arranged on the basis of the order of their proven effectiveness in the experiments.

The model shown in **Figure 6** can be seen as a basic qualitative concept of variables, the correct application of which can effectively stimulate consumer behavior.

The smell was identified as the most effective sense of stimulation, given the theoretical assumptions identified in the literature study, this finding was largely expected. As this is a sense that has been dominant since the very beginning of human existence, much of the stimulation takes place against the background of active perception. By actively stimulating this perception, it is possible to achieve a behavior change oftentimes without realizing the stimulus of the stimulation itself. The result of the stimulation thus appears to the object as its natural decision.

The second in the order of the dominant senses that responded to stimulation is touch. Again, this was not a surprise, as in the case of smell, in the case of touch it is a basic sense that produces perceptions predominantly in the subliminal form.

The senses generating stimuli of a conscious nature are arranged in the sequence of sight, hearing and taste. In the case of stimulation of these senses, it is necessary to use more sophisticated procedures, because due to the nature of the senses themselves, the perception of the stimulus is literally conditioned by increased levels of attention. Especially in the case of taste, combined stimulation across multiple senses is necessary.

## **6. Discussion of theoretical and empirical findings**

The experiments performed by us confirmed to a large extent the assumptions that were defined based on a study of the literature. The fundamentals of the issue can therefore be summarized as follows.

### **6.1 Smell**

The smell is one of the first developed senses. People can distinguish and remember more than 10,000 different scents. The uniqueness of smell in comparison with other senses lies in its direct connection with memory. This physical as well as nervous proximity of the systems are the primary reason that people can keep the information gained by the smell in memory for much longer than that which they obtain through other sensory sensations. It is one of the most sensitive senses, up to 75% of human emotions are generated by smell. Whether a scent evokes positive or negative emotions in a person depends primarily on his/her individual memories. Within sensory marketing, smell is represented by scent marketing. The use of scent marketing is divided into two basic categories:

- product utilization of the fragrance, which can directly influence the customer's purchase decision;
- spatial use of the scent, whose task is primarily to create a pleasant environment for the customer and thus increase his willingness to perceive the offer or new impulses from the trader.

In our experiments, smell turned out to be the most dominant of the senses for application in sensory marketing.

### **6.2 Touch**

Touch can be considered the core of perception and the basis of communication with the outside world. This is the most intimate sense that accompanies human beings throughout their lives. Touch can be felt through tactile receptors located in the skin. When touched, receptors send signals to a specific area of the cerebral cortex, which in turn allows human beings to feel and recognize heat, cold, roughness, smoothness, pain or many other feelings. Within the marketing of the senses, touch is represented by tactile marketing. The aim of the strategy of using touch is primarily to strengthen the identity and image of the brand. This is done through the physical and mental interaction of the brand with the customer. Touching the products makes them easier to remember. The need for touch in marketing is divided into two dimensions, namely:

- Instrumental—for customers with a higher instrumental need, touch is an opportunity to obtain relevant product information that they cannot obtain in any other way.
- Self-serving—customers with a higher self-serving need tend to touch products to get some enjoyment. Such customers focus more on the sensory aspect of touch.

Touch, right after the sense of smell, occupied the second place in terms of importance in the results of research into the influence of the senses on consumer

behavior. Although it is not primarily a conscious stimulant, it undoubtedly plays an important role in consumer behavior through the subconscious.

### **6.3 Sight**

Sight is the strongest of all five senses. Up to 80% of information is obtained through it. The connection between the brain and the eyes is very fast, human beings only need a few milliseconds to visually identify a particular object. Within the marketing of the senses, sight is represented by visual marketing. Visual marketing strategies focus on the meaning of sensory expressions such as color, light, theme, graphics and spatial arrangement. It is possible to designate primarily two sensory expressions, namely:

- Color,
- Light.

The human mind creates color associations by which it models opinions before the individual realizes what he/she is really looking at. Based on this, it can be stated that colors play an important role in shaping perception. There is an association between color and specific scent, where any deviation creates a discrepancy. We can also find a connection between colors and sounds in the literature. It has been shown that a certain degree of illumination in a color environment partially attenuates unpleasant sound frequencies. The light serves in the space primarily to facilitate orientation through the level of brightness and contrast. The literature calls this purpose basic lighting. The role of lighting is also to create a pleasant atmosphere or directing customers' attention to specific goods. The literature also refers to this purpose as accent lighting. In the case of the presented experiment, both colors and light were taken into account in the visual stimulation composition of the research sample. The experiment clearly confirmed the influence of sight on the perception of the value of the product. As it was directly influenced by the factors of color and light, we cannot determine exactly. But even here the proven rule of architecture applies that luxury is defined by light and space.

### **6.4 Hearing**

Hearing, along with the smell, is one of the first developed senses. Human life is full of sound information to which a person is exposed every day. Sound activates the emotional part of the brain, which in turn creates feelings and emotions. This forms a person's mood. It is a process that takes place continuously and subconsciously. Human beings live in symbiosis with sound and through it largely determine the individual dimensions of their lives. They are even able to memorize certain sounds for a long period of time and then recall them in conjunction with memories that relate to the moment of the initial hearing. Within sensory marketing, the sound is represented by audio marketing. Music influences, among other things, the perception of time spent by customers in the store. Perception is affected as follows:

- If the customer likes the music, they feel that they have spent less time in the store;
- If the customer is uncomfortable with the music, he feels that they have spent way much time in the store.

The pace of the music itself has a similar effect on the perception of time. It is also important to choose the volume of the scenery, or the distribution and intensity of the music. The use of sound or a music track as part of a product affects the perception of the brand and also helps to increase its recognizability. Compared to visual instruments, music is judged to be more effective and more memorable. In our experiments, we demonstrated the connection between the genre of music and the perception of price. It is a well-known fact that sound is the core of experiential shopping.

## **6.5 Taste**

Taste is perceived primarily through the taste buds on the tongue. An adult has approximately 10,000 different taste receptors. For people to be able to accurately distinguish between different tastes, they must involve all five senses. Therefore, when we cannot smell the food or see it, we can hardly distinguish an apple from a potato. Taste is thus largely dependent on other senses. Within sensory marketing, the taste is represented by taste marketing. The goal of taste marketing is to increase the quality of the product perceived by consumers and thus create new sources of inspiration that will affect the imagination and taste experiences. Taste is often associated with the multisensory perception of the customer, which builds on the interplay and synergies between different senses. In the literature, we encounter the following combination of senses:

- Synthesis of touch and taste,
- Synthesis of hearing and taste,
- Synthesis of taste and sight (colors), which plays an important role especially in the process of product packaging design.

In our experiments, we confirmed the need to combine taste with other senses. This is the only way to maximize the application possibilities that taste marketing offers.

## **7. Conclusion**

The highly competitive environment of the global market is forcing companies to look for increasingly efficient approaches that will allow them to maintain an advantage in the fight for the customer. One such approach is the application of sensory marketing tools to brand-building processes. The issue of using the senses as a means of stimulating and influencing consumer behavior adds a whole new dimension to marketing. This is especially the dimension of building emotional relationships with customers. In this way, companies, through their brands, strengthen their corporate identity and memorability with their customers. At the same time, they provide customers with a unique shopping experience. Compared to traditional marketing, sensory marketing is much more sophisticated. It requires a much more individual approach and perfect knowledge of the market. Many well-known companies have already mastered this secret of sales success and have built their sales-support strategy precisely on stimulating the individual senses of their customers. However, the diversity of this concept provides considerable scope for discovering new unexplored areas and ways of applying the issue both in the field of science and in business practice. The chapter aimed to bring the issue of sensory

marketing closer to the general professional public while pointing out the fact that by applying sensory marketing tools to the general marketing portfolio, it is possible to embark on the path of sustainable brand development and holistic approach to business. The theoretical basis of the chapter defined the basic foundations of the issue. Through the presentation of a selected part of the results of a series of experiments aimed at examining the possibility of influencing consumer behavior by stimulating the senses, an empirical knowledge base was subsequently created for further research. From the point of view of the findings, it can be stated that targeted stimulation of the senses has a significant impact on the current perception as well as on the overall experience of individuals in the process of influencing consumer behavior. Through the synthesis of theoretical and practical knowledge, it was possible to compile a basic model for the direct application of knowledge to business practice.

From the point of view of the limitations of the research presented within the chapter, it is necessary to point out mainly the qualitative nature of the data. A thorough quantitative examination would be needed to confirm the relationship on a significant sample. The outlined trends identified based on the implemented qualitative research create the necessary knowledge base for such research.

From the point of view of the further direction of research, it is necessary to mention that the presented research is carried out within an extensive study of the issue of reputation management to examine the relevant factors that affect the sustainable brand building. Especially at a time of economic recovery after the end of the COVID-19 pandemic, it will be necessary to apply holistic approaches to sustainable development across the whole spectrum of (not only) management science.

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Section 2

**Communication  
Management in the Times of  
Social Media**

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# Communication through Social Media: Fake or Reality

*Arshia Kaul and Ritika Guaba*

## Abstract

Coronavirus Disease 2019 (COVID-19), a pandemic has shaken the entire world. While the think tanks across nations are fighting hard to find a solution to Covid-19, the spread of Infodemic is making the handling of crisis even more complicated. When the control of a deadly disease like COVID-19 depends on the actions of the population, the quality of information the individuals are being exposed too becomes a vital concern. It is alarming to see that even at a time when the truth can become a matter of life and death a multitude of false information is being spread on social media making it all the more difficult for governments to control the crisis. Plethora of research agrees to an electronic grapevine being more destructive than anything previously imaginable. However, identifying which Social Media Platform is most likely to activate and spread the grapevine is not addressed by any study. This study uses the Fuzzy TOPSIS approach and identifies Facebook followed by WhatsApp as the two platforms most likely to spread infodemic in the country. The quantification of evaluation of the Platforms in spreading misinformation will facilitate the government to take accurate measures to stop the spread of misinformation from the identified platforms.

**Keywords:** Covid-19, Crisis, Infodemic, Social Media Platforms, Fuzzy Topsis, Facebook, WhatsApp

## 1. Introduction

Coronavirus Disease 2019 (COVID-19), a pandemic has shaken the entire world. The outbreak which initiated in December 2019 from the city of Wuhan in China [1, 2] within four months has spread like wildfire to 210 countries infecting almost 6,403,001 people. (data as of 2nd June 2020).

The disease with an unknown etiology has clogged the healthcare machinery of even the most medically advanced nations [3]. COVID-19 spreads through human to human contact [1, 4]. The fact that the disease can even be transmitted through asymptomatic patients [5] makes it highly infectious [6]. With no pharmaceutical intervention yet, even the developed countries are at the mercy of social distancing [7] to protect their citizens from the fatal virus.

When the control of a deadly disease like Covid-19 depends on the actions of the population, the quality of information the individuals are being exposed to becomes a vital concern. It is alarming to see that even at a time when the truth can become a matter of life and death a multitude of false information is being spread on social media [8].

Social Media Platforms (SMP) like Facebook, Twitter, WhatsApp, Instagram, LinkedIn were originally developed with the intention to connect people [9]. However, with speedier data networks and cheaper smart phones a majority of individuals now use these platforms to gather news and information from across the globe. Thus, social media plays a fundamental role in the news fruition.

Social Media in the current times have become an essential publishing platform for journalists (Zubiaga, et, al.). The journalists use the platform not only to report breaking news [10] but also to determine public opinions and to ascertain potential stories [11]. According to Social Media today has become a central platform for both news dissemination and consumption by journalists and individuals. Citizens follow the development of breaking news and events either through the official social media handles of various news channels or through posts of their own network (e.g. friends, family, and public figures).

Indeed, social networks can be extremely useful particularly during crisis like Covid- 19, because of their inherent ability to spread vital news much faster than traditional media [12]. However, this positive impact of social media comes at a cost. The absence of fact-checking and control over posts/ messages makes social media a fertile ground for breeding of misinformation. People often publish posts or share other messages without verifying either the genesis or reliability of the information. Oftentimes, a catchy headline is sufficient for an article to be shared thousands of times, despite it possibly being incorrect.

COVID-19 spread into India through travelers from abroad in the first week of March 2020. Accompanying the disease was infodemic related to Covid-19, which entered the country with an even mightier force. Infodemic such as COVID-19 being a Bio-Weapon declaration of emergency due to the pandemic in India (Press Trust of India, 2020), the disease would not survive in summers, a particular community purposely spreading Corona, steam inhalation and drinking warm water will kill the virus; are just a few examples of the infodemic spread in India. The term infodemic has been coined to outline the hazard of misinformation during the management of pandemics like COVID-19. Since it could even speed up the virus spreads process by influencing and fragmenting social response, controlling an infodemic becomes an additional challenge for all governments.

Numerous studies provide evidence for the spread of misinformation through Social Media [11]. Studies have also been conducted to analyze the spread of infodemic during crises through Social Media platforms [13]; Leung, and Huang, 2007). Research has been conducted to understand the pattern, speed and impact of misinformation spread both during pandemics and otherwise too [12, 14, 15]. Most of the studies conducted on the spread of fake news through Social Media platforms are generic in nature. None of the research so far attempts to identify any one social media platform which has a higher possibility of spreading fake news.

**Research Question:** Is there any one platform which is more likely to spread Infodemic as compared to other SMP?

Several efforts are being made by the government and the various SMP to curb the spread of fake news in the country. However the increasing number of SMPs and a billion plus users in the country makes fact checking of post/ message a mammoth task. In such a scenario if the SMP which is most likely medium of maximum misinformation is identified, it will help authorities to control infodemic.

The paper further includes the theoretical background, motivation for the study, case study and analysis using Fuzzy-Technique of Order Preference by Similarity to Ideal Solution (F-TOPSIS) methodology. The paper ends with discussion and suggestions for future scope of studies.

## 2. Theoretical background

The growth of the online social media platforms, have facilitated both- communication and dissemination of real-time information among people across the world [15]. With the characteristics of low cost, ease-of-use, and rapid rate, social media platforms have become the major stage for online social interaction and information transmission [16].

However, in recent times the platforms which were created with the intention of connecting and informing have become a hub of misinformation and fake news [11]. According to [12] the social media platforms (SMP) are an ideal breeding ground for circulating misleading or false news, political statements, advertisements, and even rumors. These platforms become particularly more fertile and active during a crisis. During times of worry individuals are more susceptible in believing any information that they come across. COVID-19 is one such crisis that the misinformation reapers are taking advantage off.

According to a report published by the Reuters Institute for the Study of Journalism at the University of Oxford more than one third of the social media users across Europe and USA have come across a misleading information related to COVID-19. The misinformation, fake news that is spread specifically during epidemic and pandemics through the social media is known as infodemic.

Infodemic is particularly hazardous as it hampers with the government intervention and also fragments the social responses. Infodemic adds to the anxiety and panic of the individuals making them more exposed to the dangers of the pandemic. Often infodemic speeds up the rate of spread of disease.

Studies reveal that four out of five individuals have shared online at least one news story that they later found out was inaccurate or fake. A study conducted by Common Sense Media revealed that even Generation-Z who practically live their life of internet are confused when it comes to identifying true from fake [14]. Further, it is revealed by [17] that people get influenced even by that information on the internet that they perceive as unreliable. In a survey conducted on the Indian population during lockdown revealed that a majority Indians agree to reading, often, fake or incorrect information about Covid-19 online. What was flabbergasting was that the same set of people still considered online as their major source of information.

A large amount of online fake news has the potential to cause serious problems in society specifically during global crisis like Covid- 19 [11]. On social networks, the reach and effects of information spread occur at such a swift pace and so augmented that the fake, distorted or inaccurate information acquires a remarkable potential to cause a catastrophes within minutes, for millions of users [18]. Some studies pointed out that fake news and inaccurate information may spread faster and wider than fact-based news particularly during calamity [11].

In recent years, there has been extensive research on establishing an effective and automatic framework for online fake news detection [19]. Identifying credible social information from millions of messages, however, is challenging, due to the heterogeneous and dynamic nature of online social communication [20].

Controlling all the Social Media Platforms collectively is a challenge. Studies claim that all SMP do not spread fake news with the same vigor. Thus, a model to forecast that Social Media Platforms that is most likely to spread maximum fake news can help authorities to curb infodemic and misinformation.

### 3. Research gap and motivation

The studies conducted on social Media misinformation can be broadly classified into three categories. The first comprises of studies that attempt to comprehend the variety of misinformation, its pattern of spread and its interaction with individuals [9, 11, 21, 22]. The second category comprised of all the studies that either describe or design methods to detect online fake news [16, 17, 20, 23, 24]. Considering the threat misinformation can be during crises like Covid-19, the third category comprises of studies conducted to analyze the impact and spread of misinformation during crises and pandemics [13].

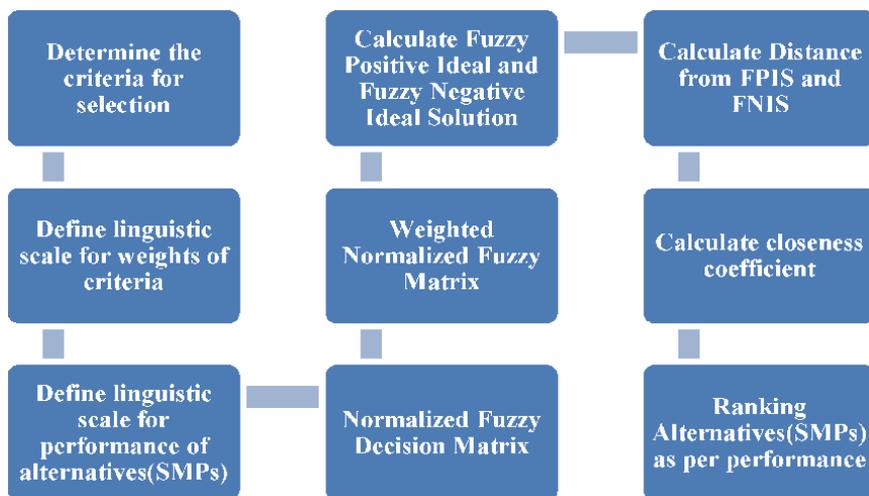
Across studies related to misinformation, all the Social Media Platforms (SMPs) are regarded as one. Even though studies agree that the effect and strength of misinformation might be platform-specific. To fill this gap, this study using of F-TOPSIS method attempts to create a mathematical model to identify those social media platforms which are most likely to spread Infodemic.

### 4. Methods of research

*In this section we describe the methodology that is used in the paper for ranking of SMP in order of their ability to spread misinformation. Here, we have used Fuzzy Technique for Order Preference by Similarity to Ideal Solution (F-TOPSIS) method. This being the extension of TOPSIS to incorporate the real-life decision making. The alternatives (here SMPs) should be such that each alternative is at the shortest distance from the ideal (best) solution and farthest distance from the negative-ideal solution (worst) possible in the given problem scenario [25].*

Considering the concept of TOPSIS, Chen [26] proposed the variant of TOPSIS method under fuzzy environment. The method was proposed to incorporate the real-life inability to make decisions on exact quantification. The basic structure of F-TOPSIS is described in **Figure 1**.

Many researchers have discussed the applications of F-TOPSIS in various fields. Evaluation of initial training for aircraft in Taiwanese Air Force Academy was



**Figure 1.** Fuzzy-TOPSIS methodology. Source: Adapted from Chen [7].

discussed by Wang and Chang using F-TOPSIS. In Amiri the selection of project for the National Iranian Oil company has been done through the hybrid methodology of AHP and F-TOPSIS. AHP is used to calculate the weights of the criteria and F-TOPSIS for the final ranking of the alternatives. Awasthi et al. discussed the selection of sustainable transport system under the case where there is incomplete information. They carried out the selection through the F-TOPSIS method. Ashrafzadeh et al. discuss the application of the method for the case of selection of warehouse. To the best of our knowledge there are no studies which have quantified the spread misinformation in F-MCDM. Moreover, F-TOPSIS has not been used. This technique is used due to its simplicity in understanding, computational comprehension, easy method of selection and ranking of alternatives under consideration.

## 5. Case study

It is evident from the extant literature that Social Media Platforms (SMPs) extensively contribute to spread of misinformation. The question that arises is that which out of the many available are most likely to increase the spread of misinformation. In this section the focus is to give the details of the mathematical methodology viz. F-TOPSIS, for ranking of SMPs in decreasing order of their ability to spread misinformation.

For a real case for a situation of decision making there are always conflicting conditions under which the decision has to be taken. To come up with best decision it is believed that quantitative methods are more accurate. On the other hand one cannot ignore the subjectivity in real life cases. A good blend of quantitative decision making with inclusion of subjectivity is the Fuzzy-Multi Criteria Decision Making (F-MCDM). In this research we try and rank the Social Media Platforms (SMPs) in order to understand the role of each platform in spreading misinformation.

### 5.1 Steps of F-TOPSIS for ranking of SMP

For basic conceptual understanding of fuzzy set evaluations the reader could refer Chen [26]. Moreover, the F-TOPSIS methodology used has also been proposed by Chen [26]. The steps that can be used for ranking of the SMPs through F-TOPSIS are as follows:

- **Step 1:** In the first step a choice of criteria for evaluation ( $j = 1, 2, \dots, n'$ ) (here  $n' = 9$ ) for evaluating the alternatives ( $i = 1, 2, \dots, m'$ ) (here  $m' = 7$ ) in connection with ranking in decreasing order of ability of each SMP in spreading misinformation. These criteria for evaluation were finalized by experts in the field based on extensive research of extant literature. **Table 1** below describes the criteria for evaluation.
- **Step 2:** As proposed by Chen [26], linguistic scales for assigning weights to criteria (as defined in **Table 1**) and for performance evaluation of alternatives with respect to criteria are defined in the form of Triangular Fuzzy Numbers (TFNs) (Refer **Table A1** and **Table A2** in appendix).

Note: It must be noted that in this study triangular fuzzy numbers have been used since they are easier to use and calculations becomes easier for decision makers. Further it has proven to be more effective in situations where the information available is imprecise and subjective.

| Criteria for evaluation   | Working definition   | Reference                                       |
|---|--|---|
| Majority people in my circle use this SMP                           | To check belief in news based on friendly influence  | Khan et al. [27]; Shu et al. [28]; Bernal [29]. |
| I can easily share any post or message on this SMP                  | To check ease with which the message can be relayed  | Khan et al. [27]; Shu et al. [28]               |
| Most users of this SMP are very active                              | Influence of frequency of use by the users on the spread of misinformation                           | Khan et al. [27]; Shu et al. [28]               |
| This SMP pins the location of all my posts                          | Influence of location identification on spread   | Khan et al. [27]; Shu et al. [28]               |
| I get access to a lot of intellectual content on this SMP           | Misinformation may spread disguised, interspersed with serious content.                              | Khan et al. [27]; Shu et al. [28]               |
| Even a person with minimum technical skill can use this SMP easily  | Ease of spread due to user friendly platform   | Khan et al. [27]; Shu et al. [28]               |
| This SMP lets me have conversations easily even with strangers .    | Interaction with non-trusted source  | Khan et al. [27]; Shu et al. [28]               |
| I often find myself hooked on this SMP                              | Addictive nature of SMP which influences to believe in all information (user believes in it blindly) | Khan et al. [27]; Shu et al. [28]               |
| I often see/ receive posts/articles/ messages of my interest on SMP | Influence based on interest and so the user is impacted easily                                       | Khan et al. [27]; Shu et al. [28]; Bernal [29]  |

**Table 1.**  
Criteria for evaluation of social media platform.

- **Step 3:** A group of  $k$  decision makers (here assessment is based on SMP users) ( $k = 1, 2, \dots, K$ ) ( $K = 40$ ). These 40 have been empanelled for study. This study is part of larger project. The panel will be used for future studies as well. The panel is asked to give suitable weights for the  $j^{\text{th}}$  criteria. The average weights for each criterion and performance of alternatives w.r.t. to each criterion from the group are obtained using the formula for average of  $K = 40$  decision makers. The 40 people empanelled were people working in different organizations and having different experience in years ranging from 10 to 20 years. They were part of marketing, operations, human resource departments. The data was collected to take their opinion from the period May 2020 onwards during the lockdown period in most countries.
- **Step 4:** Based on the average performance values of each SMP from the group of decision makers the final fuzzy decision matrix and the corresponding vector of weights can be defined as given in **Table 2**.
- **Step 5(a):** To preserve the property of a TFN to lie in the range  $[0, 1]$  normalization is carried out. The normalized matrix is given in **Table A3** in appendix. The components of the normalized matrix are obtained by the formula given Chen [26].
- **Step 5(b):** The weight of each criterion is multiplied to the normalized performance values of the SMP with respect to each criterion through multiplication rule of fuzzy numbers. The outcome matrix of this step is called the fuzzy normalized weighted matrix. The components of the normalized weighted matrix are given in **Table A4** in appendix (refer [26]).

|                  | C1                | C2               | C3               | C4                | C5                | C6               | C7               | C8               | C9               |
|------------------|-------------------|------------------|------------------|-------------------|-------------------|------------------|------------------|------------------|------------------|
| <b>Weights</b>   | (0.79,0.935,0.99) | (0.8,0.95,1)     | (0.78,0.94,1)    | (0.58,0.78,0.94)  | (0.69,0.865,0.97) | (0.6,0.8,0.95)   | (0.72,0.94,0.94) | (0.79,0.92,1)    | (0.6,0.8,0.95)   |
| <b>Facebook</b>  | (5.94,7.23,7.92)  | (3.89,5.26,6.44) | (4.34,5.89,7.18) | (4.31,5.81,7.05)  | (2.71,4.10,5.55)  | (5.42,6.73,7.63) | (4.44,5.86,7.02) | (3.89,5.34,6.55) | (4.65,6.21,7.31) |
| <b>WhatsApp</b>  | (7.92,9.9,18)     | (6.89,8.13,8.63) | (7.18,8.4,8.94)  | (3.39,4.60,5.84)  | (3.34,4.81,6.26)  | (6.63,8.02,8.71) | (4.5,28,6.42)    | (5.5,6.9,8)      | (4.15,5.71,7.05) |
| <b>Twitter</b>   | (1.15,1.97,2.76)  | (1.60,2.42,3.23) | (1.39,2.21,3.02) | (1.23,2.02,2.81)  | (1.57,2.36,3.15)  | (0.94,1.52,2.26) | (1.65,2.44,3.15) | (1.07,1.76,2.5)  | (1.39,2.15,2.86) |
| <b>LinkedIn</b>  | (3.76,5.5,9.4)    | (3.71,4.94,5.94) | (3.05,4.34,5.47) | (2.15,3.26,4.44)  | (4.44,5.60,6.34)  | (2.21,3.15,4.28) | (3.18,4.34,5.34) | (2.52,3.55,4.63) | (4.23,5.44,6.21) |
| <b>Instagram</b> | (3.60,4.81,5.73)  | (3.23,4.28,5.26) | (3.55,4.76,5.71) | (3.131,4.28,5.31) | (1.65,2.76,4.05)  | (2.73,3.86,4.94) | (2.28,3.42,4.57) | (3.26,4.42,5.42) | (2.97,4.05,5.05) |
| <b>Tik-Tok</b>   | (1.60,2.21,2.73)  | (1.07,1.60,2.15) | (1.60,2.18,2.65) | (0.84,1.31,1.89)  | (0.57,0.89,1.42)  | (2.2,5.2,8.4)    | (1.10,1.55,2.05) | (1.36,1.78,2.21) | (1.36,1.73,2.10) |
| <b>YouTube</b>   | (5.86,6.84,7.28)  | (3.28,4.57,5.68) | (4.39,5.81,6.84) | (2.68,3.89,5.10)  | (5.31,6.44,7.15)  | (5.26,6.65,7.47) | (3.89,5.10,6.02) | (4.55,5.84,6.73) | (5.60,6.81,7.39) |

**Table 2.**  
 Fuzzy decision matrix.

| S. No | Social media platforms |          |
|-------|------------------------|----------|
| 1.    | Facebook               | 0.801542 |
| 2.    | WhatsApp               | 0.752068 |
| 3.    | Twitter                | 0.552188 |
| 4.    | LinkedIn               | 0.518083 |
| 5.    | YouTube                | 0.398945 |
| 6.    | Tik-Tok                | 0.393162 |
| 7.    | Instagram              | 0.316925 |

**Table 3.**  
Closeness coefficient.

- **Step 6:** Then the Fuzzy Positive Ideal Solution (FPIS) and the Fuzzy Negative Ideal Solution (FNIS) is calculated  

$$FPIS = A^* = (1,1,1).$$

$$FNIS = A^* = (0,0,0)$$
- **Step 7:** The distance from the FPIS ( $d_i^*$ ) and that from FNIS ( $d_i^-$ ) for each of the SMPs is given in **Table A5** in appendix.
- **Step 8(a):** Closeness coefficient ( $CC_i$ ) for each SMP is calculated and given in **Table 3**.
- **Step 8 (b):** The closer the value of  $CC_i$  is to unity the better the alternative. Arranging ( $CC_i$ ) values in descending order we obtain the top ranked alternatives.

## 6. Results and discussion

The progress from type writer to smart phones, from newspapers to social media walls have contributed to the ease of freedom of speech in the true spirit. However, on the flip side this freedom and ease has also enabled the fabrication and spread of misinformation like never before [29].

On social platforms, misinformation disseminates at an extremely swift pace and with such an augmented impact that the fake, distorted or inaccurate information acquires a remarkable potential to cause a devastation catastrophe within minutes [16]. The production and circulation of fake news and inaccurate information becomes even more rampant and destructive during crisis like Covid-19 [30].

A crisis makes people hungry for information, hungry for certitude. More mysterious the crisis stronger is the hunger [30]. In a survey conducted across six countries in the month of April 2020 it was revealed that in all the countries people use social media platforms to satisfy the hunger of information and certitude about Covid 19 [31].

Like the world over even Indian use Social Media Platforms as their major source of information for Covid 19. According to a recent report by the fact checking website BOOM, COVID-19 related misinformation and rumors which began

sourcing in the third week of March 2020 and took a colossal spike in early April 2020, the same time period when India went under Lockdown [32].

The aim of this paper was to identify and rank in descending order, Social Media Platforms (SMPs) ability to spread misinformation. The research attempted to identify the SMP which according to the users are most responsible for spread of misinformation. In the paper proxy measures in the form of criteria were used to rank the SMPs. The criteria were termed as proxy measures as the end users filled up the survey based on a blind review. The users were asked to analyze each of the SMP w.r.t. each criterion without biasing their responses towards spread of misinformation.

As discussed in the previous section, the users are asked to give their ranks based on fuzzy linguistic scale to establish the performance (ability to spread) w.r.t to criteria.

The results reveal Facebook followed by WhatsApp and Twitter as the three top most SMP most likely to spread misinformation. The results corroborate with previous research that identify Facebook as tailor-made for the spreading of fake news and for political manipulation [29]. The author further states that Facebook combines all the essential characteristics for the design, creation, targeting and promulgation of fake news. In another study conducted by Princeton University it was revealed that Facebook is the worst perpetrator when it comes to disseminating misinformation. It is much ahead of both YouTube and Twitter when it comes to spreading of fake news or infodemic [33]. The study further states that Facebook aids those wishing to spread 'fake news', by providing them with tools and incentives to do so.

Facebook-owned WhatsApp is the next media most likely to spread infodemic. According to a research [34] WhatsApp is most popular social media platform in India, with over 400 million users in the country, thus making it a significant platform for the spread of infodemic. It is worth noting that the three major catastrophes related to COVID-19 that took place in India during the lockdown phase, in all three infodemic were majorly spread through WhatsApp. First the Palghar mob lynching case on the 16th April 2020 [35]. In the next incident misunderstanding caused by infodemic led to a series of violent attacks on health care professionals in Indore [36]. The most precarious out of all the incidents instigated by fake news was the one that depicted an entire community as vector of disease. In all the three WhatsApp had a major role to play in the spread of infodemic. Thus, confirming the results of the study. Supporting the study is the research titled *WhatsApp Vigilantes: An exploration of citizen reception and circulation of WhatsApp misinformation linked to mob violence in India* conducted by London School of Economics and political Science. The study innumerate's the role of WhatsApp in spreading of fake information leading to various mob lynching incidents in India.

Some other factors contributed to the likely hood of the two platforms spreading maximum fake news are the number and age group of users; degree of rural and urban user penetration and nature of posts.

Facebook and WhatsApp have the one of highest number of users in India, 300 million and 200 million respectively. Being the oldest social media website<sup>1</sup> Facebook has users of all generations<sup>2</sup> and even from rural India. Anyone who uses

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<sup>1</sup> Orkut was launched in 2008 followed by Facebook, Orkut was ultimately closed down in 2014.

<sup>2</sup> <https://www.statista.com/statistics/376128/facebook-global-user-age-distribution/>

a smart phone has WhatsApp installed, thus is used by people of all age group and demographics [37].

Although, more than 50 percent of social media users in India use Twitter, however the platform is yet not very popular both among the rural and older age users. Moreover, there are restrictions on the number of words, size of the Video that can be tweeted making it less attractive to Indians. YouTube has the highest number of users in India, however unlike Facebook and WhatsApp where messages, videos, photographs all can be shared, on YouTube only videos can be shared. Similar is the case with Instagram, which is a Photo and video sharing App. LinkedIn though originally developed as a professional networking site is slowly gaining popularity among its users. Just like Facebook and WhatsApp, any kind of content can be shared on this platform too. However this platform is not popular among the rural users.

The Indians who found it difficult to express themselves through neatly worded tweets or self-appreciating captions on Instagram posts found solace in Tik Tok. Reports suggest that a large section of India's first-time internet users—some of them illiterate, others speaking in local dialects—find navigating video-based platforms Tik Tok easier and addictive. However being just two years old in India and with only 30 seconds video posts, as per the results of the study, the platform is less likely to spread fake news.

## **7. Conclusion**

The crisis of COVID-19 has already killed millions across the globe. The pandemic has further left a large number of people jobless and almost the entire world hopeless. While the think tanks across nations are fighting hard to find a solution to Covid-19, the spread of Infodemic is making the handling of crisis even more complicated.

When the control of a deadly disease like Covid-19 depends on the actions of the population, the quality of information the individuals are being exposed too becomes a vital concern. It is alarming to see that even at a time when the truth can become a matter of life and death a multitude of false information is being spread on social media making it all the more difficult for governments to control the crises.

Plethora of research agree to the an electronic grapevine being more destructive than anything previously imaginable, which Social Media Platform is most likely to activate and spread the grapevine is not addressed by any study.

This study using the Fuzzy-TOPSIS approach identifies Facebook and Whatsapp as the two medium most likely to spread infodemic in the country. The study has enabled to objectively quantify the Social Media Platforms which in turn will facilitate the government to take more accurate decisions to stop the spread of misinformation from the identified platforms.

The identification of the aforesaid media will also help the platforms to take decisions on how to change the features of their SMP so to ensure reduction of spread of misinformation. The changes in the features can be undertaken either by the platforms themselves or educating the platform users.

## **8. Limitations of the study**

The limitations of the current study will lead to future scope. In the current study we have taken only a small group of decision makers based on whose opinion

and judgment we have been able to come to an exploratory conclusion. Further, in this study we have only considered a limited number of SMPs which are considered which may be considered for the spread of misinformation, there could be other media which may also be responsible for spread of misinformation.

In future cross border studies can be carried on to identify if the same platforms are responsible in spreading misinformation in all the countries, or are there any variations. Also, the above study was carried out specifically during COVID-19, post the crisis another study can be carried out to see if the same platforms are responsible for the spread of misinformation yet or do the results vary. This can be a longitudinal study to the current research. We may also include different media for our analysis.

## Appendix

| Linguistic variables for giving order of preferences of criteria | Corresponding TFN |
|--|-------------------|
| Very Low (VL)  | (0,0,0.1)         |
| Low(L)   | (0,0.1,0.3)       |
| Medium Low(ML)   | (0.1,0.3,0.5)     |
| Medium(M)  | (0.3,0.5,0.7)     |
| Medium High(MH)  | (0.5,0.7,0.9)     |
| High(H)  | (0.7,0.9,1.0)     |
| Very High(VH)  | (0.9,1.0,1.0)     |

**Table A1.**  
*Linguistic scale for weights of criteria.*

| Linguistic variables for determining performance of SMPw.r.t. criteria | Corresponding TFN |
|--|-------------------|
| Very poor (VP)   | (0,0,1)           |
| Poor(P)  | (0,1,3)           |
| Medium Poor(MP)  | (1,3,5)           |
| Fair(F)  | (3,5,7)           |
| Medium Good(MG)  | (5,7,9)           |
| Good(G)  | (7,9,10)          |
| Very Good(VG)  | (9,10,10)         |

**Table A2.**  
*Linguistic scale for performance of alternatives (SMP).*

|                  | C1                | C2                | C3               | C4               | C5                | C6               | C7               | C8                 | C9               |
|------------------|-------------------|-------------------|------------------|------------------|-------------------|------------------|------------------|--------------------|------------------|
| <b>Weights</b>   | (0.79,0.935,0.99) | (0.8,0.95,1)      | (0.78,0.94,1)    | (0.58,0.78,0.94) | (0.69,0.865,0.97) | (0.6,0.8,0.95)   | (0.72,0.94,0.94) | (0.79,0.92,1)      | (0.6,0.8,0.95)   |
| <b>Facebook</b>  | (0.64,0.78,0.86)  | (0.45,0.60,0.74)  | (0.48,0.65,0.80) | (0.61,0.82,1)    | (0.378,0.57,0.77) | (0.62,0.77,0.87) | (0.63,0.83,1)    | (0.48,0.66,0.81)   | (0.62,0.83,0.98) |
| <b>WhatsApp</b>  | (0.86,0.97,1)     | (0.79,0.94,1)     | (0.80,0.94,1)    | (0.48,0.65,0.82) | (0.46,0.67,0.875) | (0.76,0.92,1)    | (0.56,0.75,0.91) | (0.68,0.87,1)      | (0.56,0.77,0.95) |
| <b>Twitter</b>   | (0.12,0.21,0.30)  | (0.18,0.28,0.375) | (0.15,0.24,0.33) | (0.17,0.28,0.39) | (0.22,0.33,0.44)  | (0.10,0.17,0.25) | (0.23,0.34,0.44) | (0.13,0.22,0.3125) | (0.18,0.29,0.38) |
| <b>LinkedIn</b>  | (0.40,0.54,0.64)  | (0.42,0.57,0.68)  | (0.34,0.48,0.61) | (0.30,0.46,0.63) | (0.621,0.78,0.88) | (0.25,0.36,0.49) | (0.45,0.61,0.76) | (0.31,0.44,0.57)   | (0.57,0.73,0.83) |
| <b>Instagram</b> | (0.39,0.52,0.62)  | (0.37,0.49,0.60)  | (0.39,0.53,0.63) | (0.44,0.60,0.75) | (0.23,0.38,0.56)  | (0.31,0.44,0.56) | (0.32,0.48,0.65) | (0.40,0.55,0.67)   | (0.40,0.54,0.68) |
| <b>Tik-Tok</b>   | (0.17,0.24,0.29)  | (0.12,0.18,0.25)  | (0.17,0.24,0.29) | (0.11,0.18,0.26) | (0.08,0.12,0.19)  | (0.22,0.28,0.32) | (0.15,0.22,0.29) | (0.17,0.22,0.27)   | (0.18,0.23,0.28) |
| <b>YouTube</b>   | (0.63,0.74,0.79)  | (0.38,0.53,0.65)  | (0.49,0.65,0.76) | (0.38,0.55,0.72) | (0.74,0.90,1)     | (0.60,0.76,0.85) | (0.55,0.72,0.85) | (0.56,0.73,0.84)   | (0.75,0.92,1)    |

**Table A3.**  
Normalized fuzzy decision matrix.

|                  | C1                | C2                | C3               | C4               | C5               | C6               | C7               | C8               | C9               |
|------------------|-------------------|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| <b>Facebook</b>  | (0.51,0.73,0.85)  | (0.36,0.57,0.74)  | (0.37,0.61,0.80) | (0.35,0.64,0.94) | (0.26,0.49,0.75) | (0.37,0.61,0.83) | (0.45,0.78,0.94) | (0.38,0.61,0.81) | (0.37,0.67,0.93) |
| <b>WhatsApp</b>  | (0.68,0.91,0.99)  | (0.63,0.89,1)     | (0.62,0.89,1)    | (0.27,0.50,0.77) | (0.32,0.58,0.84) | (0.45,0.73,0.95) | (0.40,0.70,0.85) | (0.54,0.80,1)    | (0.33,0.61,0.90) |
| <b>Twitter</b>   | (0.099,0.20,0.29) | (0.14,0.26,0.375) | (0.12,0.23,0.33) | (0.10,0.22,0.37) | (0.15,0.28,0.42) | (0.06,0.14,0.24) | (0.16,0.32,0.42) | (0.10,0.20,0.31) | (0.11,0.23,0.36) |
| <b>LinkedIn</b>  | (0.32,0.50,0.64)  | (0.34,0.54,0.68)  | (0.26,0.45,0.61) | (0.17,0.36,0.59) | (0.42,0.67,0.85) | (0.15,0.29,0.46) | (0.32,0.58,0.71) | (0.24,0.40,0.57) | (0.34,0.58,0.79) |
| <b>Instagram</b> | (0.31,0.49,0.61)  | (0.3,0.47,0.60)   | (0.30,0.50,0.63) | (0.25,0.47,0.70) | (0.15,0.33,0.54) | (0.18,0.35,0.53) | (0.23,0.45,0.61) | (0.32,0.50,0.67) | (0.24,0.43,0.64) |
| <b>Tik-Tok</b>   | (0.13,0.22,0.29)  | (0.1,0.17,0.25)   | (0.13,0.22,0.29) | (0.06,0.14,0.25) | (0.05,0.10,0.19) | (0.13,0.22,0.30) | (0.11,0.20,0.27) | (0.13,0.20,0.27) | (0.11,0.18,0.27) |
| <b>YouTube</b>   | (0.50,0.69,0.78)  | (0.30,0.50,0.65)  | (0.38,0.61,0.76) | (0.22,0.43,0.68) | (0.51,0.77,0.97) | (0.36,0.61,0.81) | (0.39,0.68,0.80) | (0.44,0.67,0.84) | (0.45,0.73,0.95) |

**Table A4.**  
Weighted normalized fuzzy decision matrix.

| S. No | Social Media Platforms | $d_i^*$  | $d_i^-$  |
|-------|------------------------|----------|----------|
| 1.    | Facebook               | 3.808774 | 5.878767 |
| 2.    | WhatsApp               | 3.090532 | 6.661095 |
| 3.    | Twitter                | 6.935459 | 2.286388 |
| 4.    | LinkedIn               | 4.886222 | 4.54513  |
| 5.    | Instagram              | 5.193706 | 4.211984 |
| 6.    | Tik-Tok                | 7.311769 | 1.810359 |
| 7.    | YouTube                | 3.810798 | 5.741397 |

**Table A5.**  
*Distance from FPIS and FNIS.*

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# Using Social Media for the Development of Civic Engagement and Local Governance

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## Abstract

The main objective of this study is to propose guidelines for the development of the administration of local government organizations using digital technology, such as the use of social media in the administration. It will be used in the case of promoting public participation in public policy formulation. The information on the features needed to develop operating systems on social media applications would be collected and then trialed. At the same time, data was collected from the experiments. Then, the received information is made into a user manual. The study found that the municipality could use social media to enhance the communication efficiency between municipalities with the public at an efficiency level. At the effectiveness level, people were satisfied with using social media to raise complaints and recommend municipalities. Meanwhile, municipalities can obtain adequate information to use in making operational decisions in comparison with regular operations. And at the impact level, it was found that the municipality could encourage people to participate in the administration of local administrative organizations and support municipalities begin to take new approaches in response to the needs of the people even better.

**Keywords:** Digital technology, Social media, Local government, Governance, Citizen engagement

## 1. Introduction

As the government adopting social media as a tool, social media might increase the government's capacity for engagement [1]. Other social media can build interactive features and increase citizen collaboration with the government. These concerns change citizens' social media tools, especially the local government, to encourage and listen to public demand [2]. Further, social media took a role in public action, its influence on citizen engagement, and increased public trust [3]. Social media includes communication platforms such as Facebook, Twitter, and YouTube, which the government intensively uses. The adoption of social media uses brought collaborative nature between government and citizen [4, 5].

The use of social media might increase collaboration among stakeholders. For citizens, social media can engage them in a government program and bridge the gap between the government with society. For the government, social media able to engage public participation and collaboration. Social media platform makes informed citizen and strengthens public relations. It is explained citizen engagement

through social media, including interaction among social media users. Various areas will be involved, where the municipality might use social media to engage the government, organization, citizen, and community. But the challenge is the professionalism to manage social media interaction for communication. For instance, lack of capacity and skill to initiate such engagement requires technological development and professional media skill development. The movement towards social media use requires people's attitude, staff preparedness, time availability, and skill [6].

Further, Dobos and Jenei argue on the changing participation to engagement. There are two types of citizen engagement through instrumental and normative activities. It aims to informing or receiving a response from the governance process [7]. The way of engagement more efficiently should be used among normative activities [8]. At the same time, the form of engagement in local government have to roles to find the way that provides conditions for listening and engagement activities the way and techniques through dialog and interaction in social media. From the government-citizen relationship, there is the ability to dialog, involve, and collaborate. It is expected more likely to be interested in inquiring, expressing opinions, making a suggestion, and taking responsibility. In this approach, the government should motivate and encourage them to better understand the government-citizen relationship. The importance of citizen engagement, understood as the participation of citizens in political and social issues is considered essential for democracy [9].

However, some critiques about the uses of social media in the government have considered not to be the adequate cause of many social media platforms used simultaneously [10]. Social media should be egalitarian (Flecha 2000) and government interventions [11]. Citizen engagement requires systematic probing. Further, the desired citizen development "knowledge and understanding" of the political and administrative activities may influence such the ability to analyze, express, and defend opinions, positions, participate and debate. A chance like tolerance, loyalty, openness, negotiation, and compromise is needed for a democratic society. The municipality opened the internet, mainly social media platforms change and engagement. Social media has quickly grown into public organization tools and human face for communication [12]. Avidar argues social media interaction among organizations and interaction for the public to consume, produce and share online information and raise social media use for engagement. Nevertheless, the growth of social media, "traditional" media still play an essential role in raising the social media visibility of an organization.

This chapter would like to present the study results of the application of social media to develop tools and operating systems that can be used to improve and increase the management efficiency of local government organizations. It will make a presentation of the concrete and practical development model. And it can extend into applications and operating systems that can be applied following the actual municipality operating conditions. This social media will ultimately enable municipalities to further enhance digital technology for the administration and delivery of public services to residents.

## **2. Theoretical review**

Social media refers to the activities, practices, and behaviors among peoples involved and gather online to share information, knowledge, and opinions using various media. The application of social media by governments requires an organizational change to the culture, people, structures, and processes for effective results are to be achieved. It can create opportunities for developing community-based partnerships by facilitating engagement with the public, such as creating and maintaining

interactions and relationships. The local government is beginning to engage through using social media in different ways. This action includes promoting events and activities, problem-solving, gaining community input, and engaging [13]. Teng et al. [14] also illustrate how local governments can harness technology to improve efficiencies and engage citizens. However, local leaders must be careful that technology-based mechanisms for communication and engagement do not benefit only those who can advance the technology uses. Thus, technology must be complemented by other widely accessible means of gathering participation. In this case, Professionals in using the technologies should not act as a threat but as an opportunity for making the organization more global, interactive, dialogical, and socially responsible.

Further, social media are functional in publishing information about public interaction and sharing strategies for resolving social problems and promoting positive change. There are two essential elements to consider: first, the media can support local activation by strengthening the network effect; and secondly, the media as an international network, able to contribute significantly to opens the connection whole around the world. Information-based web and social media play roles in pursuing communication networks (horizontal and vertical communication), particularly media relations, such as a) making strategies for policies and communication between the international and local networks. b) improving dialog space between government and citizens. c) as a tool for engagement and participation. More specifically, in enhancing stakeholders' engagement [15].

The local government context could use social media to focus on municipal management, engage citizens in local decision-making, and improve government to citizen relationships. Citizens need government capacities to encourage public needs, such as providing public service, favoring high participation rates in public sector management, and helping local government prioritize and implement.

Social media as an 'alternative' public space, the development of Web 2.0 technologies have been described as offering the 21st century by providing opportunities for extensive citizen engagement with the government [16]. The development of social media technologies has led to more use by governments. Governments should have already moved from the past traditional phase with social media platforms and should deliver and create value using social media. The governments are using digital technologies to engage in e-services such as broadcasting information, emphasizing citizen interaction [17]. Social media applications, built on Web 2.0 technologies, offer governments extensive means to engage communities and make services more efficient. It also allows for encouragement. Governments aim to value civil society as a legitimate partner for change through enhancing capabilities for collaboration, participation, and empowerment. However, the government using digital technologies to enhance direct citizen engagement in city, regional or provincial planning processes [18]. Indeed, Web 2.0 and social media are now considered part of participative citizens to the government in providing public service and information. Some governments are increasing with e-government service that includes social media tools.

Social media lies in the perceived advantages of both the government and the citizens, although the benefits tend to be idealistic. For example, there is much talk about increasing public participation, citizen involvement, transparency, coproduction, using more excellent knowledge, and reaching stakeholders. It also identifies benefits such as the actual value of engagement that raises awareness of new policies, services, or social issues and encourages interaction with feedback from governments. Use the internet and media platforms to organize and promote their interests and actively participate in their social interaction [19].

Ellison and Hardey [20] said that the viability of social media as a potential means to stimulate citizen engagement in local politics and ask whether people

can use specific platforms such as Facebook and Twitter to develop innovative and accessible forms of democratic dialog within the local community. The role of local government and citizens themselves is in the process of constant articulation, primarily concerned with considering the kind of role social media can play in facilitating new forms of dialog and local engagement. The peoples are constantly experimenting and realizing the social media feasibility, combining this creatively with face-to-face interaction and bridging the distance of view and participation. Social media is an arena that deserves attention and critical reflection as a political site and as a starting point for this new type of public engagement [21].

### **3. Methodology**

This chapter will implement the qualitative research methodology through data collection, data analysis, and synthesis. There will be a specific selection of three municipalities in Khon Kaen province, Thailand. There are three steps of researching as follows.

First, this research will use the interview and focus group methods for the selected key informants to collect data.

The second, about data analysis. This research will use the content analysis method to compare all collected data between before and after using social media in local government administrations and then interpret data followed by theories and concepts.

The third, data synthesis, will be conducted by gathering all analyzed data to be reorganized to propose the SOUP model.

### **4. Key results**

#### **4.1 The key factors**

This chapter presents the concept and practice of applying social media to promote citizen engagement and local governance development. The aim of presenting is a model of development called the SOUP Model. The development of social media use following this model is as follows.

1. The use of social media must be designed to facilitate sharing (Sharing: S)

Information between citizens, departments, administrators, municipalities, and the public can be quickly and universally provided to be used as a tool to enable all parties to be mutually beneficial in terms of monitoring progress. In addressing public complaints to a municipality, it is used to raise awareness and understand the municipality about the needs of people while also expressing it to the public and the public. Knowing the performance in various areas of the municipality can be appropriate for the people's use. For example, it is used as a medium for sharing and exchanging information in tracking complaints submitted by the people to the municipality. It has set up a variety of tools for people to send information to the application easily.

2. The use of social media must be designed to facilitate openness and use (Openness: O)

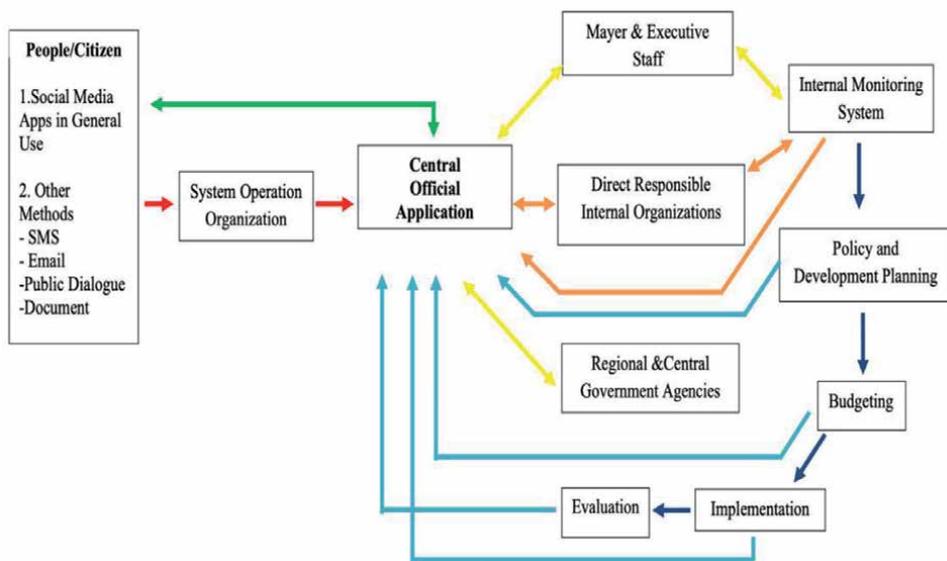
The use of social media should be designed that it can be easily and universally used by citizens, agencies, administrators, municipalities, and the public. All parties can benefit, both in monitoring the progress of work to resolve the

public's problems and raising awareness and understanding the municipality. It can also be used to show people and the public about performance in various municipality areas. It provides opportunities for people to use various channels or tools in raising complaints and informing their recommendations. The municipality should adopt a local development policy by facilitating social media and other non-governmental channels. Social media, which this openness provides, has given the public more opportunities.

3. The use of social media must be designed to provide optimal accessibility and use in the context of local usage (Uniqueness: U)

Its use should be able to adapt to the way of living of the people in the area. It should not create too much of a burden on the people they have no interest in using. It can apply to local government organizations and does not affect government officials and employees' regular operation. It may result in not being accepted in the practice of government officials in the organization. For example, the awareness of differences among the groups of people in the area is because some people do not have the skills to use social media. But they familiar with the use of regular communication channels. The municipality must provide facilities for these people. The municipality might have established an agency with a regular officer responsible for receiving complaints and suggestions from the public. And then, the officers will bring the information received from the public into the application for action. In addition, the municipality may set up a new agency to be mainly responsible. It acts as a central agency that facilitates the application for the coordination between the municipality's internal officials, citizens, and administrators to monitor the performance.

4. The use of social media must be designed to support the cooperation of the state and the people. (Partnership: P)



**Figure 1.** Development model for using social media to promote civic responsibility and local governance (SOUP model).

Social media should provide people with more opportunities to become responsible for the municipality's administration. It must enable citizens to participate in monitoring, supervision, and decision-making conveniently and conveniently with municipalities and cover all stages of their implementation, for example, using applications to display progress on problem-solving. Complaints are put into the operating system that will facilitate the public to follow up on the performance as soon as there is progress in solving problems. It can also be used to collect feedback data and the needs of the people to use in the formulation of development projects that will be used in the fiscal year or to consider in the formulation of local policies and plans for the next fiscal year.

## 4.2 The model

The use of social media will help the people and the municipality work together more closely together. It will also help the people to raise themselves to become partners in the administration and formulation of their local public policy with the municipal officials. Because it will provide people with access to information on the same basis as the municipality, which, when the people have received such information, will help the people follow up to ensure that the municipality must work following the problems and needs of the area as much as possible. It will enable the people to monitor the performance of the municipality at every stage. And it will also support the people to take responsibility in the municipality's administration with more equality.

From the guidelines for promoting the use of social media to develop the administration of the local government mentioned above, they have been synthesized to create a SOUP model for promoting social media in the development of citizen engagement and local governance shown in **Figure 1**.

## 5. Discussion

From **Figure 1**, it shows that the SOUP model has various components:

1. Person
2. Organization/unit
3. Applications and work processes related to the implementation of social media for the development of Citizen Engagement and Local Governance

It will be presented through applications for handling various citizens who want the municipality to resolve the problem or want the municipality to use it as a policy and a local development plan. The details of such a model can be presented and classified by various three elements as follows.

### 5.1 Person

**Figure 1** shows that persons directly involved in using the model are citizens, staff in the organization responsible for overseeing the central application's operating system, and the mayor, including the municipal administrators. These groups will play a role and the responsibility for using social media for development, as shown in **Table 1**.

The model was assigned to different groups of people related to the use of social media. They act together both as a recipient and information sender. The

| <b>Groups</b>  | <b>Authorities</b>   | <b>Responsibilities</b>   |
|--|--|---|
| Citizen  | Report a complaint and suggestions for local development   | Follow up on the outcome of the complaint report and their suggestions through the application  |
| Staffs in the agency that manages the application's operating system | <ul style="list-style-type: none"> <li>• Check the correctness of the information sent by the public</li> <li>• Bringing information on complaints and suggestions into the application</li> <li>• A center for communication</li> </ul> | <ul style="list-style-type: none"> <li>• To consider and improve the language of complaints and suggestions</li> <li>• Forward information to the agency responsible directly and related agencies</li> <li>• The medium of providing information and news to the both</li> </ul>   |
| Mayor and municipal administrators                                   | <ul style="list-style-type: none"> <li>• Follow up on solving problems according to complaints received from the public</li> <li>• Consideration to make a policy and local development plans</li> </ul>                                 | <ul style="list-style-type: none"> <li>• Supervise the operations of the responsible agency to resolve issues using operational progress notification status sent from the central application as a tool.</li> <li>• Bring various suggestions to be considered together with various agencies involved at regular intervals</li> </ul> |

**Table 1.**  
*Shows the roles and functions, and responsibilities of various groups in the use of social media.*

municipality should set up an agency to perform this duty as a center of communication and coordination. When the citizens act as a sender of complaints and recommendations to the municipality, this one will act as a receiver and carry information to continue. At the same time, the municipality acts as a sender, that is, contacts citizens to report progress on the resolution of complaints or various policies to the public. The two parties interact with each other within the process of using social media to perform that work. It will help all parties to receive information and news equally all the time. This operation will result in making the municipality and the people can be closer to each other. It will contribute to building partnership, which is one of the critical features of local governance.

## 5.2 Organization

From the model presented by this study, three leading agencies are involved in adopting social media in the development, namely the system operation organization, the directly responsible organizations, and the central government agencies. These agencies will play a role and responsibility for using social media for development, as shown in **Table 2**.

The model specifies that municipalities can use social media to provide the three groups of organizations with coordinated operational guidelines in a supportive manner systematically or empowerment. The agency that serves as application supervision will serve as a connection point for the operations of the two remaining organizations to work together, not duplicate, between the central government and the municipality in terms of operations for solving problems of the people in the area, policy setting, and various development plans. It aims to create repetition, which will help the central government formulate policies that can support the municipality's policy. Because the central government will know information from the report of the application and help the central government know that what needs of residents have been developed? And the municipality has a policy for such development or not? Which central government must support the municipality's policy? This acknowledged information will help the

| Organizations   | Authorities  | Responsibilities   |
|---|--|--|
| An agency (new?) that is responsible for the use of the application | <ul style="list-style-type: none"> <li>• Manage applications</li> <li>• Coordination center</li> </ul>   | <ul style="list-style-type: none"> <li>• Maintain applications</li> <li>• Manage a database for supporting the exchange of information between citizens and municipalities.</li> </ul>   |
| Various departments   | <ul style="list-style-type: none"> <li>• Solve the problem</li> </ul>  | <ul style="list-style-type: none"> <li>• Establishing a project for solving problems</li> </ul>  |
| that serve directly to resolve the issue                            | <ul style="list-style-type: none"> <li>• Communicating with the people</li> <li>• Participation in policy formulation and local development plans</li> </ul>   | <ul style="list-style-type: none"> <li>• Notification of the results of complaints</li> <li>• Listen to the opinions of the people to improve operations.</li> <li>• Report results and improve operations</li> </ul>                                      |
| Departments of central government                                   | <ul style="list-style-type: none"> <li>• Collect information about complaints and recommendations for the local development of the people</li> <li>• Follow up and supervise the operations of the municipality</li> </ul> | <ul style="list-style-type: none"> <li>• Create a database for decision-making in formulating policies, plans, and projects for national development.</li> <li>• Monitoring and supporting the performance of the municipality to be systematic</li> </ul> |

**Table 2.**  
Shows the roles and functions, and responsibilities of organizations/agencies in the use of social media.

central government formulate policies parallel with the policy and the local development plan appropriately and be implemented more efficiently.

### 5.3 Applications and work processes related to the implementation of social media

From the models presented by this study, it is found that social media can increase the efficiency of municipal administration in promoting civic engagement and local governance. Central governments and municipalities should work together to create an application. It should be designed to have unique characteristics, which can support all types of social media applications that people use today, whether using YouTube, LINE, Twitter or Facebook, etc. The application must be compatible with all types of social media to receive complaints and recommendations for the development (Openness) and act as the central processor that can be converted from anywhere. The citizen can use social media as the medium for sending the information right to the mayor, the agency’s head, including sending the information back to the people who own the complaint and those suggestions directly. There is no need to switch to the application or other kinds of social media by the people. But they can use the social media that they regularly use to communicate with the municipality (Uniqueness) by this application. It will act in information management to facilitate all parties to work together without creating an additional burden on all parties involved (Openness).

For example, when people are faced with a problem that needs to be solved or help from the municipality. They only use their mobile phones or computers regularly used to transmit information via social media, where they are most convenient to send such information to municipalities. The municipality then takes information into the application to connect with information to the mayor and the head of the agency involved in solving those problems. People will be able to use the application

to keep track of information related to the action taken by the municipality by the central application will send information on the progress of operations back through the social media that the public uses to send the information directly.

In addition, the applications will serve as a link for information and news between municipalities, provincial government agencies, and the central government (Sharing). It is responsible for submitting complaints and various needs to the regional agencies and the center, which can be used to formulate policies, programs, and projects that will not be duplicated with the local development policy that the municipality has already implemented. But this information can formulate policies or programs for various projects that will enhance the efficiency of municipal operations. This application will help the operation resolve the problem and respond to the needs of the people in the area more successfully.

Another benefit of using social media that this study offers is that the central government agency can use the data collected by the application to monitor municipal operations (Sharing). Because of the linkage system between the municipality's application with the central government, it gives a tool to the central government to know another part of the municipality's performance and implement the regular operational supervision system already in place. The various departments of the central government will be able to use the information in consultation or join in formulating guidelines for monitoring and promoting the municipality's performance appropriately. Social media can reduce wasted time and the operational budget of government agencies in the central government and the municipality.

The advantage of using an application is an application can adapt the use of social media with different features to be compatible with the central application (Uniqueness). This use will facilitate the people to use it well because it gives the user the feeling that it is easy to use. People can use social media in a way that they are already familiar with the use. There is no need to adjust the method of use or must change the application in any way. The feature also reduces the impact on government officials and municipal officials rejecting their use since this system does not create additional business. There will be a unit within the municipality responsible for administering this system as a facilitator for applying the application. It is an agency that facilitates communication with the people, which will enable government officials and officials of various departments within the municipality to fulfill their primary duties and responsibilities in solving problems for the people. Traditionally, it will enhance the performance of government officials and municipal officials to meet the needs of the people more efficiently.

Another advantage is that using such applications allows the public to use the various tools and various social media applications to send information about complaints or various suggestions directly to the application (Openness). After that, the application will display the progress of the municipal problem-solving operations. Information will be displayed in the system so that the public can come in and watch at any time. People can obtain information on their own. In which such opportunities will help to increase the acceptance of social media among people as well. This approach can optimize how social media is used to suit better how people use them (Uniqueness).

## **6. Conclusion**

This chapter can analyze all the above studies against the proposed model to develop social media usage. This study proposes that there must be functional characteristics that are consistent with fundamental principles 4. That is, it can be shared (Sharing), can be used openness (Openness), practical use for space

| Principles      | Concepts   | Implementations  |
|-----------------|--|--|
| Sharing (S)     | A link of information and news between municipalities with provincial government agencies and the central government | A center for collecting information about complaints and various suggestions of the people to government agencies to use in the formulation of policies, plans, and projects |
|                 | The data collected by the application can be used to monitor municipal operations.                                   | Use the information in consultation or jointly formulate guidelines for monitoring and promoting the operation of the municipality   |
| Openness (O)    | The application can support all types of social media applications commonly used by people today.                    | They are facilitating all parties to work together without creating additional burdens on all parties involved.  |
| Uniqueness (U)  | People can use the social media they regularly use as a means of communicating with municipalities.                  | A central processing unit that can convert any kind of social media information for mutual benefit   |
|                 | It is easy to use.   | It is an implementation that can adjust the use of social media with different features to be compatible with the application of municipal.                                  |
| Partnership (P) | Helping all parties to receive information and news equally and all the time   | All parties act together as a recipient and information sender   |
|                 | Departments have operational guidelines that empower the performance of each other systematically                    | Organizations can know each other's information, which will help each organization to define policies that can be used for development consistently and efficiently.         |

**Table 3.** Summarizes the results of comparative data analysis between social media usage and SOUP principles.

(Uniqueness), building partnerships in work. (Partnership), also known as the SOUP model. This chapter demonstrates how the municipality can strengthen social media to foster citizen engagement and develop local governance in **Table 3**.

The data analysis showed that the SOUP has some qualifications that enable municipalities to increase their capacity for action in promoting the participation of citizens. Because the municipality can provide more channels for citizens to access the management of public affairs [22, 23], the municipalities can use social media to process information that the public wishes to offer directly using the municipal application to convert all subsections [24–26]. The public does not need to change any method of use. They Just use the social media that you use regularly and send it to social media at the municipality. The application is a specially developed tool for the development of communication systems between citizens and municipalities. The application works as a source of information to the internal departments and local administrators. This application will speed the collaboration between citizens and municipalities to use social media to contact and send information to locals [27, 28]. This application will be a central processing tool to deliver the people's information directly to the mayor and responsible agencies within the municipality and at the same time. This application will enable the use of all related information. And all parties can track progress or the results of all joint actions [29, 30]. The municipality will process the application and report results to at least four stakeholders, including one is sent to the responsible agency. The second is sent to the mayor. The third is sent to the federal government. The fourth is to send it back to the people who own the matter. Therefore, all parties involved will be able to investigate all operations together jointly. Even the central government can recognize it [31, 32]. Social media will link the corrective process [33–35].

This system will support the public to ensure that the municipality will put various suggestions into operation. Because when the government agency has received the matter, the application will immediately report the results to the people who send the information directly. Referring to the people who own the story, they will know that what he proposed was met with some degree of response from the municipality. People were able to use the application in monitoring the progress of the municipality's operations in the matter that they are proposing or other matters that they are interested in following. This operating system will help both the public and the municipality work together efficiently and closer [36, 37]. Because it will facilitate the public no longer have to come to contact the government in person. People can see it on their mobile phones or any other personal communication tool. This application will be the manager of all information, which means that the application can be developed or adapted for municipalities to promote their work with their people better.

However, this kind of use is still limited, namely the laws and regulations relevant to the municipality's performance. As a result, municipalities may not fully utilize all the information they receive from their citizens via social media. Nevertheless, the open use may affect the annual administrative costs of municipal. Because obtaining certain types of information that do not meet the needs of use makes municipalities more burdensome regarding operating time and budget expenditures in screening information received from citizens to extract only information that can be utilized. In addition, there are concerns about the use of social media regarding the coordination system within the organization, which is still not a usual bureaucratic practice. Adaptation to support this kind of work. As a result, municipal authorities are unable to establish coordination practices that are not yet clear enough to foster collaboration in the form of complementary support or to empowerment performance of each other And each other systematically.

To increase the efficiency of the internal management system in supporting the use of social media. This study suggests the central government' agencies need to review and revise guidelines to support municipal use. It may be in conjunction with the municipality to define as a measure of operation to be used as a basis for monitoring and evaluating the municipality's performance, including consultation to advise the municipality to improve and develop administrative processes. These operations can increase the efficiency of the municipality's use of social media. At the same time, they may join municipalities in using social media as a regulatory tool. This implementation will create savings in the budget of the municipal administration as well.

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# The Use of Videoconferencing in Higher Education

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## Abstract

This chapter will explore the impact of the COVID-19 pandemic on the higher education industry. Specifically, there will be a discussion of the exponential growth of videoconferencing tools for higher education purposes. The effects of the communication technology tool on the college classroom will be explored, including how faculty and students experience the synchronous, virtual classroom. Parts of the communication process and how they differ in face-to-face and video-conference class will be outlined. The concept of Zoom fatigue will be defined and examined, in relation to the communication process. Recommendations for effective use of videoconferencing in the college classroom will be provided.

**Keywords:** Zoom, videoconferencing, higher education, Zoom fatigue

## 1. Introduction

Mandatory societal lockdowns and social distancing measures necessitated by a global health pandemic in 2020 rapidly transformed how people worked and learned. Individuals instinctively turned to synchronous online video communication technologies in unprecedented numbers as a substitute for face-to-face interactions. Videoconferencing platforms, such as Zoom and Microsoft Teams, quickly became a considerable part of many people's everyday activities. While videoconferencing closely simulated face-to-face instruction, many reported using the tools was "exhausting," prompting journalists in the popular press to label this new phenomenon "Zoom fatigue" [1, 2].

The use of videoconferencing platforms exploded in spring 2020. Zoom, one of the most popular of the videoconferencing platforms, increased thirtyfold as the use of its service from December 2019 to March 2020 jumped from 10 million daily users to 300 million daily users [3, 4]. In higher education, professors rapidly transitioned their previously face-to-face courses to fully online instruction in a matter of days, and the majority used videoconferencing to continue to lecture to their classes [5, 6]. Whereas web videoconferencing platforms had fulfilled niche needs for remote meetings prior to the pandemic, the technology's use abruptly became normalized as a way for people to work, learn, and socialize during the widespread lockdowns caused by the pandemic, and users began spending extended hours communicating on the videoconferencing tools.

The coronavirus pandemic dramatically changed day-to-day life, as individuals and families lived primarily in isolation while local, state, and national lockdown mandates were enacted, and communication technologies provided a way for individuals to stay connected in a socially distant world. Remote working became

routine during the crisis with 42% of people working from home [7]. Distance education also gained widespread acceptance as more than 90% of students of all ages (K-12 and postsecondary) turned to online learning [8]. Experts predict remote working will retain a significant influence in the workplace as estimates predict 25–30% of employees will be working remotely multiple days a week [9]. Online learning is also predicted to remain in high demand as college and universities struggle to find the most efficient and affordable ways to deliver educational content [10]. Meanwhile, students, who are now accustomed to online learning, are planning to include online education in their future educational plans, with 22% of 2021 high school seniors prioritizing colleges with online classes [11]. Remote working and online education seem likely to be relevant and widespread in the future, so the extensive presence of videoconferencing in everyday life will likely continue [4].

Driven by the need for remote working and learning, videoconferencing is now an integral part of everyday life, helping users navigate the challenges of social distancing, remote work, and online learning [12]. When face-to-face communication is not possible, videoconferencing intuitively feels like a logical substitution due to its media richness [13] and similarities to in-person interactions. Videoconferencing simulates face-to-face encounters because users can see and hear others simultaneously, in real-time [1]. Traditionally, videoconferencing was used in business and educational contexts as a supplemental method of interacting with people across geographic distances. The technology was not designed to serve as the dominate form of communication for educational purposes. As videoconferencing became more prevalent, concerns about its implementation developed.

The massive pivot to online instruction and exponential growth of videoconferencing quickly presented new challenges for its users [14]. About 80% of faculty members used videoconferencing tools in their courses during spring 2020 [6]; however, early into the transition to online learning, both faculty and students described Zoom as exhausting [2]. For all videoconferencing's benefits, the increased use of video calls in people's daily lives also led to intense feelings of tiredness. The mediated alternative to face-to-face interactions drained users because communicating through videoconferencing takes more effort and energy than in-person communication [1, 15, 16]. A new phenomenon that emerged from the overuse of videoconferencing platforms is commonly known as "Zoom fatigue," although the same feeling occurs with other such platforms, including Microsoft Teams and Skype [1, 3, 4, 15, 17, 18]. Zoom fatigue posed previously unknown complications for videoconferencing users to understand and address.

## **2. Background**

While videoconferencing technology has existed for about 50 years, its integration into educational contexts occurred much later. Early distance education research considered televised broadcasts and large videoconference systems that required site-to-site operation, but over time, technology advanced and distance educators used broadcast media less and integrated computer-mediated instruction more. Likewise, researchers concentrated their consideration more on distance learning through computer-based instruction and online education, rather than videoconferencing [19]. More recently, affordable, convenient web videoconferencing platforms renewed instructors' interest in videoconferencing as a method to increase presence and engagement in their online courses. The global pandemic of 2020 further solidified videoconferencing's use in online education.

## 2.1 History of videoconferencing

The ability to transmit visual and verbal communication simultaneously over long distances was dreamt about for years before science made it a reality. Soon after the introduction of the telephone in the late nineteenth century, the idea of a videophone was first imagined [20]. The desire of businesses to better collaborate and communicate over long distances primarily fueled the development of the technology throughout the 20th century, but mass adoption of the technology occurred in the 21st century after computers and networks advanced to become more accessible and affordable for consumers. The availability of current user-friendly videoconferencing platforms is primarily due to the convergence of videoconferencing, computer, and networking technologies that developed over time, leading to the affordability of the necessary hardware, software, and bandwidth [21]. According to [20], “Today, the act of placing a video call is as simple as pressing a button. However, the systems we know and use have evolved after about a century of research in the field” [p. 1]. As is the case with many technologies, the initial scientific innovation to bring videoconferencing to a screen took extensive time as did the adoption of its use to a mass audience.

Videoconferencing technology was the culmination of decades of innovative scientific research by the Bell System’s Lab. The first functioning ikonophone was built in 1927 and used a television signal broadcast over a telephone line, but that technology was not scalable, meaning it was not feasible to implement it to a mass audience [20, 22]. Decades later, the public was awed by the introduction of the Bell System’s experimental “picturephone” at the 1963 World’s Fair in Queens, NY [22, 23]. Afterwards, three picturephone booths were placed in Washington, D.C., New York, and Chicago, but the devices could only communicate with each other and for a steep price. In 1970, the Bell System launched the first commercial picturephone service in Pittsburgh. Few businesses nationwide adopted the expensive service, but it paved the way for future videoconferencing technology and use by businesses, education institutions, and consumers [24].

Videoconferencing evolved during the 1970s and 1980s as a result of corporate demand. Business organizations recognized the benefits of videoconferencing to collaborate and communicate over geographic distances, saving travel time and costs while enabling organizational members to conduct efficient meetings in dispersed locations [21, 23]. The significant expenses required to use the technology restricted the extent of videoconferencing’s adoption. Costly equipment and specialized systems reserved the use of the technology to the wealthiest of companies and their upper-level executives and stakeholders [23].

As technology advanced and costs decreased somewhat in the 1990s, videoconferencing gained momentum within organizations who adopted the technology to enable virtual meetings that included visual and verbal communication through computer conferencing. Although substantial cost and effort were still required, with systems costing \$70,000–\$90,000 [21], more organizations, including higher education institutions began to implement videoconferencing by the late 1990s [23]. During this time, the emergence of the Web also spurred consumer interest in videoconferences, but the average computer system with its dial-up modem and internet service could not yet handle the technical demands. Prohibitive high costs did not allow for widespread adoption of videoconferencing until the availability of broadband internet and competitively priced devices flooded the marketplace [21, 23].

Technological advances spurred the growth of videoconferencing services in the late 1990s and early 2000s, expanding the industry’s focus to include individual consumers. The development of the webcam in 1998 and increased internet transmission speeds led to consumer-based videoconferencing products and services,

such as Skype in 2003, a pioneer in desktop computer-based videoconferencing [21]. Consumer demand soon drove technological progress. The impact of widespread videoconferencing can be traced to the introduction of 3G technology and smartphones as they made synchronous and immediate video sharing possible for consumers worldwide [23]. Further, Apple played a major role in the proliferation of videoconferencing with its introduction of FaceTime in 2010. These advancements caused a major shift in focus from business-centered products and services to consumer-centered videoconferencing [21].

Today, continued technological enhancements allow individuals to connect on video calls and videoconferences through a variety of platforms and personal devices, providing a rich communicative experience. The advent of cloud computing makes the organizational infrastructure required to utilize videoconferencing more affordable because large capital expenses are no longer necessary. The current technical focus is on improving the quality, convenience, and ease of videoconferencing for organizations and individuals. Videoconferencing has become an expectation in many settings as more and more people apply videoconferences in business, health, and educational settings [21]. Telemedical visits and virtual job interviews were becoming more prevalent even before the pandemic of 2020.

As video technology advanced, its use in educational settings also expanded. [23] explained, “In a society saturated with the visual image and in which digital video is penetrating the personal mobile market, the future of videoconferencing as a medium of communication in both commerce and schooling would seem to be assured” [p. 296]. In 2020, the use of videoconferences for synchronous online instruction became commonplace, and its extensive use drew concerns from both faculty and students.

### **3. Videoconferencing and higher education**

While videoconferencing technology had played a role in educational settings for years, college faculty turned to the technology in record numbers to teach because they sought to closely simulate the in-person classroom environment. Furthermore, existing research demonstrated that synchronous communication in online college courses led to increased student engagement and improved student outcomes [25, 26]. However, the technology, selected for its inherent media richness [13], came with disadvantages as well. Videoconference users reported intense feelings of exhaustion, which caused problems for college faculty and students who were seeking to connect throughout the day in an online learning environment [1–4, 15]. In fact, users faced several challenges in the mediated communication environment of the videoconference classroom.

#### **3.1 Synchronous online learning**

Much of the distance education research literature that compares synchronous and asynchronous instructional deliveries is based upon early site-to-site videoconferencing technology that required students to attend sessions together at remote locations and connect with instructors through videoconferences [27]. Today’s synchronous online learning sharply contrasts with the synchronous distance education of the past, and the expanded use of web videoconferencing has only recently encouraged researchers to compare asynchronous and synchronous course delivery modes in online learning [26, 28–30].

Often, videoconferencing appears in the distance learning literature in comparison to face-to-face instruction [28, 30–33] or in opposition to asynchronous online education [26, 29, 34, 35]. Comparing various instructional delivery modalities, research shows faculty and students prefer synchronous face-to-face instruction, asynchronous online instruction, and then, synchronous online videoconference instruction [30, 36]. In terms of student performance, synchronous online courses achieve the same student learning outcomes as face-to-face courses [28]; however, students rate synchronous online courses lower than face-to-face courses in terms of instructor presence, communication, and interaction [31, 33].

Synchronous videoconferencing is viewed as a method to increase the interaction, communication, collaboration, and presence in online courses, which higher education institutions assume will lead to improved online retention rates [26]. Synchronous media offer viable alternatives for online education that had predominantly relied on asynchronous communication, which include discussion boards, email, and use of recorded video [26, 35]. Online synchronous learning includes live-streamed videoconferences, with its defining characteristics being immediate, real-time, and allowing for instant feedback [26, 35]. While both asynchronous and synchronous learning environments can effectively engage students with course material [35], motivation is a determining factor in students' preferences [26, 29]. While one study found students prefer asynchronous learning to synchronous learning online [29], another study found students preferred synchronous online learning to asynchronous learning and that student performance improved in synchronous online environments [35]. Some studies found students' sense of connection increases in synchronous online learning compared to asynchronous online environments because there is instant feedback and interaction [28, 37]. However, other research found students did not report increased connection and community from synchronous online instruction [36]. Combining asynchronous and synchronous instruction in online courses may lead to greater engagement and retention [38].

Adding synchronous interactions to online education is a method for instructors to closely approximate face-to-face courses by including a real-time, verbal and non-verbal communication component with students in geographically dispersed locations [25, 28, 32, 39]. While outcomes are similar in online courses delivered through videoconferencing and face-to-face courses, students rate videoconferencing courses lower than in-person courses in presence, interaction, and communication [28, 33, 34, 36]. In comparing synchronous to asynchronous online courses, videoconferencing has been demonstrated to improve immediacy and social presence in some studies [25, 34, 40]. Other studies identified student motivation, interaction, and collaboration are encouraged by the implementation of videoconferences in online courses [34, 41, 42]. Diverging from these studies, other research did not find videoconferencing increased student satisfaction nor decreased transactional distance in online learning [36, 43]. In a case study of videoconferencing use in college courses, students reported they felt hidden in their videoconference class sessions because instructors either ask them to turn off their video and audio feeds to preserve bandwidth and limit distractions, or there are so many students in a course that the instructor cannot see everyone on screen at one time [36]. Students also felt deterred from participating in synchronous class sessions because the structure of the videoconference made them feel as if they asked questions, they would interrupt the instructor or talk over other students [36].

### **3.2 Teaching through videoconferencing**

While videoconferencing can be transformative for online education, instructors must tailor their teaching to use the tool effectively [44]. Re-envisioning pedagogy requires significant time commitment on the part of faculty as well as institutional support through training [36, 39, 44–46]. Videoconferencing is merely a delivery tool for instruction, and its successful implementation requires instructors to be innovative and creative in their course design [36, 41, 44]. Scholars have suggested a variety of pedagogical structures to increase student satisfaction in online courses through videoconferences, including the use of break-out groups, virtual poster sessions, show-and-tell, whole group discussions, polling features, chat, virtual hand raising, and small group meetings [36, 37, 45]. Conversely, long lectures do not transition well to videoconferences [36–39]. While instructors instinctively apply the same teaching methods in the new media rich, videoconference environment, this practice is not pedagogically sound [39, 44, 46]. Other researchers recommend instructors increase their presence during videoconference instruction through specific immediacy behaviors, including the use of more gestures, vocal variety, eye contact, smiles, informal speech, humor, self-disclosure, present tense verbs, and inclusive pronouns [33, 47]. Through careful, planned course design and implementation, instructors can use videoconferences to better engage students in their online courses, yet it is imperative colleges and universities must support these efforts through relevant training and infrastructure.

## **4. Videoconferencing and fatigue**

In 2020, remote workers and learners experienced a significant, abrupt paradigmatic escalation in the use of videoconferences, driven by the COVID-19 global pandemic. Forced into home lockdowns by local, state, and national policies, people suddenly flocked to videoconferencing platforms as a substitute for face-to-face experiences. Videoconferences became a routine part of many people's day. The massive pivot to online instruction and exponential growth of videoconferencing quickly presented new challenges for its users, namely an intense feeling of exhaustion after videoconferences that the popular press dubbed Zoom fatigue [1, 3, 4, 15, 17, 18]. It is essential videoconferencing platform companies and those organization who use them better understand Zoom fatigue.

### **4.1 Fatigue**

Fatigue is approached differently by various disciplines, such as psychology, medicine, occupational health, and information technology [15, 48]. The problem with much of the fatigue research is that the concept is often studied without defining it [48]. "In practice, there are no medical criteria for fatigue," criticized ([48], p. 196). Further complicating the study of fatigue is whether fatigue is a chronic condition or a temporary state [48]. Health professionals also differentiate between subjective physical fatigue, subjective mental fatigue, physical fatigability, and mental fatigability, with fatigability referring to difficulty in maintaining preferred levels of activity [48]. Overall, most literature considering fatigue considers issues related to mental and physical effects. Physical fatigue includes such concerns as muscle and eye strains, while mental fatigue includes psychological impacts, such as tiredness, stress, and burnout [49, 50].

Existing research on fatigue and new technologies has found both physical and psychological effects. For instance, the type of VR display technology does not

affect visual fatigue, but time was significantly associated with visual fatigue [51]. Fatigue is also a component of technostrain in describing technostress, maintaining that fatigue is a common negative psychological experience from using communication technologies [52].

## **4.2 Social media fatigue**

Zoom fatigue is also related to recent research about the use of online social networking tools and their association with feelings of fatigue [15, 49, 50]. Social media fatigue is defined as a form of fatigue that is marked by “the mental exhaustion after experiencing various technological, informative and communicative overloads” ([49], p. 141) through participation and interaction on various social media platforms. Other research has determined social media fatigue can lead to both physical and psychological effects [15]. Social media fatigue can be described as “a subjective, self-evaluated feeling of tiredness and an outcome of stress” ([15], p. 52). Social media fatigue leads some users to refrain from social media use either temporarily or permanently because they feel overwhelmed by information overload [53]. While social media fatigue is weariness related to the voluntary use of social media for entertainment and leisure purposes, Zoom fatigue is different because it is the result of the required use of videoconferencing for work and educational purposes. Whereas users may unplug and refrain from the information overload associated with social media fatigue by refraining from social media for a time period, that solution is not viable for videoconference users who are mandated to participate in the platforms for school or work.

## **4.3 Zoom fatigue**

Attempts to explain Zoom fatigue have primarily been reported in the popular press and discuss the communication problems with videoconferencing from a psychological perspective that emphasizes the increased cognitive load associated with videoconferences. Fatigue may be explained from a neuropsychological perspective, claiming the fatigue is related to reward assessment and how the brain responds to costs and rewards [15]. Other scholars asserted the fatigue is attributable to the increased mental and emotional effort it takes to participate in online meetings due to several factors [1, 16, 18]. It takes more effort to process nonverbal communication cues on video than it does in person because even small delays in transmission create dissonance for viewers to interpret [1, 54, 55]. An emphasis on facial cues [1, 18, 56] and the ability to see oneself, at a hyper-awareness level, further increase the stress-level and cognitive fatigue [1, 3, 17–18, 56]. It’s easier to lose focus in video meetings due to the constant barrage of visual cues and distractions [17]. One proposed a theoretical argument for Zoom fatigue that attributes the phenomenon to prolonged eye gaze, cognitive load, mirror feedback, and reduced mobility [1]. Zoom fatigue appears to be a multi-dimensional phenomenon that requires a communication perspective to understand.

While psychologists explain Zoom fatigue through a consideration of cognitive load, many of the problems are founded within the distinct differences in how the communication process operates through videoconferences compared to in-person communication. Videoconferencing is viewed as a substitute for face-to-face interactions, but the two media are not the same. Although videoconferences offer both verbal and nonverbal information in real-time, those cues are mediated, and the time is not, in fact, real; there are slight delays in transmission [57]. Even short delays of 1.2 seconds produce negative perceptions of individuals on videoconferences, causing viewers to perceive them as less friendly or focused [55].

These seemingly minor differences from videoconference environments and in-person environments create some intense interpersonal challenges for videoconference users to overcome [57, 58]. Little nonverbal and real-time feedback prevents seamless communication [57]. Videoconference presents itself as an alternative to face-to-face communication, but the interpersonal communication behaviors exhibited through videoconferences are unnatural and disconcerting for many users [1, 36]. The technology that allows for synchronous verbal and nonverbal communication also impedes that communication through its channel transmission.

The mediated communication through videoconferences is different than face-to-face interactions. Cognitively, it is easier to process in-person verbal and nonverbal cues because they aren't being filtered through low-quality cameras or intermittent internet connections. 3 explained, "We can't see people well enough to discern such information as easily as we could if they were sitting across a table from us, but we can't help but try. Communicating is both more difficult and less successful" [p. 23]. The whole conversational framework is lost through the virtual channel. Psychologist Jocelyn Brewer maintained:

*With video, we are monitoring for non-verbal cues and information with much less stimulus. We get tiny 2D thumbnails of faces, often at weird angles with people looking in different directions and not at the person speaking. So, the brain goes into "scanning mode," trying to fill in the gaps to get enough information to make sense of what's happening and receive the communication, ideas, or actions ([59], p. 50).*

Many interpersonal communication behaviors are negatively affected through the mediated videoconferences. Listening is different on videoconferences than in face-to-face conversations because there is a need for constant gaze to demonstrate you are listening on video calls, which differs from listening in person, and the intense eye contact feels unnatural [1, 17]. The mediated technology makes it more difficult for communication partners to analyze pauses and facial expressions, disrupting the natural rhythm of conversational patterns [36, 54, 56–60]. Common conversational patterns, such as overlapping, are not practical on videoconferences [36, 60]. Silence presents another issue on videoconferences because silence creates anxiety about whether the technology is working [36, 54]. Videoconferences limit normal conversation patterns, resulting in more formality in interactions [16, 36, 60]. Interpersonal communication feels less natural when it is mediated through a videoconference [36].

The arrangement and features of the online videoconference display also produce challenges for users. Videoconferencing creates a simulated, mediated stage in which users perform for the others on the call, typically appearing as a square box that emphasizes the head and upper torso, increasing the salience of facial features compared to face-to-face interactions [16]. Users view a gallery of faces, including themselves, contributing to the mental and emotional exhaustion [1, 36, 59]. "It's this pressure to really be on and be responsive," according to Vaile Wright, the director of clinical research and quality for the American Psychological Association ([61], para. 6). This pressure results from the extreme closeness of people's faces presented on the screen. This up-close view is meant to permit users to better distinguish facial expressions and other nonverbal cues, but the unintended consequence is a scrutiny on faces, which is almost unnerving after a prolonged time. It is also difficult to maintain eye contact with a matrix of faces [1, 59].

Others discuss the stress from staring at oneself on the camera [1, 20, 36, 54, 57]. Marissa Shuffler, an associate professor at Clemson University who studies workplace wellbeing, stated, "When you're on a video conference, you know everybody's

looking at you; you are on stage, so there comes the social pressure and feeling like you need to perform” ([54], para. 6). The online display screen generates a hyper-awareness of the self.

Several issues may result from the intense focus on the self during videoconferences. The self-presentation feedback is a continuous loop, and this feedback increases self-consciousness, self-awareness, and may affect self-esteem [20]. The effect seems to be greatest at the start and end of video calls. Research demonstrated that participants look at themselves often during the beginning and end of videoconference sessions, but they gaze at themselves less when they are working on a task [22]. However, videoconference users reported they are concerned about their appearance, and this can lead to uncomfortable feelings and distractions, contributing to the sense of videoconferencing fatigue [20, 22, 36].

Many users participate in videoconferences at home, which causes a range of distractions [17, 36, 56, 59]. Potential environmental distractions and disruptions add to the emotional fatigue level. Students typically prefer to keep their professional (academic) spaces separate from their personal (social) spaces [62], but videoconferences often blend the two spaces. This blurring of the personal and professional realms contributes to students’ dissatisfaction with synchronous videoconference instruction [36]. Distracted by their environments, students in videoconference classes also reported they often turn off their video and microphone feeds during lectures to multi-task [36, 37]. Finally, a range of technical issues occur during videoconference meetings as users struggle with connection speeds, the mute button, camera angles, and lighting [36, 59]. A variety of environmental factors potentially contribute to feelings of Zoom fatigue.

## **5. Case study**

To explore the effect of videoconferencing on faculty and students in higher education, a qualitative case study approach was employed that included document analysis, surveys, and in-depth interviews. This type of research is well suited to exploratory, interpretive studies that require close collaboration between the researcher and participants [36].

### **5.1 Methodology**

The site of the case study was a small liberal arts university that is typical of other small, independent institutions. Document review involved the analysis of 1,358 narrative comments from students written as part of course evaluations, 103 completed online surveys from students and faculty, and 572 minutes of recorded faculty and student interviews. Data analysis included word frequency, sentiment, thematic analysis, and descriptive statistical analysis [36].

### **5.2 Findings**

The findings from the case study present a complex, interesting story of how faculty and students experience videoconferencing in online courses. Document analysis revealed students primarily evaluated videoconferencing positively, often equating faculty’s use of videoconferencing with “caring” and “availability.” According to faculty surveys, faculty members used videoconferencing an average of 16.8 hours per week. Their reactions about the communication technology were mixed. They thought videoconferencing was a way of connecting to students in real time; however, students did not interact much on the videoconference sessions, and

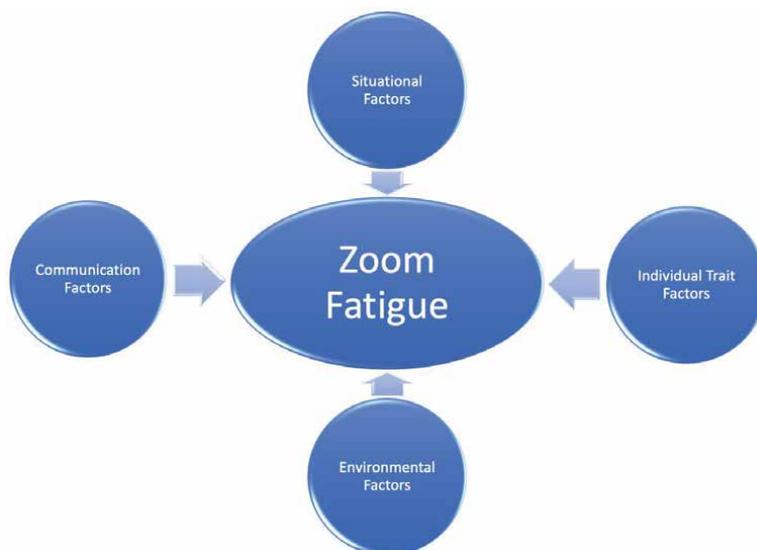
many faculty and students experienced internet disruptions. All of the respondents admitted to feeling Zoom fatigue, and they described it as both mental and physical fatigue. A majority, 88%, of student survey respondents had participated in synchronous videoconferencing class sessions, and the majority of them had also experienced Zoom fatigue. The faculty and student interviews provided a deeper understanding of videoconferencing in college classes [36].

In interviews, faculty and students reported the media rich videoconferences were deficient in a number of ways, negatively affecting the communication technology's ability to facilitate natural conversation and interaction. Faculty and student experiences with videoconferences in courses greatly diverged, although both expressed frustration and dissatisfaction. Faculty members felt disappointed because many students did not interact on the videoconferences, with most students opting to keep their cameras off during the sessions. This produced an environment in which faculty were often teaching to a wall of black boxes and unable to coax students to engage with the material or them. Meanwhile, in an apparent contradiction, students reported feeling hidden and muted on videoconferences because the organizational structure of the mediated environment deterred their active participation. They cited instructor policies that required microphones be muted to prevent random external noises as creating an unintended outcome that discouraged direct feedback. Students felt uncomfortable with the process of muting and un-muting the microphone feature to ask or answer questions because they feared interrupting or overlapping. In short, videoconferencing complicates many of the dimensions of the communication process, including feedback and nonverbal communication. Stifled communication and disjointed videoconferences left faculty and students desiring more natural interaction. As one student explained, videoconference class sessions are "not genuine." The result was faculty members realized they were not reaching students, and students felt they were not learning [36].

### **5.3 Model of Zoom fatigue**

Since synchronous online interactions through videoconferencing is likely to remain a prevalent form of communication in higher education and other settings, it is imperative that more is known about the causes of Zoom fatigue. Through further analysis and interpretation of the case study data, a model of Zoom fatigue emerged [36]. Participants recognized multiple factors caused their feelings of tiredness. Further analysis and interpretation of survey and interview data led to a proposed theoretical model of Zoom fatigue that includes four key dimensions: situational factors, individual trait factors, environmental factors, and communication factors (see **Figure 1**).

These factors are outlined in **Table 1**. Situational factors are defined as aspects related to the specific conditions of a videoconference, such as the number of videoconferences scheduled a day, the size of the videoconference, the relationship among participants, the type of content shared in the videoconference, the level of participation (host or participant), and the amount of interaction during the videoconference. Individual trait factors include a participant's characteristics, which consist of personality type, anxiety level, motivation, self-awareness, and self-esteem. Environmental factors encompass those external elements, including background distractions, physical location, furniture, type of device, camera and microphone settings, and internet connectivity. Finally, communication factors emphasize the interaction components of verbal and nonverbal communication, which include conversation flow, lack of nonverbal cues, awkward silences, interruptions, overlapping, and feedback. The combination of these factors functions to



**Figure 1.**  
 Model of zoom fatigue (reprinted from [36]).

| Situational  | Individual Trait | Environmental                  | Communication     |
|--------------|------------------|--------------------------------|-------------------|
| number       | personality      | background                     | gestures          |
| size         | anxiety level    | physical location              | facial expression |
| relationship | self-awareness   | furniture                      | eye contact       |
| content type | self-esteem      | device accessibility           | pauses            |
| role         |                  | camera setting                 | interruptions     |
| interaction  |                  | microphone setting             | overlapping       |
|              |                  | internet connectivity feedback |                   |

**Table 1.**  
 Factors of zoom fatigue (reprinted from [36]).

impact the level of Zoom fatigue videoconferencing participants feel, according to survey and interview data [36].

Zoom fatigue is a multifaceted problem. To prevent Zoom fatigue, videoconference participants should consider controllable factors in the model and plan accordingly for the aspects they cannot control. Situational and environmental factors are elements participants can actively affect. Scheduling can be controlled, so participants should not schedule serial Zoom sessions as back-to-back, continuous videoconferences significantly add to Zoom fatigue. Therefore, space videoconferences apart, avoid too many in one day, and be sure to practice self-care by taking breaks in between sessions. To the degree possible, videoconference participants should control their background and environment; if participating at home, attempt to create a professional space within the private space, if possible. Even more important is the type of furniture participants use for videoconferences, as posture is important during the session, and it also contributes to the physical fatigue after a session. Another factor that participants can control is their level of engagement. Interacting on the videoconference through direct feedback, chatting, or the use of reactions will keep participants focused and motivated to listen, whereas passive listening behaviors cause more fatigue. While videoconference participants cannot

control every dimension of the session, controlling certain factors will help alleviate some Zoom fatigue.

## **6. Recommendations for videoconferencing use in higher education**

While videoconferencing technology had existed for years, the events of 2020 accelerated their implementation and usage in exponential ways. Faculty members selected the communication technology to deliver content due to its inherent media richness, perceiving the medium to closely approximate the face-to-face classroom experience. The prevalent use of videoconferencing in higher education resulted in unintended challenges for faculty and students. Videoconferencing can be used as a valuable method for instruction if it is applied in appropriate contexts with proper training and preparation. The indiscriminate utilization of videoconferencing in college courses as an absolute substitution for in-person interactions is ill advised as there are several critical differences between videoconferences and face-to-face communication.

The use of videoconferencing in college classrooms should be implemented intentionally after extensive training and familiarity with the application and with much planning and preparation on the part of faculty members. Videoconferencing is a complex construct for the higher education online classroom, and its utilization should be carefully designed as part of an online course's overall pedagogy. In short, videoconferencing is appropriate in some, but not all, classroom contexts. As past scholars have illuminated, pedagogy, not content delivery, should guide learning [19, 60, 63]. Videoconferencing is a communication tool for content delivery, and its successful use in the online classroom should be situated in an understanding of the larger scope of online education. The implementation of videoconferences into online course instruction should be planned and purposeful. For this reason, faculty members should not plan sessions for a set time just because that is the course time. If a live, synchronous session is planned on videoconference, that session should have a purpose and function. Students criticize class sessions that waste their time, or they deem "pointless" [36]. For instance, videoconferences should not be used to provide long lectures that feature primarily one-way communication from instructor to students. This type of instruction is not effective as a videoconference. When there is a large amount of content that instructors need to deliver to students remotely, chunking the information into short, recorded videos is both preferred by students and more effective for achieving learning outcomes [36].

Further, instructors should realize large classes do not transition well into videoconference sessions because instructors are not able to see all of the students' screens at one time, essentially creating a virtual barrier between students and faculty that discourages student interaction [36]. If videoconferences are used for large class sizes, the classes should be broken into smaller groups as small groups communicate more effectively on videoconferences [36]. Setting up smaller group videoconference sessions to cover content is advised so that all students feel seen and heard. Smaller groups tend to encourage students to participate in videoconferences with their cameras on, adding to the potential for engagement, and faculty may encourage the use of videoconferences for small groups either through the breakout group functions during class videoconference sessions or through group project assignments they complete on their own time [36]. Students are disappointed when they cannot easily communicate with peers through class videoconference sessions, so intentionally designing those opportunities will increase student-student interaction, which improves learning outcomes.

Students also prefer when professors do not mandate synchronous videoconference class sessions. Students prefer autonomy in their learning [36]. Therefore, scheduling optional sessions, recording them, and encouraging attendance through incentives are effective strategies to appeal to students.

In addition, to encourage interaction, faculty members should provide guidelines that address how students should ask questions during videoconferences [36]. These guidelines should refer to how and when they can participate with their microphone unmuted as well as the use of the chat box and reactions, such as hand-waving emojis. Faculty members need to ensure students understand and are comfortable with these policies prior to holding online videoconference discussions. Along those lines, faculty members should consider the use and functionality of the chat box and provide students directions for its use. Identifying a class member or teaching assistant to monitor the chat box will improve its successful implementation. Including the use of polling and reactions during videoconference class sessions also improves student focus and engagement, according to faculty respondents.

Another method of facilitating concentration on the part of students and faculty members is to keep content simple [36]. Faculty members should not plan to include too many screen switches during a class session; less is more. Faculty members who switch between PowerPoint slides, videos, demonstration screens, and others continuously throughout a class session get overwhelmed and lose focus while students also struggle to keep up with too many messages in a single session. Faculty members should narrow the content to manageable bits of information and ensure that any screen changes are smooth and necessary to avoid information overload [36].

There are suggestions for higher education administrators as well [36]. To begin, videoconferencing should be seen as a supplemental tool for online course delivery and not a substitute for in-person instruction. Secondly, administrators should realize not all types of courses can effectively use videoconferences. For instance, while some scientific laboratory sessions can be taught using online simulations, not all can. Administrators should work with their faculty members to ensure a sound pedagogy is in place in which videoconferencing is part of the online delivery methods. To assist that process, training is desired and required [36]. Additionally, if a course plans to use synchronous online videoconferences, the course size needs to be kept manageable. All participants should be able to be viewed on one screen on the videoconference. Administrators have relied on videoconferencing for many meetings and workshops, and to alleviate fatigue, they should schedule these sessions similarly to in-person meetings, being careful to schedule breaks and being cognizant of length of the videoconference and time of day. Do not assume participants will turn off their camera and microphone to accommodate needed breaks because many will not. Finally, administrators need to respect faculty members' boundaries and privacy. Teaching remotely does not mean that faculty members are suddenly on the clock 24 hours a day. The ability to Zoom does not guarantee that a faculty member is available any time of the day. Respect free time and family time. Administrators need to understand the difficulties and challenges of blurred work and private spaces by demonstrating respect and communicating they appreciate their time and sacrifices.

## **7. Conclusion**

Business demands drove the initial development of videoconference technology, so corporate organizations could save time and money by virtually meeting over geographic distances to collaborate and achieve organizational outcomes.

Globalization efforts in the late 1990s and 2000s intensified the desire and need for such remote technological solutions. Educational institutions realized the potential benefits of videoconferencing once the capital costs associated with such systems became feasible for them to incur [23]. When affordable web conferencing was introduced, higher education embraced videoconferencing as a method to increase online retention by improving interaction and engagement in online education [25]. In business and higher education contexts, videoconferences were limited in use to supplement organizational activities and bring together small groups of remote audiences for brief goal-centered encounters. Early videoconference research determined videoconferencing was adequate to complete tasks with low interpersonal involvement, including information transmission, problem solving, and generating ideas, but cautioned it was not effective for tasks requiring high interpersonal involvement [64].

However, since videoconferencing is commonly viewed as a close alternative to in-person meetings, when remote working and learning became prevalent in 2020 in response to a global health pandemic, its use increased exponentially within a variety of contexts. Videoconferencing has been widely accepted in higher education when face-to-face instruction is not possible. Pedagogically, college faculty embraced videoconferencing in spring 2020 because it intuitively felt like the best alternative to face-to-face instruction [2]. The sudden shift to videoconferencing allowed people to connect with verbal and non-verbal cues present; however, those cues are presented differently through the mediated channel. Challenges to the predominate use of videoconferencing include a sense of exhaustion, known as Zoom fatigue.

The future of higher education continues to be shaped by technology and online learning. It is essential stakeholders realize how to best reach students through online education as its prominence in higher education is well established. Faculty members included videoconferences as part of their response to an abrupt transition to teaching online because videoconferencing was perceived as a rich medium to communicate with students, closely mirroring face-to-face classroom interactions. In practice, faculty and students find the videoconferences differ significantly from face-to-face interactions because natural conversation patterns are primarily lost [36]. While videoconferences can effectively be implemented within college courses, the effort requires significant training, time, and design by faculty to ensure students are engaged with the material and do not view the sessions as “pointless” [36].

Further, Zoom fatigue, a recently identified phenomenon, is associated with the prevalent use of videoconferencing. This chapter presents a working model of Zoom fatigue to explain the multi-dimensional factors that lead to videoconferencing fatigue. As videoconferencing will likely remain a dominant method of communication in the foreseeable future, it is essential its impact on education, relationships, work, worship, and leisure continue to be examined. The proposed model of Zoom fatigue offers a foundation for understanding how the phenomenon affects videoconferencing participants. Although the mediated, virtual communication environment offers opportunities and challenges for its participants to negotiate, the question remains, “Who’s Zoomin’ who?”

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### **Conflict of interest**

The author declares no conflict of interest.

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Section 3

Marketing Communication  
in a Sharply Non-Standard  
Environment

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# Digital Economy in the Post-COVID Period: Changes, Communication Processes and Development Prospects

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## Abstract

*Topicality:* Without a doubt, the COVID-19 pandemic has made significant changes in consumer behavior, further strengthening the transition of the global system from the classical economy to the digital economy. In the context of the pandemic, consumer behavior has become even more digital: initially it was associated with health safety standards to limit social face-to-face contacts, and later consumers could not imagine their life without online aggregators of food delivery, documents, clothing, etc. *The goal of the research:* to conduct a theoretical review of the features of the development of the digital economy and communication strategies of management before the COVID-19 pandemic and already in the post-COVID-19 period. *Methods of research:* comparative analysis, methods of generalization and classification, historical analysis. *Results of the research:* the study made it possible to form a theoretical overview of the scientific material and ideas for preparing for a statistical analysis of the global macroeconomic indicators of the digital economy. *Practical application:* The chapter will be useful for the relevant government agencies (in Russia, for instance, the Ministry of Digital Development) for developing practical recommendations on a broader digitalization of management systems.

**Keywords:** digital economy, post-COVID-19 period, communication channels, consumer behavior

## 1. Introduction

Large-scale transformations in the context of the development of end-to-end digital technologies create prerequisites for exacerbating national security problems, form challenges to the triad of interests of the individual, society, and the state. The processes of digitalization, the digital economy are rapidly replacing the old way of activity of modern society. Keeping in mind that, on the one hand, thanks to information technologies, the efficiency of most sectors of the economy and public administration increases, the opportunities for interaction of subjects of legal relations expand through new end – to-end digital technologies, like artificial

intelligence and robotics, and the speed of developing and making managerial decisions increases. At the same time, on the opposite side, at the moment there is a positive trend of growth in the number of cyber attacks. According to analytical data, the products of such programs as Kaspersky and Cisco detect more than 700 million online attacks per quarter worldwide and block about 20 billion network attacks per day [1]. The above allows us to state the improvement and transformation of a new type of malicious activity of attackers by automating cyber attacks, including using artificial intelligence technology and machine learning in order to 'bypass' the known means of protecting information (data) [1].

The long-term experience of developed countries shows that success in the development of the economy and society can only be ensured by new knowledge and scientific and technological progress [2]. The transition to innovative technologies, especially in organizations with a high scientific component in added value, requires new methods in the information support system, support for knowledge bases, and employee motivation programs. Knowledge management and the organization's ability to learn become a key management competence. Knowledge is the ability of an organization to improve based on the information received about new technologies and the dynamics of internal and external factors. This is facilitated by the SAP Knowledge Management system – a knowledge management platform.

Information technologies of enterprise management based on the ERP system allow you to effectively solve the problems of enterprise management, based on the strategy of its development [3]. This requires a single integrated platform that covers all business processes of the enterprise and combines the latest management and information technologies. Improving corporate governance becomes a key strategic task for the development and life of any enterprise, which digital technologies help to solve, especially in the post-COVID-19 period.

The motivation of the authors to conduct the study is related to the desire to systematize and possibly predict the development of digital management and communication solutions in the new conditions after COVID-19 global pandemic, when most of the working population experienced a rethinking of the paradigm of their economic and socio-communicative activities.

The current chapter consists of the following key parts: the methodology of the research with a brief explanation of applied research methods; main 'body' of the article, including the historical background (Section 3.1) of digital economy development; Section 3.2. assesses the role of digital technologies in the development of the economy; Section 3.3, analyzing the role of communication strategies for the development of the efficient management solutions and selection of resources within various economic, technological, and social obstacles; in Section 3.4 the authors are conducting a preliminary forecast of the future of digital economy and management solutions in the post-COVID-19 period; the final part of the research is a 'Conclusion', where the results of the study are summarized.

## **2. Methodology**

The research is based on the system and comparative analysis, a dialectical method, as well as classification and generalization methods. Special attention is paid to the system and predictive approach which allows to reveal and characterize the perspectives of digital economics and communication management within the post-COVID-19 era. The historical analysis of the digitalization of economics is also applied. The study is interdisciplinary in nature.

### 3. Main part

#### 3.1 Digital economy development: historical background

Digital technologies are a significant component of knowledge management, and it is important that their application is a part of a system-wide approach to managing the entire R&D system. The knowledge economy and the digital economy are becoming an increasingly important driver of global economic growth and play a significant role in accelerating economic development, increasing the productivity of existing industries, creating new markets and industries, and achieving inclusive, sustainable growth.

The circulating knowledge and information are changing not only the life of each person, but also economic and political systems. Successful digital companies combine technical knowledge with the creative talent and understanding of their customers. The accumulation of knowledge increases the efficiency of interaction with suppliers, consumers, competitors, and partners. The creation of new knowledge based on the integration of existing knowledge increases the overall level of scientific and technological development of the country and society as a whole. The storage and dissemination of knowledge is carried out on the basis of information systems and contributes to the increase of productivity, flexibility and competitiveness of enterprises.

Micro-level competitiveness is associated with such major factors as resources, external competition, demand, and cross-industry linkages. It is necessary to emphasize the role of intra-company marketing and management in creating development strategies, quality products and production efficiency in general.

The use of digital resources (including general technologies), connected in an integrated global network, allows enterprises to rapidly make decisions in choosing an attractive market segment for the promotion of R&D, operating with the necessary amount and quality of data. The development of information technologies and the digitization of information have changed the processes of economic management. The considered functions and the role of information and communication technologies stimulate the quantitative and qualitative growth of the modern economy. But the question arises about the role and place of the 'electronic economy' itself, based on the use of digital technologies. Should the 'digital economy' be considered as a qualitatively new economic activity that has replaced the previous 'outdated' classical economy, or is it developing within the framework of this economy, but has a cross-cutting, penetrating character in all spheres of socio-economic life?

American scientists began the development of digital technologies in the mid-twentieth century and relied on mathematical concepts proposed in the 17th century by the German mathematician Gelfried Leibniz, who developed a binary computing system.

There are three stages of the development of the digital economy.

At the first stage (the beginning of the second half of the twentieth century – the middle of the 1990s), the base of the electronic economy was born, the global Internet was created, and telecommunications technologies and means of communication were developed.

The second stage (mid-1990s - 2005) is characterized by the penetration of the Internet into all spheres of human society, including not only science, technology and business, but also the service sector, financial monetary relations, culture, management, and other branches of the digital economy are electronic commerce, money, marketing, insurance, and other types. Along with the real business entities, virtual banks, shops, and offices have been created.

The third stage (from 2005 to the present moment) is characterized by the mass appearance of virtual goods and electronic money, the development of commodity turnover processes, including the service sector. The process of separating the digital economy from the real sector of economic activity is being formed.

Over the last decades of the XX century, computers have increased their speed and the volume of processed and stored information many-fold. In 1981, Microsoft developed the MS-DOS operating system for its personal computers. In 1983, an improved IBM PC/XT personal computer was created by IBM. In 1983–1993, the global computer network Internet and E-mail were created, which were able to be used by millions of users around the world.

In 2005, IBM developed the BlueGene supercomputer with a capacity of over 30 trillion operations per second. In the 1990s, the Internet had brought together most of the existing computer networks. Since 1995, the globalization of society has begun. The emergence of IP protocols for mobile phones allowed them to be integrated into the Internet, which was the beginning of the development of electronic mobile business.

Information resources have become available to every member of society. Since 2000, electronic modeling has become an integral part of the intellectual activity of mankind. The comparison of the 'electronic brain' with the human brain had led to the idea of creating learning computers – neuro-computers that are used for image recognition, perception of human speech, handwritten text, etc. It is necessary to recognize the inevitability and objective nature of the emergence of the digital economy in the world economy in the second half of the twentieth century.

Today, technical modeling and technical normalization of production processes and models are moving into the field of a strict process of production and economic management, and in general are the task of the manager, not the technical specialist. The performance of any qualified specialist today can be improved many times thanks to the technologies of working with structured digital information. The data allows you to digitize the surrounding business reality and build high-level models for deep retrospective business analysis, when the decision-making time is limited to seconds.

The data opens up new facets of events and phenomena, helping practitioners and confirming or refuting theorists' hypotheses. In turn, it is digital data that forces the economy to bear significant costs and to rebuild the infrastructure that is extremely necessary for their poor use. Data centers, high-speed communication networks, sensors, distributed computing power—the technical side of the universal process of digital data globalization. Subject applications, complex algorithms, trainable neural networks, cryptographic protection, maintaining the integrity of data units, production cloud servers, interactive infographics, indicator panels—all this is a broad front for the development of data collection and digitization processes.

Data transmission networks for secure and public schemes are being actively developed. An increasingly important role is played by open data from states and communities, as well as data from private businesses offered for joint use. The key factor of digital transformation in the activities of market participants is the development of digital culture. It is obvious that at the present stage of socio-economic transformation of society, the environment imposes its own characteristics on the institutional structure of society, causing the need for the formation of fundamentally new concepts and approaches.

### **3.2 Digital technologies and digital economy development**

The development of digital technologies should be considered as a reaction of mathematicians, physicists, economists, businessmen to an acute public demand

or challenge associated with the impending stagnation or impasse with the development of the world economy. The fact is that during this period a contradiction had arose and had become increasingly apparent between the huge potential of the latest knowledge and technologies accumulated as a result of the scientific and technological revolution in research, production, social and other spheres, and the limited opportunities for interested organizations and individuals to access this knowledge. It was impossible to solve the problem of access, completeness and speed of transmission of the necessary information online without the use of electronic networks, new software modules, and information systems.

These technologies have become the basis of a new way of life – the digital economy. In various publications, speeches of scientists and specialists at international economic forums and conferences, in program documents of socio-economic development of the economy and regions, the revolutionary role of digital technologies in the management of the country, regions, production and management decisions is rightly emphasized.

However, there are often questions about the obsolescence of the classical real economy and the need to replace it with a digital economy. According to the authors, this will allow Russia to become one of the leading industrial countries in a short time. It should be noted the undoubted role of information systems in the development of the world economy in the twenty-first and subsequent centuries in the following areas:

- providing access to interested organizations and citizens to obtain information about the latest technologies in various areas of economic activity, dispersed among their numerous owners around the world and creating mechanisms for their acquisition and use in the online mode;
- creating new types of economic activities using digital technologies, including the Internet, telecommunications technologies and communication channels, in-house information systems, virtual goods and services, electronic money, insurance, smart cities, and others.

A digital economy by itself, without the real and raw materials sector, without production, which turns raw materials into products, without agriculture and transport, cannot exist. But on the other hand, the modern real economy will not be able to provide economic activity without using the achievements of digital technologies. The digital economy should not be limited to the role of a separate branch of economic activity based on digital technologies, but should be considered as a way of life that affects all types of activities, including public administration, economy, business, education, social sphere, and medicine.

The main components of the digital economy are the basic infrastructure of e-business, e-business processes (methods of implementing business processes using ICT) and e-commerce transactions (sales via the Internet).

Transactional systems enable managers to gain a deeper understanding of technologies, regional features, and customer needs, allowing them to make informed decisions based on real data, rather than assumptions. This will have a positive impact on the development of cluster structures. Companies are transforming not only functional work, but also rethinking how functional blocks interact and how the boundaries of the firm and its activities evolve.

### **3.3 Communication strategies and management**

And now we would like to clarify the essence of the communication strategies as an element of communication and strategic management on the example of

technology companies (as they are front-runners of the digital economy), as well as to analyze the future of communication processes for the companies operating in the post-COVID-19 era.

Communication has always been an integral part of both government and corporate strategy. However, they have not always been central and aimed at providing only a response to an event. From this point of view, the purpose of communication has been to maintain methods and mechanisms of decision-making, as well as to inform about the meaning of intentions and decisions, successes or to explain failures in the activities of corporations or authorities.

The strategic approach to communications implies going beyond the traditional set of categories such as target audiences, messages and information products and shifting to the impact on the socio-psychological structures of society, as well as on the fundamental processes underlying the problems of state security and ensuring its national interests [4].

Socio-psychological structures of society as well as social behavior are embedded in the basis of our society. They directly influence the mechanisms of socialization with other people, the establishment of links between groups of people, the unification of people with similar needs and aspirations [5]. According to the same principle, company employees establish their relations with the workplace, supporting and developing social interaction with colleagues. And in the same way, companies themselves act as communication actors, interacting with global organizations and institutions.

As such, communication not only helps corporations create and maintain a productive environment, but also provides a library of common needs, values and relationships. Communication processes in the global business environment, as a specific type of communication on the international stage, are highlighted as a separate area of research. On the other hand, when it comes to new and innovative ways of transmitting a company's messages, the perspective changes from the perception of communication as a marketing tool to communication as a tool for solving problems and providing effective solutions.

Here strategic communication acts as a kind of satellite for the development and implementation of organizational strategies. Such strategic communication is communication that ensures the development and implementation of the strategy of a social subject with the help of its special - communication - resources, means, tools [6]. It becomes strategic when it is included in the development and implementation of power relations between the organization and its environment and is aimed at achieving long-term strategic goals of the organization.

The theoretical perspective is changing from the classical marketing approach, where communication is seen as a tool to advance towards communication as a human resource, as a kind of motivation for positive change. This aspect also brings to the fore the approach of using social media as an internal and external channel. Nowadays, people are more concerned about solving and discussing disagreements or even creating new ones through multifunctional Internet channels [7].

In recent years, the development of the technology industry has become increasingly important, and in this context, the change in communication methods in a high-tech company. Research on communication methods in organizations tends to focus on the impact of globalization on team dynamics; it discusses how communication within and between virtual teams is inevitably complicated by geographical, political and cultural constraints; communication problems include lack of co-location, declining trust, inability to find common ground and communication barriers [5, 8–13]. These challenges are faced by both groups and their leaders, as well as by companies themselves as global communicative actors in managing interactions on the international stage.

One of the objectives of communication strategies is to conduct dialogs with different target groups and improve communication related to company brands. In terms of internal communication, strategic communication reaches employees and leads to internal ideas, creating communities with external stakeholders and engaging them in idea generation processes. In terms of impact, the focus should be on what the audience knows, how the audience feels, and how organizations respond. Thus, the audience's perception of the organization is expressed in the total amount of experience gained by people or other organizations in contact with the company.

In this vein, Emily Goldman [14] highlights the following conditions for effective communication strategies:

1. Key messages must be understandable and adapted to many and disparate target audiences (rather than one narrow audience);
2. The impact on the target in a communication strategy is continuous over a long period of time (rather than sporadically at a given point in time);
3. The focus of the impact should be the interests and needs of the recipients, not the senders;
4. Messages, decisions and actions are aligned and work together to achieve the strategic goals.

Thus, the role of strategic communication is to improve the experience and activities of individuals by integrating an effective communication system into the company's vision [15]. Although communication is discussed in an organizational context, the exact nature of communication practices in the technology industry leaves room for research. Describing high-tech organizations as social and Technology systems, it is also important to systematically understand the relationship between social and Technology elements. This is largely due to the pace of Technology innovation as well as the pace and scale of globalization [5]. Today, the main working resource is information, whether it is used at the interpersonal level within small groups or at the international level between organizations - the ultimate goal is successful and effective interaction.

After examining the general conditions for the effectiveness of communication strategies, the research area should be narrowed down to the concept of strategic communications in the corporate sector. The main factor here is the continuous growth in diversity, differentiation and fragmentation of target audiences and communication channels, again caused by the development of digital technologies [16]. It is important to understand that if different types of communication (be it PR, marketing or CSR) acquire common goals, the strategies to achieve them will be similar. There is a tendency to mix genres that frame key messages and synthesize communication channels and forms of message delivery.

For public figures and organizations, it is increasingly important that their communication be targeted and informed as strategic organizational communication in today's world becomes increasingly virtual and international [17]. Strategic communication should be the «focal point for communication scholarships» and its study offers real changes in society and its organizational principles.

According to S. Ganguly, research in strategic communications focuses on how organizations create and communicate with others: clients, employees, investors, government officials, and media representatives [18]. Strategic communications also investigate how an organization presents itself as a social actor in society in terms of creating a social culture and discussing social issues. In other words, strategic

communication focuses on how the organization promotes itself through the targeted activities of its managers, employees and communication specialists [5]. Many organizations recognize that different communication disciplines (e.g. management communication, marketing communication, public relations, social marketing communication and technical communication) have common goals, objectives and strategies in achieving similar goals. Organizations seek integration, efficiency gains through synergy, effectiveness and reduced duplication. Thus, strategic communication provides managers and members with targeted communication activities to achieve the organization's mission.

The expected result as integral aspect of communication strategies can be attitude, belief or knowledge; it can also mean changing or creating something. Global social change and technology advances make it possible to integrate interpersonal and mass communication methods and technologies, and reduce the role of intermediaries (especially the media) between the senders and receivers of key messages, in other words, between communicators and the target audiences [19].

Another aspect of communication strategy was underlined by G. Murphy, that messages are always interpreted by their recipients not by themselves, but within a broader and more permanent communication system [16]. The result of communication can be influenced by basic values, social and political structure, culture, level of economic development and living standards. In such a system, communication becomes a tool for social groups to construct social reality. If the communication system works well and social reality is created, it aims to support itself, even in the face of external influences and information attacks. People living within a certain social reality automatically seek to maintain the existing structure and configuration of meanings and values. Therefore, they tend to interpret key messages in a way that corresponds to the reality they are used to, rather than the way the sender of the message intended.

Despite the seemingly unambiguously positive effect, the contradiction that the desire of the communicative system to reproduce its meanings and values leads to the fact that the constant repeating and inspiring of clear, unambiguous and simple messages can lead to the opposite of the desired result and undermine the trust in the sender of these messages [20]. In such a situation, each side of the communication begins to appeal to its own values, asserting its rightness, and the conflict is not only not solved, but deepened even further [21]. A possible approach to achieving the goals of strategic communications in relation to a society based on other values is to focus on hacking into the communication system that is characteristic of that society and the social reality it has constructed, rather than on creating convincing key messages, although this is also important. The result should be a more dynamic, perhaps chaotic, movement in which existing meanings and values are destroyed, transformed or replaced by new ones.

Summing up the study of the phenomenon of communication strategies, we can distinguish its generalized characteristic.

- At the heart of a successful communication strategy is an accurate understanding of the target audience by its segmenting and targeting at least by the criterion of expected response.
- A meaningful and clear definition of the desired image of the future through positioning - a clear indication of the benefits that the current strategy offers.
- Use of key branding concepts, which is understood not so much as a trademark, but a set of perceptions related to the company in the minds of consumers. Any interaction between the consumer and the company, its representatives, affects the way the brand is perceived by consumers.

- All public actions and speeches of the company should be synchronized in such a way that on their basis it would be possible to create a single, consistent and clear key message for the target audience. All actions should be aimed at improving the attitude of key audiences towards company policy.
- The communication strategy should demonstrate its ultimate goal of meeting the needs and expectations of the target audience. Here, under the demonstration of good intentions is a factor of consumer consciousness management. The degree of satisfaction is a critical factor in the further perception of the company by the target audience.
- A successful communication strategy implies the ability to respond to external factors in a timely manner and the ability to flexibly restructure actions while maintaining the ultimate goal.
- Using the experience of social marketing communication campaigns, including the use of effective commercial marketing technologies to change the non-commercial behavior of target audiences.

Rapid access to valuable information is the way to use existing scientific and technological resources to accelerate economic growth. The circulating knowledge and information affects not only the life of each individual, but also economic and political systems. For digital transformation, the interaction of personnel, effective cooperation, knowledge bases and technologies are important, otherwise it is impossible to achieve success in the future. It is profitable to create an intelligent specialist by developing a unique technology, and the information sphere helps him to conduct research and select ideas faster and better.

The basis of the economy is the production of goods. Without production, there can be no trade, no exchange, no consumption. Production requires natural, industrial, and human resources. Information systems, databases, and generated knowledge bases help guide the analysis and selection of resources. Due to the fact that resources are limited, they need to be used with maximum efficiency. This means that with the minimum use of the corresponding resources, the maximum result should be obtained. For the development of the economy, it is necessary to have the most favorable legal, economic, organizational and other conditions for economic interaction with the external economic environment. The need to create an open economy means that the technical, structural, investment and social policies of the state should be guided by world indicators and standards, and foreign economic activity should become an organic part of the economic activities of domestic enterprises. The greatest difficulties on the way to an open economy are the underdevelopment of market relations and the lack of an effective mechanism for external economic relations. Innovation economy — a type of economy based on the flow of innovations, profit is created due to the emergence of unique technologies, the intelligence of scientists, the information environment, but not by material production. For the successful implementation of optimistic forecasts and the long-term strategy of the country's economic development in the high-tech sector, it is necessary to simultaneously solve key tasks: to ensure the modernization of the existing technological base, to intensify innovation activities and to introduce information technologies. The digital economy has a huge potential to promote economic development. From the point of view of improving the ways of managing innovation processes, the nature of modernization should be organizational and economic and aimed at the development of knowledge-intensive industries with the help of its own scientific,

technical and innovative potential. High-tech industries should become the innovative core of the development of Russian industry.

### **3.4 Prospects of digital economy and management solutions in the post-COVID-19 period**

In this part of the study, we would like to consider the prospects for the development of the digital economy on the example of the experience of Russia and China.

Digitalization is called one of the main directions of economic recovery, which has been pretty battered by the crisis provoked by COVID-19. It had become a real salvation, which had allowed us to survive self-isolation, when the safety of the nation's health came first, pushing the problems of the economy into the background. The sudden need for digital services had launched a powerful impetus for the development of the field of digital technologies in principle.

Over the past six months, there has been a strengthening of the position of digitalization in many sectors of the Russian economy, but the most important interest concerns the further vector of development of the digital economy. In other words, we are all wondering when the 'digital state' will 'cover' Russia.

Experts, in turn, say that the digital future has already arrived, it's just that almost no one noticed it. The processes of digitalization had developed long before the pandemic that began in 2020: services such as online shopping, mobile banking applications or ordering food existed a few years ago [22]. Another thing is that the demand for these offers was small and not so acute. The pandemic has created a high demand for digital economy tools and, accordingly, new technological developments.

Despite the additional impetus that COVID-19 has provided for the development of the IT industry, many developer companies specializing in the development of digital technologies have suffered greatly. Most of them have reduced their income by 40–60% [23], and budgeting for the creation of innovations has stopped altogether. The leaders of the IT industry, like other representatives of the economy during the pandemic, had found themselves in a difficult situation. The Government of the Russian Federation had made a number of decisions aimed at supporting and further developing such companies. In particular, such a legislative norm as a 'tax maneuver' for IT companies has come into force from January 1, 2021 [23]. Taxes for companies accredited as developers of digital technologies, as well as those engaged in the sale and implementation of software, are significantly reduced. Even the income tax from January 1, 2021 for IT specialists have fallen from 20–3%. This is an unprecedented measure for the IT market.

More targeted support measures have also been taken for developers who create and implement domestic solutions. First of all, we are talking about traditional grant programs. One of the most important anti-crisis measures in this direction is to reduce the share of the company's own funds in co-financing the project: the rate has fallen to 20% of the total amount. By the end of 2021, grant support will amount to almost 7 billion rubles. These measures should directly help development companies not only survive the difficult time of economic recovery, but also lay the foundation for the further development of the entire IT industry [1].

Digitalization has penetrated deeply even into such a conservative industry as healthcare. And we are not talking about high technologies that have long been successfully adapted in medicine for performing operations, but about the very paradigm of the doctor-patient relationship. During the pandemic, the number of requests for online appointments with a doctor had increased, and this, in turn, led to the development of telemedicine consultations. To a certain extent, it was a bold, but timely experiment, the results of which allow us to talk about a possible revision

of certain procedures for providing medical care. The next step in the development of digitalization in the field of healthcare is making a diagnosis during an online consultation. At the moment, it is impossible to do this: without a full-time examination of the patient, palpation of his problem areas, the doctor cannot determine the cause of the disease. But remote dispensary observation of the patient is quite possible today.

One of the most interesting areas of digitalization development in the healthcare sector is the possibility of using telemedicine technologies in a non-medical organization. This is necessary so that the doctor can receive the patient while at home, in a cafe or in the park. To do this, it must be provided with a stable Internet channel with high speed and security, so that patient data and medical history do not leak into the network. According to experts, the further development of digitalization in this sector of the economy will be associated with this direction.

Today, not only medicine, but also many other sectors of the economy are reviewing the usual work strategies [24]. Nevertheless, the year 2020 has forced all of us to use various digital services much more intensive. A well-built, full-fledged digital infrastructure will help to maintain the interest of the population in digital services and maintain the high demand for the services offered. Further development of the economy is impossible without it. Russia is already among the top 10 countries in terms of the intensity of use of digital public services and ranks 25th in the index of online services. This year, along with these indicators, the consumption of entertainment, educational services and telemedicine has also increased significantly, not only in cities with millions of people, but also in small regional centers. This means that Russia has a unique chance to enter the top ten actively digitalizing countries.

The main stop signal for digitalization is still local legislation, therefore, regulatory initiatives are important for the effective construction of a digital state and its economy. The good news is that the Russian Government is beginning to pay more attention to such programs, ensuring, in fact, that the Russian Federation reaches a new level of consumption on the one hand, and the development of digital skills among the population on the other. Digital literacy, the penetration and increase in the number of professionals in the field of information services and technologies, the increased interest of developers in creating new tools and services, as well as the ability of people to use them, can ultimately affect the growth of the country's GDP.

The contribution of digitalization to GDP growth is indeed a characteristic indicator in the modern world. The experience of China, one of the most advanced countries in the field of technology development and integration, is a vivid proof of this. According to the president of the Center for China and Globalization (CCG), adviser to the State Council of the People's Republic of China Wang Huiyao, the digital economy had accounted for more than 36% of China's total GDP in 2019 [1], which is almost almost 36 million yuan. The pace of its development continues to grow.

The basis of the digital economy in China is the electronic industry, mobile applications and online services. At the moment, another component of it is actively developing – telecommunications, which implies the construction and operation of appropriate infrastructure, the introduction of various Internet services to the market to simplify and improve the positive experience of consumer services. Despite the modest share among other sectors of the economy, it is the development of telecommunications that is most closely associated with the growth of the welfare indicator of the population of China.

Strengthening the digitalization of state management systems has become one of the most important areas for investment in the development of China's digital economy. Taking into account the huge number of people living in the country and,

accordingly, the high demand for the use of these services, the Government supports programs that make public services more convenient and targeted. Much attention is paid to the collection and storage of big data, since big data directly affects the speed of digitalization of state management systems and allows us to get as close as possible to the format of the digital state. To a large extent, the pandemic had contributed to the active process of deploying a new digital infrastructure for its creation.

Speaking about the infrastructure that will allow the processes of the digital economy to function efficiently and smoothly, we should focus on investing in the implementation of a large-scale key project for the deployment of 5G networks and other information and communication technologies, as well as the development of ABCD Technologies, whose name contains the first letters of such digitalization tools as artificial intelligence, blockchain, cloud computing and data centers. Such program for the implementation of these tasks is designed in China until 2025: it is predicted that in five years numerous base stations will be built in China for the operation of the 5G network, which will allow connecting up to 5 billion terminal devices to the high-speed Internet [1]. The scale of investments will exceed two trillion yuan. The development of these technologies will become a new impetus for the further formation of the digital economy of China as a whole, and ultimately will lead to a healthy and stable growth.

#### **4. Conclusion**

The pandemic has really accelerated the transition of many processes to the digital format. The sharp growth of Internet traffic and demand for Internet services once again proves this: Internet use and bandwidth of broadband networks increased by 70% and 30%, respectively, and cloud video services-by 20 times [1]. This new situation for the world will help humanity to understand what kind of infrastructure and what government programs can become a support for the development of states, focusing on the development of technologies that will form the basis of the process of adaptation of our countries to constantly changing conditions. Many states have already thought about these issues and have taken a number of appropriate measures. For instance, the development of new infrastructure in China has become the basis of the large-scale Digital China project, 5G technologies have become the engine of the economic growth in South Korea, the strategy for the development of artificial intelligence had been developed in the UAE, the Giga Society Strategy had been released in Spain, the call to switch from road construction to the construction of broadband networks had been made in the UK. Russia does not lag behind these advanced countries either.

Russia is facing the task of achieving digital maturity in key sectors of the economy and social services. In order to compete at the global level in the field of communication technologies, it needs to strengthen its position in the areas of 4G/5G, as well as form a network basis for the Internet of Things (IoT).

In this regard, a number of recommendations to accelerate the digitalization of Russia could be proposed. The first is the introduction of digital technologies in priority sectors of the economy, such as the oil and mining industries, which will improve production and create new opportunities for the entire cycle chain. The second is to strengthen state support for the development of 5G, artificial intelligence and cloud technologies in industry. And the third is the improvement of ICT education and the training of digital personnel, the development of digital competence of the population.

The digitalization of the Russian economy is just beginning, and in order to accelerate this process and achieve success in it, a comprehensive approach is

needed – from the active participation and support of the Government, to full immersion in the processes of forming a new infrastructure of all market participants. Currently, it is possible to achieve success only through cooperation and openness to change and innovation.

As a result of the formation of a ‘new reality’ [25] and the growth of innovations, the burden on IT departments has increased in the business environment. Today, technical specialists must ensure the effective functioning of the entire corporate infrastructure [26], maintain a high level of cybersecurity [27] and uninterrupted operation of applications for customers and remote employees. In such conditions, the basic needs of IT specialists are, first of all, access to real-time data, visibility of processes and understanding of the state and performance of the entire technical stack [28].

Analytical tools, artificial intelligence, simulations and new options for organizing a remote workflow can protect people and reduce possible losses in the short term. Digital and online distribution channels, in addition to personalization and dynamic planning of value chains, will help businesses recover as soon as possible after passing the peak of the crisis. Various options for deep analysis and business restructuring based on the use of digital technologies will increase the sustainability of the business in the future.

PID’s application [29] (a tool for evaluating business projects and processes) allows you to accurately determine all the priorities, levers and indicators necessary for the successful implementation of the project, as well as reduce costs and increase profits by digitalizing business processes.

The transition to Customer Service 4.0 [30] allows for the analysis of big data, virtualization, cloud and bionic computing, the Internet of Things, augmented reality, etc. create a proactive, deeply personalized, dynamic and interactive customer service system at all stages-from product offer to post-warranty service.

Digital technologies can significantly help businesses respond to new challenges at various levels-from organizing the work of front-end and back-end offices to maintaining and increasing the level of satisfaction of consumer expectations. However, in the current situation, the urgency of measures to minimize cyber risks is increasing. In the context of the transition to remote operation, it is necessary to review the priorities of the cybersecurity policy.

## **5. Limitations and further research**

The study has potential limitations that should be noted.

Firstly, the problem of defining digital economics is very broad and challenging. That is why in the current paper this question might not be fully reflected than if this problem was a subject of a separate research. Secondly, the COVID-19 pandemic is not over yet, so possible forecasts and conclusions regarding the further development of the digital economy are preliminary. In this regard, the study is rather theoretical in nature in order to systematize the available opinions and data. In the future, the study will continue in the direction of statistical analysis of the main macroeconomic indicators of the digital economy for the period 2019–2021, and a predictive method will be applied to form four scenarios for the development of the digital economy (positive, negative, current, optimal).

## **Conflict of interest**

The authors declare no conflict of interest.

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# Ethics and the Prospect of E-Commerce Platforms in Doing Business in Nigeria

*Ngozi Okpara*

## Abstract

Following the outbreak of the pandemic, more Nigerians became liberal towards accepting and engaging e-commerce platforms for their purchases. However, there is a surging scepticism about the ability of e-commerce platforms in Nigeria to meet the demands of consumers. Nigerians have accused e-commerce platforms of uncompetitive turnaround time, discrepancy between customer orders and deliveries and failure to and deliver on brand promise. This chapter explores the ethical remedy to the unethical concerns expressed by Nigerian consumers when engaging ecommerce platforms. The study purposively gathered selected data on customers' feedback from Jumia Nigeria's website between April 1st and July 31st 2020 when lockdown measures were enforced in Nigeria. The study found that consumers' mistrust and complaints about e-commerce platforms can be attributed to the absence of transparency on the part of e-commerce platforms to effectively use communication in keeping their customers abreast of the status of their order. Based on the findings, it was recommended that effective communication channels should be deployed to keep customers abreast of circumstances resulting in the delay or cancelling of their orders.

**Keywords:** Covid-19, ethics, E-commerce, internet penetration, Nigeria

## 1. Introduction

Individuals in business have the obligation to do what is right by complying with standard rules of engagement [1]. Ethical perspectives in business include measures that ensure fairness, accountability and transparency in the business space [2]. In particular, ethics provides a framework for protecting consumers' interests and ensuring that consumers get value for their money. E-commerce platforms in the course of their customer engagements offer value propositions which aid in maintaining relationships with customers. Business ethics posits that these value propositions act as standard rules of engagement coordinating how customer orders are processed and delivered. Any deviation from these rules of engagement would make managers of e-commerce platforms unethical in facilitating business transactions.

In recent time, the Nigerian business environment has embraced a lot of e-commerce. Its evolution is hugely influenced by developments in communication and computer technologies. Tito [3] described e-commerce platforms as online

infrastructure that enable the conduct of business transactions via the internet. Ikemelu [4] revealed that e-commerce platforms have the potential of transforming the nature of retail merchandising and shopping in Nigeria. Therefore, several small and medium scale enterprises, private organisations and public corporations in Nigeria have developed enabling platforms that facilitate the transaction of business activities on several online platforms. Many businesses have leveraged the use of online platforms to increase product awareness and improve customer service [5].

In Nigeria, platforms such as Jumia, Opay, Konga and Jiji have emerged as credible outlets where merchandisers canvass patronage for their products from their target markets. Social media platforms such as Facebook, Instagram, Twitter and LinkedIn are deployed as avenues for businesses to engage customers and sell their products and services online. Okoye and Obi [5] disclosed that the proliferation of mobile phones and the rapid increase in internet penetration has enhanced Nigeria's adaptability to the use of e-commerce platforms for business. According to Datareportal.com [6], Nigeria has 169.2 million mobile phone users, with 85.49 million connected to the internet. This provides a veritable platform for e-commerce to thrive.

Asides providing platforms for small businesses and large corporations to test their popularity in the market space, e-commerce platforms have contributed to the ease of doing business in Nigeria. Prior to the emergence of e-commerce platforms, doing business in Nigeria was riddled with perennial issues such as hostile market environment, high cost of business transactions, delay in processing customer orders and poor response to market disruptions [7]. The emergence of e-commerce platforms, according to Okoye and Obi [5], has brought about greater flexibility to the Nigerian business environment. For instance, Iwueze [8] revealed that e-commerce platforms provided resilience for the Nigerian business environment following the disruption that resulted from the impact of COVID-19. Accordingly, Ehi [9] reported that e-commerce platforms were instrumental in ensuring business continuity in Nigeria with an order rate of 6.4 million during the first quarter of 2020 alone.

In spite of the impact of e-commerce in ensuring business continuity in the Nigerian entrepreneurial environment, existing platforms have struggled to appeal to majority of the Nigerian population. There is scepticism about its ability to meet the demands of consumers. Nigerian consumers have concerns regarding timeliness, trust, privacy, security and delivery on brand promise. Ayo, Adewoye and Oni [10] argued that Nigerian consumers have issues trusting e-commerce platforms due to a high illiteracy rate among the populace and the fear of being defrauded. Other issues affecting e-commerce engagement for business purposes include cybercrimes, the absence of a legal framework covering consumer privacy and uncompetitive turnaround time, among others [5, 11]. In addition, Okolie and Ojomo [12] discovered that consumers expressed displeasure about the quality of products and services delivered via e-commerce platforms. These issues have cast doubts on the ability of e-commerce to sustain business engagement in Nigeria.

Based on the foregone, the study probes into the probable future for e-commerce platforms and their effectiveness for business in Nigeria. If there is a future, how can the issues clogging the use of the e-commerce platforms in doing business be addressed within the confines of ethics?

In providing answers to the questions above, the study opened discussion by highlighting the some of the challenges impeding the ease of doing business in Nigeria. It took a historical view in discussing the emergence of e-commerce platforms in Nigeria. The study further examined some of the ethical issues consumers encountered in the course of using e-commerce platforms in doing business and finally provides an ethical balance to the use of e-commerce platforms in doing business.

The researcher's motivation for embarking on the study was informed by the reality posed by the outbreak of the Covid-19 pandemic which made it evident that the global business environment is gradually transiting from the contemporary brick-and-mortar structure to an environment that is mediated by technology. Being an emerging business environment in the sub-Saharan Africa where regulation is largely amiss, it becomes pertinent to discuss and proffer ethical solutions to guide actors conducts in the use of e-commerce platforms.

## **2. Literature review: The challenges of doing business in Nigeria**

Nigeria undoubtedly is the largest economy in Africa [13]. In terms of internet penetration, the country ranks highest with over 150 million of its over 200 million populations connected to the internet [14]. Before the outbreak of the COVID-19 pandemic, the Nigerian economy enjoyed its fastest growth rate in 2016 at 6.3% per annum; however, following the pandemic, the economy was projected to grow at 1.6% according to the International Monetary Fund (IMF) [15]. In 2020, the IMF's economic outlook considered the Gross Domestic Product (GDP) of African countries and ranked Nigeria as the number one economy in Africa and 28th in the world [16]. In terms of ease of doing business, the nation ranked 131 out of 190 countries of the world [17]. Climbing from her previous 146th position in 2019, the new ranking of Nigeria was an indication that the economic policies put in place by the President Buhari-led government made significant impact in improving the way business was done [16].

However, improvement in the ease of doing business ranking might not have translated to positive developments in the business environment as issues such as corruption, lack of access to credit, high interest rates on loans, inadequate infrastructure, weak currency and insecurity still hamper the effectiveness of operations in Nigeria. Ogunro [18] argued that these unethical features have made the Nigerian business climate unattractive especially to foreign investors. Ribadu [19] reported that corrupt practices within the business environment, involving the process of business registration and award of government contracts, have resulted in huge revenue losses for the nation. Okeke and Eme [20] argued that corruption alters demand and supply in favour of business owners, thus creating impediments to foreign direct investments (FDI). Nwankwo [21] on the other hand, revealed that incidence of corruption in the Nigerian business climate has increased the cost of doing business in the country. It is hoped that the full adoption of e-commerce for business in both public and private organisations will reduce the spate of corruption in the Nigerian business environment.

A harsh business climate bred by unfriendly government policies, unfavourable competition from foreign firms and high taxation are some of the prominent features of entrepreneurial strides in Nigeria. Essia [22] reported that unfriendly and unstable government policies have made the Nigerian business environment unpredictable and unattractive to both foreign and local investors. Price Water Cooper (PwC) [23] survey report showed that a lack of harmonisation in tax policies has become a major hindrance to business growth in Nigeria. Ogu and Faminu [24] argued that the inability of the Nigerian government to harmonise tax policies has a negative implication on the production capacity and tax contributions of businesses to the nation's Gross Domestic Product (GDP). In a similar fashion, it was reported that instability in the monetary policy posed a challenge to ease of doing business in Nigeria. According to Trading Economics [25], there is a discrepancy in interest rates charged by banks compared to the stipulated benchmark set by the Central Bank of Nigeria (CBN). Trading Economics [25] disclosed that most banks in

Nigeria charge between 20% and 30% on loans instead of the stipulated 13.5% CBN benchmark. These issues make it difficult for businesses to thrive in the country.

Logistics and infrastructural deficits are strategic issues militating against businesses in Nigeria. Poor road networks, unstable power supply, port congestions and poor storage facilities among others are challenges businesses in Nigeria grapple with daily. Ajaero [26] argued that poor road networks have increased the cost of transporting raw materials to urban factories where they are needed. Anselem [27] reported that the cost of transporting raw materials between two Nigerian states is higher than the cost of transporting same between two American states. This means that the consumers bear the additional cost as it is transferred to them. Even when producers decide to situate their factories close to the source of raw material, epileptic power supply hinders their production optimisation. Similarly, the cost of running on diesel increases the cost of production and increases the nation's emission of Green House compounds leading to depletion of the ozone layer.

In spite of the myriads of challenges spotting the Nigerian business environment, foreign and local investors continue to identify attractive, timely and durable opportunities to grow their businesses. For instance, Elumelu [28] revealed that many entrepreneurs and prospective investors in the country are moving past the notable challenges by investing in developing enabling infrastructure for their businesses to thrive. Businesses are leveraging the advancement in internet technology to create enabling platforms for business transactions to run seamlessly. According to Olasoji [29], Nigeria has the highest number of startups in Africa with a lot of them in Lagos state. For instance, Flutterwave submerged the infrastructure challenge to develop a payment platform that has enabled seamless payment for goods and services online. According to Okafor [30], the platform provides smooth payment infrastructure to over 290,000 businesses in Nigeria. Other platforms such as Jumia, Konga and PayPorte are also developing self-made infrastructure to ease the mode of doing business in Nigeria.

On the part of the government, policies are formulated to ensure the Nigerian business climate is attractive to foreign investors as well as support the survival of local businesses. The constitution of the Presidential Enabling Business Environment Council (PEBEC) is a strategic step by the Nigerian government to reform the country's business environment. The initiative has significantly impacted on the way business is done in the country with the nation emerging in the 131st position and among top 10 most improved economies in the 2020 Ease of Doing Business Ranking by the World Bank [26].

### **3. Emergence of E-commerce platforms in Nigeria**

E-commerce represents the new way of conducting business over a medium that modifies the rules of conventional commercial transactions. E-commerce is generally believed to be about the infusion of technology into business but it actually revolves more around strategy and business management [31]. E-commerce ensures sustainable economic growth and in collaboration with other digital technologies serves as tools for the improvement of economic efficiency, competitiveness and profitability which would lead to the development of the information society.

E-commerce involves the conduct of business with the aid of modern communication equipment such as telephone, fax, e-payment, money transfer systems, e-data interchange and the internet. The concept of e-commerce is largely defined as all forms of commercial transaction that can be concluded over an electronic medium such as the internet [31]. There are three types of ecommerce transactions: business to consumer (B2C), business to business (B2B) and business to

government (B2G). However, e-commerce is not limited to the sales and purchase of goods online; it includes all information or services that a company can offer to consumers online ranging from pre-purchase information, to the after-sales service and support.

The emergence of the internet for business has created a competitive avenue for companies with the provision of more convenient, cost and time effective means for consumers to make purchases. Electronic commerce is highly significant in today's market as it affords marketers the opportunity to conduct their operations online. E-commerce is widely practised by new, large and small scale businesses for the sale of their goods and services. There is an increasing gravitation of users towards the internet via technology access, information and the leverage of interaction [32]. The advances in e-commerce aid the expansion of market options for both the marketers and the consumers. Consumers are relieved of the stress of visiting physical markets to compare prices or options of the goods they desire. On the other hand, some consumers might still show some reluctance towards relying on e-commerce for their purchase due to a number of factors ranging from the legitimacy of a number of e-commerce platforms, product quality, security, confidentiality and trust [33].

It was observed by Chen [34] that the use of e-commerce is bringing a significant change in the way consumers buy goods and services globally. Some companies have also adopted electronic commerce for the purpose of reducing marketing costs and a competitive edge within their target market. Companies utilise e-commerce platforms to display their products with adequate information for potential buyers and users and also conduct satisfaction surveys with customers. Consumers use e-commerce platforms to conduct their price comparisons, product features and post-purchase incentives. Osio and Orbudu [32] confirmed that millions of internet users in Nigeria generate billions in revenue from e-commerce transactions and a great opportunity for companies to reach current and potential consumers.

The adoption level of e-commerce in developing countries is significantly different from that of developed countries. This is attributed to the lack of requisite financial, legal and physical infrastructure for development of e-commerce in developing countries. Also, the heterogeneous cultures of many developing countries usually limit the applicability and transferability of e-commerce models designed in Western countries. With a middle-income, mixed economy and well-developed financial, legal, communications and entertainment sectors, the emergence and advancement of e-commerce in Nigeria is largely due to the growth of the telecommunications industry in the country [35]. The advancement of the telecommunications market with the increasing explosion in the number of subscribers stands as an illustration of the potential market Nigeria can have for e-commerce services. The size of Nigerian's population makes it a lucrative market for e-commerce services. According to the report of EIU [36], electronic banking is an area where e-commerce has recorded great success in Nigeria.

Nigeria has experienced a steady and continuous increase in e-commerce adoption, having started with only two e-commerce platforms grew to over 75 platforms as at 2013. The number increased to 105 in 2014 marking a record for e-commerce in Nigeria [37]. This was spurred on with the era of Automated Teller Machines (ATMs) which became the predominant medium of transactions and grew to the extent of varied internet technologies for order placement, processing, fulfilment, delivery and payment [38]. The success of e-commerce adoption is fundamentally based on the level of adoption of information technology in the country. The internet penetration in the country grew from 0.06 to 0.38 per inhabitants [39]. Existing e-commerce sites in Nigeria offer a very wide range of products and services. The platforms help web retailers offer products and services to meet multiple customers' needs, significantly through two of the most popular e-commerce sites in Nigeria:

jumia.com.ng and konga.com.ng. Their range of products covers technology, health and fashion, among others.

#### **4. Ethical issues with the use of E-commerce platforms in Nigeria**

The concept of trust refers to the willingness of a party to significantly become susceptible to the actions of another party which is often in anticipation that the other will execute an action important to the trustor [40]. Trust is a determining and crucial factor in business to consumer e-commerce. There is a need for trust to be established for a successful e-commerce operation. Trust enhances the process of e-transaction, encourages the acceptance of e-commerce, determines the extent to which e-commerce would be implemented, and helps to sustain long-term relationships with consumers to acquire a competitive benefit.

On the other hand, trust issues heighten customer concerns about information confidentiality [41]. Technical perceptions involved in e-commerce cannot guarantee the concept of trust in its operations [42–44]. There is a growing mistrust among Nigerians on the use of e-commerce platforms for business transactions [45]. Agu [45] cited factors such as low literacy level, lack of face-to-face interaction, and fluctuating internet connections.

Security is an important factor in the growth of e-commerce. The common perception by consumers about internet security as risky remains a concern for experienced and new users of internet technologies [46]. The fraudulent behaviour of online retailers is an obvious threat to e-commerce. This is due to the fact that the online availability and accessibility of the stored data of many online businesses allows internet hackers to steal such data. Security threats have been flagged as injurious to the health of e-commerce [47]. Agu noted that the steady rise in the occurrence of internet fraud among Nigerians is of great concern to the adoption of e-commerce for business purposes [45]. It was further revealed that many of e-commerce sites have weak security infrastructure that does not protect customer data. Agu noted that if big platforms such as Yahoo, eBay and Amazon could lose approximately \$1.2 billion with their sophistication, how much more a Nigerian platform? [45].

One notable ethical issue with managers of e-commerce platforms is the discrepancy in the quality of products offered on display on their websites and what the customers actually receive. Agu noted that most organisations on their e-commerce platforms display quality products to attract customers but end up delivering substandard products [45]. David [47] disclosed that the delivery of substandard products by e-commerce platforms is due to noncompliance with stipulated quality control measures. David [47] further insinuated that most e-commerce platforms do not conduct product testing before presenting such to customers. As such, there is no way of confirming that products on display meet up with market expectations.

Close to the quality issue is the delay in turnaround time. The efficiency rate of e-commerce platforms are essentially measured on the shortness of their turnaround time. For instance, the standard delivery time for e-commerce platforms is between 3 and 5 days but in reality, customers have had to wait for more than 5 days before their goods were delivered [47]. The issue of delayed delivery of products is connected to the poor road network that has maligned the effectiveness of other sectors of the Nigerian economy. In spite of this, there is still room for improvement in delivery time. This starts from the point the order is received, packaged and sent to the logistics company. This as Agu [45] further revealed that most times, the delays cannot be attributed to the e-commerce platforms but to the hiccups attributable to the logistics firm involved.

## **5. Ethical balance to the use of E-commerce platforms in doing business in Nigeria**

The application of ethics to business encompasses understanding of essential principles of fairness, honesty and transparency in dealing with customers. Generally, ethics provides the basis for judging the actions of actors as either right or wrong [48]. It provides the foundational basis for determining the morality of players in the business environment in order to demand responsibility. An aspect of ethics that is peculiar to the current discourse is business ethics.

Ayuba and Aliyu [49] defined business ethics as the application of business standards in assessing the morality of business decisions and conduct as either right or wrong. Idumange [50] averred that business explains the validity of business actions in association with agreed expectations of transparency, respect, objectivity and justice in business relationships. Alexander and Moore [51] argued that the degree to which a business action conforms to laid-down rules and regulations determines the extent to which such action is morally right or wrong. Earlier, Alexander and Moore [52] had established that a person's moral action is right if it conforms to universally acceptable codes of conducts.

In light of the current discourse, actions of operators of e-commerce platforms are considered morally right when their services to the customers are in accordance with the initial offer or value promised. Any deviation from this would cause the classification of their actions as unethical and discouraging for future patronage by Nigerians. At this juncture, the question begs if there are regulatory frameworks binding e-commerce platforms in Nigeria to act ethically in their transactions with customers.

One truth that cannot be ignored is that there is a multiplicity of regulations guiding different sectors of the Nigerian business environment. Hence, the real question is not of the availability of regulatory frameworks but the appropriateness or effectiveness of such frameworks in guiding actors in the business environment to act ethically in their dealings with customers. For instance, Enang [53] considered the Consumer Protection Council Act 1992 as the closest to regulating e-commerce operations in Nigeria in terms of protecting consumer rights. It was however revealed that the law was inadequate in bringing operators to act ethically. Furthermore, the International Trade Administration (ITA) [54] disclosed that the Cybercrimes Act of 2015 was supposed to set the legal framework for the enforcement of laws prohibiting, preventing and criminalising online fraud in Nigeria. The regulation has also failed in fulfilling its mandate as internet fraud and related crimes are still on the rampage. This leaves the regulation of e-commerce platforms to the jurisdiction of ethical deontology which stipulates that one must "act according to the books."

## **6. Methodology**

The study's methodology was developed in line with the principles of a qualitative research design. As such, the study gathered selective data on customers' feedbacks from Jumia Nigeria's website. Selected feedback will be purposively selected from dates in 2020 when lockdown measures were enforced in Nigeria. In Nigeria, the Federal Government of Nigeria declared restriction of movement on March 30th 2020 and the lockdown was eased by the 4th of May 2020. The data for the study cover from 1st April to July 31st 2020. One of the shortcomings of this approach is that there might be element of bias and subjectivity in the researcher's choice of feedback. But this bias can be controlled as long as it falls within the purview of the discourse at hand. The choice of Jumia was informed by the knowledge

that the platform is one of the most visited e-commerce platforms in Nigeria [9]. The feedback were subjected to descriptive content analysis and reported in the next section.

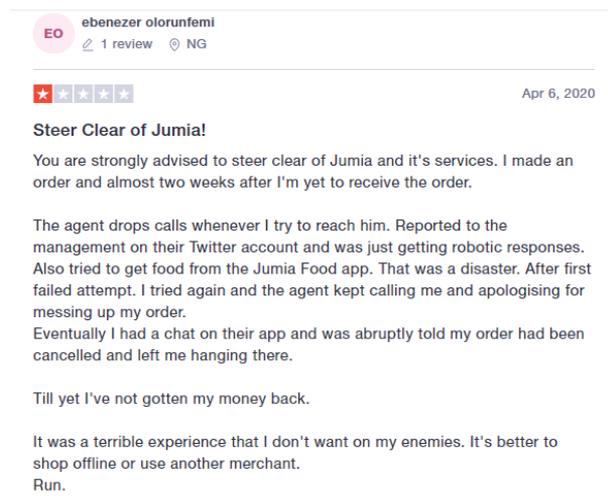
## 7. Presentation of results

Data in **Figure 1** showed the value propositions as stated on Jumia’s website. This will be the ethical scale for defining the consumers’ expectation of Jumia’s responsibility on the purchase of products from the platform. Based on the evidence provided in **Figure 1**, it was clearly stated on Jumia Nigeria’s website that the standard time for delivery of goods is within 7 days from the day the order was created.

Reviews from customers however showed that the company has not maintained ethical standards in meeting up with this delivery time. In **Figure 2**, the data

| JUMIA EXPRESS  |                                 |
|--|---------------------------------|
|  Lagos  | <b>1 - 2</b><br>Business day(s) |
|  Ibadan<br>Abuja<br>Abeokuta<br>Port Harcourt | <b>2 - 5</b><br>Business day(s) |
|  Other Cities                               | <b>4 - 7</b><br>Business day(s) |

**Figure 1.** Delivery & returns timelines | Jumia Nigeria. [www.jumia.com](http://www.jumia.com) 15th June 2021.



**Figure 2.** Failed to deliver goods after 2 weeks of order Jumia Nigeria reviews | read customer service reviews of jumia.com.ng (trustpilot.com) retrieved on 15th June, 2021.

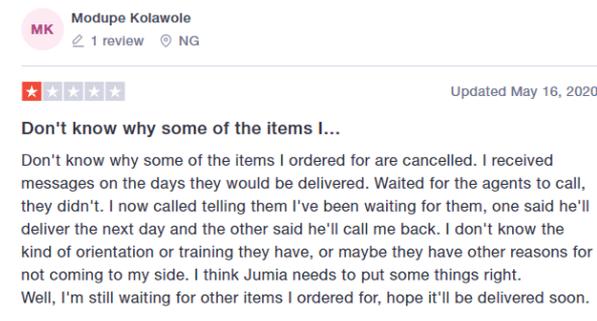


May 8, 2020

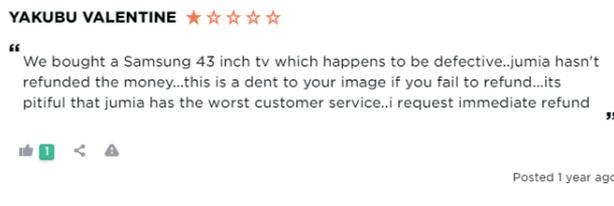
**Avoid incomplete deliveries after delays, communicate delivery times and ensure courier service staff is well-mannered.**

I have placed orders from jumia for years and the experience has been alright until now. The unusual times of covid 19 has revealed irregularities. I have been expecting my order for the past week and order eventually arrives incomplete while I was resting cuz I stayed up all night working. Phone was switched off as I needed to rest.

**Figure 3.**  
*Incomplete delivery after delay Jumia Nigeria Reviews | Read Customer Service Reviews of jumia.com.ng (trustpilot.com) retrieved on 15th June, 2021.*



**Figure 4.**  
*Order cancelled without adequate communication JUMIA Reviews - Read Reviews on Jumia.com Before You Buy | www.jumia.com retrieved on 15th June, 2021.*



**Figure 5.**  
*JUMIA reviews - read reviews on Jumia.com before you buy | www.jumia.com retrieved on 15th June, 2021.*

presents an aggrieved customer who placed an order and two weeks after the order, delivery was not made.

**Figure 3** shows another customer whose deliveries were incomplete after it was delayed.

**Figure 4** shows another customer whose order was cancelled without prior notice or communication.

In **Figure 5**, the customer complained about the platform (Jumia) delivering a defective goods and his fund was not refunded neither was the goods changed.

## 8. Discussion of key findings

The results from the study showed that there are ethical issues in the current use of e-commerce platforms in Nigeria. The result found that some of the ethical issues

maligning the use of e-commerce platforms for doing business include delay in the delivery of customers' orders, absence of proper communication with customers before orders are cancelled, and delivery of defective products.

It must be noted that survival of e-commerce platforms as drivers of business in the Nigerian business environment is hugely dependent on the platform manager's ability to resolve the identified ethical issues in order to build customers trust and protect their brand reputation. Conspicuous delay in turnaround time of Jumia before customers' orders are delivered could impede the future usage of the platform. Okoye et al. and Ifenowo [5, 11] noted that the uncompetitive turnaround time portends huge discredit to e-commerce platforms as more Nigerians will revert to the normal way of conducting their business transactions physically.

More so, the study revealed that e-commerce platforms do not carry their customers along in making strategic decisions regarding their orders. It was discovered that customers' orders are cancelled without any prior notification or adequate communication with customers. This leaves the customers at the mercy of the e-commerce platforms and oftentimes customers do not get refund. Provisions in the Nigerian Consumer Protection Council Act 1992 encode the right of consumers to have full information about the goods, products and services to be purchased [53]. This covers informing consumers on the state of their orders and providing justifiable reasons why consumers' orders are delayed or cancelled.

Finally, it was revealed from the study it is common with e-commerce platforms to renege on their brand promise in terms of delivering quality products to customers. On the chart list, product specifications and quality are displayed on their websites to appeal and attract customers. This serves as their value proposition and offering. In reality, it has been found that there are discrepancies between what was ordered and what was delivered to customers by these platforms. This coincides with the submissions of Agu [45] and David [47] that most brands on their e-commerce platforms display quality products to attract customers but end up delivering substandard products. David [47] further explained that most e-commerce platforms do not engage in quality control operations to test the quality of the products to be delivered before it gets to their customers. This, if unchecked, could impact negatively on the brand image of companies such as Jumia – a market leader in Nigeria's e-commerce sector.

## **9. Conclusion and recommendation**

The chapter provides an ethical dimension to the use of e-commerce platforms in business operations in Nigeria. It sought to infer the sustainability of the platforms in leading the future revolution in the Nigerian business environment. It is worthy to note that globally, e-commerce platforms are at the fulcrum of doing business since the outbreak of the Covid-19 pandemic proved that business can continue even in the absence of physical contacts. It became pertinent to discuss and proffer ethical solutions to guide actors' conducts in the use of e-commerce platforms for business. This study found unethical practices in the way e-commerce platforms managed their businesses relationships with customers. These unethical practices include delay in the delivery of customers' orders, absence of proper communication with customers before orders were cancelled, and delivery of defective products. The implication of these ethical shortcomings could impact negatively on the survival of e-commerce platforms as well as increase apathy among Nigerians in the use of these platforms in the conduct of business transactions.

The study concludes by adducing consumers mistrust and complains about e-commerce platforms on the absence of transparency on the part of e-commerce

platforms to effectively use communication in keeping their customers abreast of the status of their order. In view of the unethical business practices identified in the use of e-commerce platforms for doing business in Nigeria, ethics recommends that:

1. Effective communication channels should be developed to keep customers abreast of circumstances resulting in the delay or cancelling of their orders. As a matter of fact, the decision to cancel an order should be jointly agreed by both the agency and customers. This will fuel mutual trust, improve the brand image and reputation of the e-commerce platforms and enhance customer loyalty.
2. Operators of e-commerce platforms should put in place stricter measures for ensure quality control. E-commerce platforms run on trust and when customers do not trust a platform, there is the propensity for such a notion to be generalised to other platforms; this might be detrimental to the growth of the sector as a whole.
3. Operators of e-commerce platforms strive to meet up with their value propositions to customers, as made at the inception of their business relationship. If an order was promised to be delivered in five days, operators of e-commerce platforms should act dutifully to ensure that the order gets to the customer within the stipulated number of days.
4. It behoves government to put in place effective regulatory guidelines that ensure that the e-commerce business environment is well-regulated to protect the interests of the customers when transacting.

In view of the above, the submissions of the current study might be limited by the subjectivity of opinions and skewed representation of customers' feedback selected during the timeframe. There are possibilities that other positive feedbacks are not considered by the researcher or some customers with positive experiences of the use of e-commerce platforms do not give reviews on the platforms. To bridge this gap, future research endeavour could consider conducting an expansive survey to seek opinions of users of e-commerce in providing a balanced view of their impact on doing business in Nigeria.

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# Integrative Activities with Suppliers and Customers to Achieve Supply Chain Integration

*Bertha Molina-Quintana, Antonio Vaamonde-Liste and María Berta Quintana-León*

## Abstract

This paper analyzes nine integrative activities about demand forecasts, production plans, long-term relationships, joint planning, information through technologies, product development processes, product design processes, joint goals, that companies do in their daily activities with suppliers and customers in order to achieve supply chain integration. The objective is to analyze these integrative activities to determine if it exists collaboration among external partners of the supply chain in the food industry companies, to know the level or intensity of the exchange of information, communication and collaboration between companies and their external partners of suppliers and customers. The measurement instrument was applied to 93 companies from the food industry sector of Michoacán, México which are divided into nine sectors; grinding grains and seeds, obtaining oils and fats, confectionery with and without cocoa, preserving fruits, vegetables and prepared foods, dairy products, meat and poultry processing, preparation and packaging of fish and seafood, bakery and tortillas. The Integrative activities are analyzed by means of statistical descriptions, paired samples test, one-sided contrast, mean difference and confidence intervals and associations. The results indicate that the difference is always in favor of customers than for suppliers.

**Keywords:** Integrative Activities, Supply Chain Integration, Integrative Activities with Suppliers, Integrative Activities with Customers

## 1. Introduction

Supply chain management seeks to improve competitive performance by tightly integrating internal cross-functions within a company and effectively linking them with the external operations of suppliers, customers, and other channel members to be successful [1]. This means that a company pursuing supply chain management practices should pay attention to supply chain integration and teamwork [2], as well as to an open communication climate within the organization to facilitate internal integration of supply management, further to support the influence of social aspects on supply chain integration [3].

To use the supply chain at its maximum level of performance, organizations must integrate their objectives and activities together. Integration becomes the key driving force in supply chain management, explaining that internal optimization

will occur until needs of customers are understood and limitations of suppliers are known [4]. In this way, an organization's ability to improve is closely linked to its ability to understand its supply chain [5].

Integration means sharing information, resources and risks, proactive communication, joint development of supply chain processes and coordinating plan and decision-making within and among supply chain participants. Teamwork means developing a co-operative relationship between supply chain participants as a requirement in creating customer value. An effective communication and teamwork competencies can resolve challenges, can respond to markets with the help of communication skills and technologies [2].

Communication allows firms to transmit persuasive information between themselves, foster participate cooperative decision-making, coordinate joint programs, better known customers and suppliers, and gain partner commitment and loyalty. Research has shown that establishing communication lines across cooperating/collaborating firms is essential to the maintenance of value-enhancing relationships, and leads to enhanced knowledge development, greater understanding of complex interorganizational issues, greater confidence, cooperation, trust and reduced conflict [6].

Paired firms that are highly communicative with each other can lower transaction costs by increasing behavioral transparency, reduce uncertainty between supply chain members, Foster interorganizational learning, facilitate quicker adaptation to change, enlarge the potential for greater joint action, and ultimately increase performance [6].

The food industry sector is one of the most refined sectors that need to generate high integration capacities of its supply chains due to the health and safety characteristics required by its consumers [7]. The security of the food supply chain is essential to ensure a safe and efficient food supply [8]. Being this sector where there are major cultural and technological differences, as well as endless challenges, and barriers.

Non-integrated companies have disconnected product and information flow, limited ability to respond to customer requests, unpredictable product delivery rate, limited visibility into shipment information, and performance based on functional activities [9]. With an integrated supply chain, companies get a greater focus on customer service. They also reduce waste and become faster and more flexible, while maintaining the highest quality standards. In general, they are gaining an advantage over the competition, and they continue to implement continuous improvements to stay in that position [9].

The complexity of a food supply chain network is influenced by the number of participants, interrelated product links and processes, differences in the use of technology by the participants, specific regulations and legislation on food preservation and quality, product characteristics, product assortment, consumer wishes for fresher and more natural products, smaller production batch size, etc. [10]. The sharing of information and knowledge among members of the supply chain; demand information, and inventory status, capacity plans, production schedules, and promotion plans, demand forecast and shipment schedules. Product and process integration across firms within strategic supply chains; allows suppliers to assume responsibility for product engineering activities and product development, understanding of the complexity and scope of coordinated processes.

The purpose of this paper is to analyze the activities that make the integration of the supply chain possible, in order to determine if there is collaboration between the external partners of the supply chain, suppliers and customers of companies in the food industry of Michoacán, to know the level or intensity of information exchange, communication and collaboration between companies and these members of the supply chain.

## 2. Theoretical background

According to Configuration theory, the alignment of strategy and systems or practices is reflected in the patterns observed in practice. This suggests the need for emerging joint patterns to the supply chain integration. According to Contingency theory, there is no optimal way to manage, but each situation depends on numerous internal and external elements [8, 9].

The literature recognizes that all the value creation potential of the purchasing function (integrated system of suppliers and customers) can only be achieved if decisions, activities, investments and strategy are aligned, as well as the importance of achieving a state of alignment between functional domains and information technology. With the emergence of information technology systems that support the purchasing function, the challenge of aligning them with supply chain strategy and activities has improved [11].

The importance of aligning the information systems function with other business functions is widely recognized and empirical studies have found strategic alignment which is defined as the degree to which the mission, objectives and plans contained in the business strategy are shared and supported by the strategic alignment strategy to influence business performance. Alignment involves applying information technology in an appropriate and timely way and in harmony with business strategies, goals, and needs [12].

Alignment implies a shared vision of, commitment to, and plan for addressing areas considered critical to success. Alignment is related to organizational performance. Alignment between information systems and firm strategic plans should increase a firm's ability to realize its goals and objectives [13]. It is important to understand the importance of each other's contributions, communicate regularly and move towards shared goals, to experience improved managerial outcomes. Alignment leads to more focused and strategic use of information systems and, consequently, improved performance [11].

Relational perspective emphasizes that the distinctive competitive advantages will result from the cooperation between companies or networks and not of the organization's resources as unique or separate activities. From company collaboration, competitive advantages will be generated; the routine sharing of knowledge, complementary data sources, and effective governance.

Thus, it would be difficult for a company to create a competitive advantage by itself, based on the unique resources or ability, but on relational capabilities generated or created through active interaction and coordination among enterprises to achieve a common goal [14].

Company Performance involves Supplier Performance-Oriented, Customer-Oriented Performance and Financial Performance [15]. Supplier-oriented performance measures the performance of the supply chain in the upstream and customer-oriented performance measures the supply chain performance in the downstream. A combination of both is called supply chain performance. Supplier performance-oriented and customer performance-oriented affects the overall performance. Supplier-oriented performance and customer-oriented performance is an operations-oriented measurement which involves a variety of performance measurements [14].

Supply chain integration helps companies reconfigure their resources and capabilities internally and externally to consolidate their supply chain as a whole in an effort to improve long-term performance [2, 12]. It is a collaborative process in which companies work together cooperatively to achieve mutually acceptable results.

Supply Chain Integration is the degree to which a firm can strategically collaborate with its supply chain partners and cooperatively manage intra- and

inter-organizational processes to achieve effective and efficient flows of products, services, information, money, and decisions to provide the maximum value to the final customer with low costs and high speed [15].

According to the literature nine integrative activities were chosen to work in this analysis, **Table 1** shows them with a definition of each activity and some of the authors that work with the same activities for suppliers and customers.

| <b>Integrative Activity</b>  | <b>Suppliers</b>  | <b>Customers</b>  |
|--|---|---|
| <b>1. Share Demand Forecasts</b>   |   |   |
| To share the demand forecasts, prediction of future demand with their main suppliers and the information provided by the customers to the company about their demand forecast, key to their production planning, and to have real-time information directly from the end customer, to make a common demand forecast in order to avoid disruptions.             | Devaraj et al. [16], Krajewski and Wei [17], Flynn et al. [18], Alfalla-Luque et al. [19], Mikalef et al. [11], Lii and Kuo [20], Molina-Quintana [21], Molina-Quintana et al. [22].  | Devaraj et al. [16], Flynn et al. [18], Wong et al. [23], Kotcharin et al. [24], Alfalla-Luque et al. [19], De la Calle [25], Mikalef et al. [11], Lii and Kuo [20], Molina-Quintana [21], Molina-Quintana et al. [22]. |
| <b>2. Share Production Plans</b>   |   |   |
| To share their production plans with their main suppliers, and their main customers to achieve operational standardization. To have sufficient information to perform the procurement activities that meet real needs.   | Frohlich and Westbrook [26], Swink et al. [27], Flynn et al. [18], Won et al. [23], Kotcharin et al. [24], Huo et al. [28], Mikalef et al. [11], Lii and Kuo [20], Molina-Quintana [21], Molina-Quintana et al. [22].               | Flynn et al. [18], Mikalef et al. [11], Lii and Kuo [20], Molina-Quintana [21], Molina-Quintana et al. [22].  |
| <b>3. Establish Long-Term Relationships</b>  |   |   |
| To establish stable links with supply chain partners to enable mutual trust. The long-term relationship between the organization, its suppliers and its customers. It is designed to leverage the strategic and operational capabilities of individual participating organizations to help them achieve significant ongoing benefits.                          | Li et al. [29], Alfalla-Luque et al. [19], Otchere et al. [1], Otchere et al. [30], Huo et al. [28], Mikalef et al. [11], Huo et al. [31], Qi et al. [32], Toker and Pinar [33], Molina-Quintana [21], Molina-Quintana et al. [22]. | Li et al. [29], Alfalla-Luque et al. [19], Otchere et al. [1], Otchere et al. [30], Qi et al. [32], Toker and Pinar [33], Molina-Quintana [21], Molina-Quintana et al. [22].  |
| <b>4. Joint Planning to Anticipate and Solve Problems</b>  |   |   |
| To make available the supply chain members with information that allows joint planning that takes into account the constraints of the companies involved and seek to improve the planning process of comprehensive supply chain. To establish procedures under the normal order of the company against possible environment or business unexpected situations. | Devaraj et al. [16], Wong et al. [23], Alfalla-Luque et al. [19], Molina-Quintana [21], Molina-Quintana et al. [22].  | Devaraj et al. [16], Wong et al. [23], Alfalla-Luque et al. [19], Molina-Quintana [21], Molina-Quintana et al. [22].  |
| <b>5. Share Information through Information Technologies</b>   |   |   |
| To make compatible the information systems so as to allow access to  | Devaraj et al. [16], Flynn et al. [18], Wong et al. [23],   | Devaraj et al. [16], Wong et al. [23], Hosseini et al. [34],  |

| <b>Integrative Activity</b>  | <b>Suppliers</b>   | <b>Customers</b>  |
|--|--|---|
| information concerning the activity of the company from different departments and companies that make up the supply chain. The extend to which supply chain partners strive to make and keep their communication systems compatible with each other to be ready for inter-firm forecasting and planning in addition to routine electronic transactions and information exchange within the supply chain. The extend to which critical and proprietary information is communicated to one's supply chain partner. | Hosseini et al. [34], Alfalla-Luque et al. [19], Leuschner et al. [35].<br>Huo et al. [28], Mikalef et al. [11], Saleh [36], Qi et al. [32], Molina-Quintana [21],<br>Molina-Quintana et al. [22], Yu et al. [37].           | Kotcharin et al. [24], De la Calle [25], Mikalef et al. [11], Lii and Kuo [20], Alfalla-Luque et al. [19], Molina-Quintana [21], Molina-Quintana et al. [22], Yu et al. [37]. |
| <b>6. Involvement in Product Development Processes</b>   |  |   |
| The extend to which members of the supply chain have developed joint knowledge sharing routines that facilitate use of innovative practices, sharing of new ideas, and working together in identifying and implementing improvement initiatives on new products development.   | Li et al. [29], Swink et al. [27], Flynn et al. [18], Wong et al. [23], Hosseini et al. [34], Leuschner et al. [35], De la Calle [25], Huo et al. [31], Lii and Kuo [20], Molina-Quintana [21], Molina-Quintana et al. [22]. | Narasimhan and Kim [38], Flynn et al. [18], Wong, et al. [23], Kotcharin et al. [24], De la Calle [25], Molina-Quintana [21], Molina-Quintana et al. [22].                    |
| <b>7. Participation in Product Design Processes</b>  |  |   |
| To maintain close communication with suppliers and customers about product design change considerations. To guide organizations towards a joint search for the end customer satisfaction.  | Thatte [39], Swink et al. [27], Flynn et al. [18], Saleh [36], Huo et al. [31], Lii and Kuo [20], Molina-Quintana [21], Molina-Quintana et al. [22].   | Saleh [36], Huo et al. [31], Molina-Quintana [21], Molina-Quintana et al. [22].   |
| <b>8. Set Joint Goals</b>  |  |   |
| To involve in the setting of goals the supply chain members to benefit companies and activities.   | Li et al. [29], Thatte [39], Alfalla-Luque et al. [19], Molina-Quintana [21], Molina-Quintana et al. [22].   | Alfalla-Luque et al. [19], Molina-Quintana [21], Molina-Quintana et al. [22].   |
| <b>9. Develop Joint Responsibilities</b>   |  |   |
| To involve the Supply chain members in decision making.  | Molina-Quintana [21], Molina-Quintana et al. [22].   | Molina-Quintana [21], Molina-Quintana et al. [22].  |

*Source: Own Elaboration.*

**Table 1.**  
*Integrative activities with suppliers and customers.*

### 3. Method

The measurement instrument applied to 93 companies in the food industry sector of Michoacán, México, collects information on the supply chain integration, referring to the integration of suppliers and customers, through a five-point Likert scale. The measurement instrument, in terms of external measurement with suppliers and customers, coincides in nine activities that are intended to be analyzed,

activities of manufacturers towards suppliers and customers, to know the level or intensity of the exchange of information, communication and collaboration. The nine activities are practical on how the business organization has been implementing supply chain management in general.

The variables used for this research are integrative activities referring to demand forecasts, production plans, long-term relationships, joint planning, information through information technologies, involvement in product development processes, participation in processes of production design, joint objectives and joint responsibilities. The activities are the same for both, suppliers and customers, which allow to relate both concepts.

Although food industry sector includes the activity of food for human and animals' consumption, beverages and tobacco, for the purpose of this research, only the food sector for human will be taken into account, without taking into account prepared animal food, or the beverage or tobacco industry. In this research we will take the description of the food industry from [40, 41], which is comprised of the following subsectors with their respective frequency of companies for this study; 1) grinding grains and seeds (11 companies), 2) obtaining oils and fats (4 companies), 3) confectionery with and without cocoa (21 companies), 4) preserving fruits (7 companies), 5) vegetables and prepared foods (31 companies), 6) dairy products (2 companies), 7) meat and poultry processing (7 companies), 8) preparation and packaging of fish and seafood (1 company), 9) bakery and tortillas (9 companies).

#### 4. Analysis of the integrative activities that make up the supply chain integration

The following **Table 2** shows the descriptives for the integrative activities that food companies have with their suppliers and their customers, as well as a test of paired samples.

| Suppliers |                       | Integrative Activities                           | Customers |                       | Paired Samples<br><i>t</i> -test |                   |
|-----------|-----------------------|--|-----------|-----------------------|----------------------------------|-------------------|
| Mean      | Standard<br>Deviation |  | Mean      | Standard<br>Deviation | <i>t</i>                         | <i>P</i><br>Value |
| 2.882     | 1.552                 | Share demand forecasts                           | 3.527     | 1.372                 | -2.844                           | <b>0.006</b>      |
| 2.419     | 1.432                 | Share production plans                           | 2.957     | 1.474                 | -2.459                           | <b>0.017</b>      |
| 4.226     | 1.190                 | Establish long-term relationships                | 4.516     | 0.892                 | -1.388                           | 0.170             |
| 2.140     | 1.426                 | Joint planning to anticipate and solve problems  | 3.161     | 1.454                 | -1.248                           | 0.217             |
| 2.376     | 1.481                 | Share information through information technology | 3.065     | 1.436                 | -3.536                           | <b>0.001</b>      |
| 2.871     | 1.408                 | Involvement in product development processes     | 3.591     | 1.369                 | -6.727                           | <b>0.000</b>      |
| 2.323     | 1.423                 | Participation in product design processes        | 2.591     | 1.393                 | -2.200                           | <b>0.032</b>      |
| 2.312     | 1.459                 | Set joint goals                                  | 2.473     | 1.388                 | -2.079                           | <b>0.042</b>      |
| 2.707     | 1.264                 | Develop joint responsibilities                   | 3.640     | 1.199                 | -1.342                           | 0.185             |

Source: Own Elaboration based on the collected data.

**Table 2.**  
Statistical summary for integrative activities.

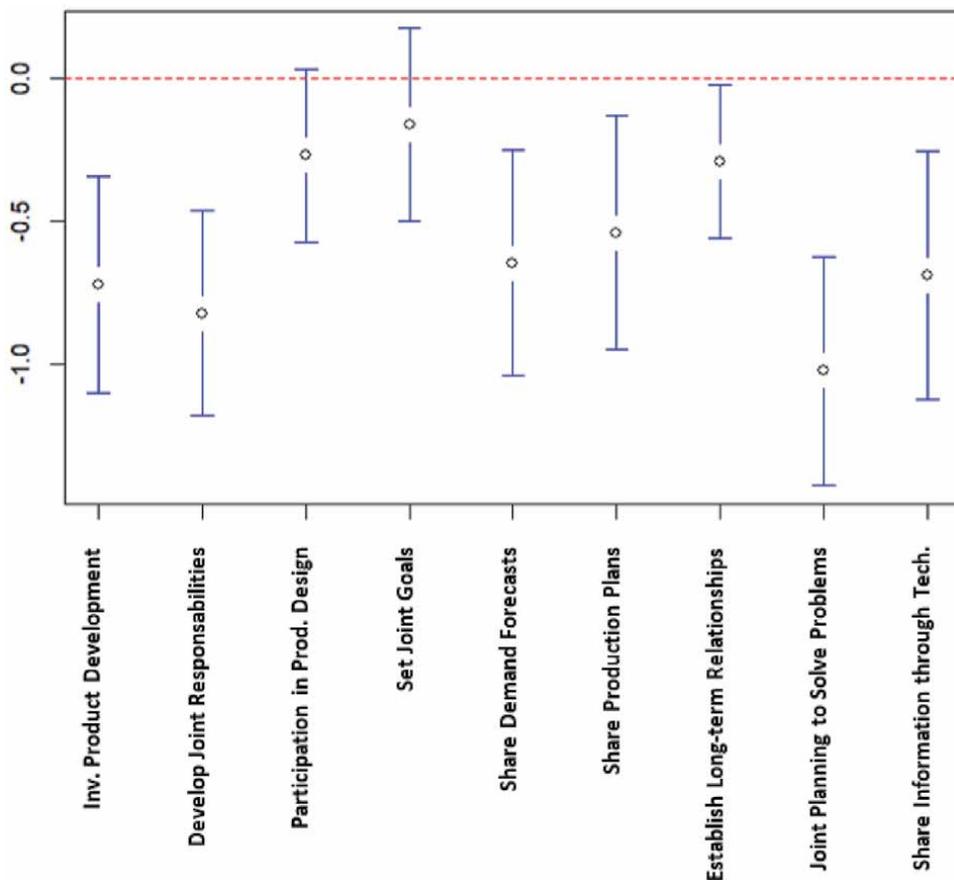
Negative t-values indicate that all variables take higher mean values for customers than for suppliers, which indicates that the difference is always in favor of customers. In the p-value of the significance test, the difference is only statistically significant for six of the nine integrative activities, since the value is less than 0.05.

The following **Figure 1** shows the mean differences between suppliers and customers, together with the corresponding 95% confidence intervals, constructed directly with each difference variable, using the Normal approximation of the mean distribution.

All mean values are located below the zero level (horizontal line in the graph), indicating that integrating activities have systematically higher values for customers than for suppliers. Only two activities have upper interval limits that exceed the zero level, so the mean is not significantly different from zero with a two-sided contrast in those two cases.

If we apply a one-sided test, more appropriate considering that the negative value of the difference is systematically observed in all cases, the statistical significance of the effect extends to all activities except “develop joint objectives”, as indicated in the following **Table 3**.

**Table 4** below shows the analysis of individualized associations expressed in percentages or relative frequencies of questions by company for the integrative activities in a recoded form (H = High, M = Medium, L = Low) to understand and



**Figure 1.** Differences of means (suppliers - customers) of the integrative activities and confidence intervals. Source: Own elaboration based on the collected data.

| Activity | Integrative Activities                           | Mean Difference | One-sided <i>p</i> value |
|----------|--|-----------------|--------------------------|
| 1        | Share demand forecasts                           | -0.645          | 0.0008327                |
| 2        | Share production plans                           | -.538           | 0.005186                 |
| 3        | Establish long-term relationships                | -0.29           | 0.01685                  |
| 4        | Joint planning to anticipate and solve problems  | -1.021          | 0.000001044              |
| 5        | Share information through information technology | -0.689          | 0.001149                 |
| 6        | Involvement in product development processes     | -0.72           | 0.000139                 |
| 7        | Participation in product design processes        | -0.268          | 0.04112                  |
| 8        | Set joint goals                                  | -0.161          | <b>0.1723</b>            |
| 9        | Develop joint responsibilities                   | -0.933          | 0.000008366              |

Source: Own Elaboration based on the collected data.

**Table 3.**  
Unilateral contrast for integrative activities.

| Activity 1. Share demand forecasts  |          |          |          |              | Activity 2. Share production plans   |          |          |          |              |
|---|----------|----------|----------|--------------|--|----------|----------|----------|--------------|
| How often do your <i>customers</i> provide your company with <i>information about their demand forecast</i> , which is key to your production planning? |          |          |          |              | How often does your company share <i>its production plans</i> with its main <i>customers</i> to achieve operational standardization? |          |          |          |              |
| How often does your company share its demand forecasts (prediction of future demand) with its main suppliers?   | <b>H</b> | <b>M</b> | <b>L</b> | <b>Total</b> | How often does your company share its production plans with its main suppliers?  | <b>H</b> | <b>M</b> | <b>L</b> | <b>Total</b> |
| <b>H</b>  | 10.8     | 8.6      | 19.4     | 38.7         | <b>H</b>   | 26.9     | 8.6      | 10.8     | 46.2         |
| <b>M</b>  | 5.4      | 6.5      | 9.7      | 39.8         | <b>M</b>   | 3.2      | 2.2      | 7.5      | 12.9         |
| <b>L</b>  | 18.3     | 8.6      | 12.9     | 21.5         | <b>L</b>   | 12.9     | 10.8     | 17.2     | 40.9         |
| <b>Total</b>  | 34.4     | 41.9     | 23.7     | 100.0        | <b>Total</b>   | 43.0     | 21.5     | 35.5     | 100.0        |
| Pearson's Chi-squared test, <i>p</i> -value = 0.3742  |          |          |          |              | Pearson's Chi-squared test, <i>p</i> -value = 0.05858  |          |          |          |              |
| Activity 3. Establish long-term relationships   |          |          |          |              | Activity 4. Joint planning to anticipate and solve problems  |          |          |          |              |
| How often does your company <i>seek a long-term relationship</i> with your <i>clients</i> to achieve operational consolidation?                         |          |          |          |              | How often does <i>your company</i> do <i>joint planning</i> with key <i>customers</i> to anticipate and solve problems?              |          |          |          |              |
| How often does your company establish long-term relationships with your suppliers?  | <b>H</b> | <b>M</b> | <b>L</b> | <b>Total</b> | How often do you <i>plan together</i> with your key <i>suppliers</i> to anticipate and resolve issues?                               | <b>H</b> | <b>M</b> | <b>L</b> | <b>Total</b> |
| <b>H</b>  | 47.3     | *        | 14.0     | 61.3         | <b>H</b>   | 23.7     | 19.4     | 5.4      | 48.4         |
| <b>M</b>  | 10.8     | *        | 5.4      | 16.1         | <b>M</b>   | 4.3      | 7.5      | 3.2      | 15.1         |
| <b>L</b>  | 11.8     | *        | 10.8     | 22.6         | <b>L</b>   | 11.8     | 9.7      | 15.1     | 36.6         |
| <b>Total</b>  | 69.9     | *        | 30.1     | 100.00       | <b>Total</b>   | 39.8     | 36.6     | 23.7     | 100.0        |

|   |          |          |          |              |   |          |          |          |              |
|---|----------|----------|----------|--------------|---|----------|----------|----------|--------------|
| <b>Pearson's Chi-squared test, <math>p</math>-value = 0.1014</b>  |          |          |          |              | <b>Pearson's Chi-squared test, <math>p</math>-value = 0.02578</b>   |          |          |          |              |
| *This variable does not have mean values, since more than two thirds of the respondents marked the maximum value of 5 in that question in a 5 point Likert scale. There are therefore only two groups, those with a value of 5 (high level, H) and those with less than 5, less than a third of the total (low level, L, or medium / low level ML). |          |          |          |              |   |          |          |          |              |
| <b>Activity 5. Share information through information technology</b>   |          |          |          |              | <b>Activity 6. Involvement in product development processes</b>   |          |          |          |              |
| How often do you <i>share information</i> with your main <i>customers</i> through <i>information technology</i> ?   |          |          |          |              | How often do you involve your <i>customers</i> in your <i>product development processes</i> ?                       |          |          |          |              |
| How often does your company and its <i>suppliers share</i> technical, general, relevant, commercial <i>information</i> through <i>information and communication technologies</i> ?  | <b>H</b> | <b>M</b> | <b>L</b> | <b>Total</b> | How often do you involve your <i>suppliers</i> in <i>joint product development processes</i> ?                      | <b>H</b> | <b>M</b> | <b>L</b> | <b>Total</b> |
| <b>H</b>  | 17.2     | 12.9     | 4.3      | 34.4         | <b>H</b>  | 26.9     | 4.3      | 4.3      | 35.5         |
| <b>M</b>  | 5.4      | 22.6     | 7.5      | 35.5         | <b>M</b>  | 2.2      | 3.2      | 6.5      | 3.2          |
| <b>L</b>  | 10.8     | 12.9     | 6.5      | 30.1         | <b>L</b>  | 28.0     | 10.8     | 14.0     | 52.7         |
| <b>Total</b>  | 33.3     | 48.4     | 18.3     | 100.0        | <b>Total</b>  | 57.0     | 18.3     | 24.7     | 100.0        |
| <b>Pearson's Chi-squared test, <math>p</math>-value = 0.0513</b>  |          |          |          |              | <b>Pearson's Chi-squared test, <math>p</math>-value = 0.01393</b>   |          |          |          |              |
| <b>Activity 7. Participation in product design processes</b>  |          |          |          |              | <b>Activity 8. Set joint goals</b>  |          |          |          |              |
| How often do your <i>customers</i> participate in your <i>product design processes</i> ?  |          |          |          |              | How often does your company <i>set joint goals</i> with key <i>clients</i> to achieve organizational restructuring? |          |          |          |              |
| How often do you communicate closely with your <i>suppliers</i> about <i>design change considerations</i> in joint product development?   | <b>H</b> | <b>M</b> | <b>L</b> | <b>Total</b> | How often does your company <i>set joint goals</i> with your key <i>suppliers</i> ?                                 | <b>H</b> | <b>M</b> | <b>L</b> | <b>Total</b> |
| <b>H</b>  | 18.3     | 20.4     | 3.2      | 41.9         | <b>H</b>  | 30.1     | 5.4      | 3.2      | 38.7         |
| <b>M</b>  | 4.3      | 6.5      | 3.2      | 14.0         | <b>M</b>  | 9.7      | 7.5      | 2.2      | 19.4         |
| <b>L</b>  | 15.1     | 10.8     | 18.3     | 44.1         | <b>L</b>  | 12.9     | 2.2      | 26.9     | 41.9         |
| <b>Total</b>  | 37.6     | 37.6     | 24.7     | 100.0        | <b>Total</b>  | 52.7     | 15.1     | 32.3     | 100.0        |
| <b>Pearson's Chi-squared test, <math>p</math>-value = 0.009764</b>  |          |          |          |              | <b>Pearson's Chi-squared test, <math>p</math>-value = 0.0000009252</b>  |          |          |          |              |
| <b>Activity 9. Develop joint responsibilities</b>   |          |          |          |              |   |          |          |          |              |
| How often do you <i>develop joint responsibilities</i> with key <i>clients</i> to achieve organizational restructuring?   |          |          |          |              |   |          |          |          |              |

| How often does your organization develop joint responsibilities with your key suppliers? | H    | M    | L    | Total |
|--|------|------|------|-------|
| <b>H</b>   | 24.7 | 6.5  | 6.5  | 37.6  |
| <b>M</b>   | 7.5  | 9.7  | 1.1  | 44.1  |
| <b>L</b>   | 11.8 | 6.5  | 25.8 | 18.3  |
| <b>Total</b>   | 44.1 | 33.3 | 22.6 | 100.0 |

**Pearson's Chi-squared test,**  
**p-value = 0.000006277**

*Source: Own Elaboration based on the collected data.*

**Table 4.**  
*Analysis of associations for the integrative activities.*

interpret the questions easily of the instrument for measuring the activities referring to integrative activities.

When the p-value is greater than 0.05, we must accept that there is no relationship -for this activities- between suppliers and customers (they behave independently), or more exactly there is not empirical evidence that this relationship exists (perhaps because the sample is not big enough), those are the cases for activities 1, 2, 3 and 5. When the p-value is less than 0.05 it can be accepted that the two characteristics crossed in the table are associated or related to each other, those are the cases for activities 4, 6, 7, 8 and 9.

## 5. Limitations, future research directions and conclusions

This paper has a number of limitations. First, there were no official institution with the exact number of food companies of Michoacán, so we tried to look on the internet, to visited every store, bazar, event, market, to checked labels of products, and we found that there were a lot of new creation companies, some others that had a lot of years, some others that disappeared but their information remained valid on the internet, some others shell companies with fictitious information, some others that were not legally registered. We also got in touch with leaders of some state and local Institutions but they did not know of the existence of any registry or database for companies in Michoacán, so we took as base the registry of the national statistical directory of economic units, [42] but we found companies that did not belong to the food industry sector, so we had to do a thorough review. Besides the willingness of companies to respond to the measurement instrument due to the insecurity of the state of Michoacán or apathy or lack of availability of time or desire to help research, so an important limitation was the number of companies surveyed.

Future research may consider looking at integrative activities in different industries or different states or countries, in order to make a comparison. The application of new statistical techniques such as multivariate analysis and data mining to the study of the data under investigation. The preparation of a manual of good integration practices that can be used by companies to improve their results.

In general we can conclude that the results were always in favor of customers, maybe because literature and practice always pull through customers trying to understand what customers want, need, how to satisfy them with studies of

customer satisfaction, customer loyalty, customer relationship management, marketing that usually works for customers and with customers; but hardly ever work with suppliers or for suppliers, almost never hear of suppliers process, suppliers selection, supplier relationship management, or activities were suppliers are involve, like parties, trainings or events, but is more often to include customers in this kind of activities. Also, it is odd for manufacturers to were asked about their daily activities with suppliers, but so it is with customers too, because normally there is no relationship with them, so this was the case for the food industry companies of Michoacán.

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# Marketing Communications in Health Care Institutions

*Aykut Ekiyor and Fatih Altan*

## Abstract

The aim of this study was to give general information about marketing communication and marketing communication tools in health institutions. Marketing communication is the tools that organizations use to increase brand value and associate their location and character with consumers. Therefore, marketing communication is useful in representing the voice of the brand, engaging in a dialog with consumers, explaining or showing how, where, by whom, and when a product or service can be used. In addition, it contributes to informing consumers about who produces the product or service, what the organization and brand represent, encouraging consumers to try the product or service, and creating brand image by placing the brand of the institution in the minds of consumers. Marketing communication helps to create a stronger consumer-brand connection by creating brand awareness and brand image. As a result, although the marketing communication activities carried out in health institutions are similar to the practices in other institutions, there are differences. Marketing communication in health services does not lead the patient to unnecessary consumption, but rather informs the patient, convinces them about the benefits to be provided, and brings them to a more participatory position in the diagnosis and treatment process.

**Keywords:** marketing communication, health care institutions, health care management, consumer, digital marketing, marketing communication tools

## 1. Introduction

Today's developments have affected everything from the lives of individuals to developments in the business world. As a result of this progress, organizations not only changed physical elements, but also had to change their marketing strategies and activities [1]. Health institutions have also taken their share from this change and transformation.

Modern marketing requires much more than developing a good product or service, attractive pricing, and making the developed product or service accessible. Businesses have to communicate with existing and potential stakeholders and the public: businesses in communication with the public; what, how, where, when, how often, and to whom to say. Consumers actively use communication tools such as hundreds of cable and satellite broadcasts, thousands of magazines and newspapers, and millions of Internet pages ([2], p. 579). The increasing competitiveness of the health sector increases the importance of marketing. Health care organizations have to use marketing communication to gain competitive advantage, increase

sales revenue, promote the services offered, and influence customers. Marketing communication is a very popular topic nowadays. No area of marketing is changing as fast and radically as marketing communication. Because with the emergence of concepts such as online, mobile, and social media marketing, customer engagement is increasing day by day ([3], p. 425).

Marketing communication in health services transforms health services according to the needs and expectations of consumers and encourages them to use these services. Due to competitive pressures and increasing patient awareness, health institutions are turning to marketing communication to highlight their services. Health care organizations have to use marketing communication to gain competitive advantage, increase sales revenues, promote the services offered, and influence customers. For this reason, in the following parts of the study, marketing communication tools in health services will be introduced and examples of applications in the field of health will be given.

## **2. Methodology**

The aim of the study is to reveal a conceptual framework of marketing communication and examples of practice in health institutions. In this context, first, a conceptual structure about communication and communication process will be revealed and then, the study will be concluded by giving examples of marketing communication, marketing communication mix and marketing communication studies from health institutions.

### **2.1 Communication process**

The aspect of marketing communication that is “credible” and “persuasive” communication activity is the most important quality that distinguishes it from other activities. Therefore, it requires a good communication process to realize effective marketing communication. However, marketing communication is not only to inform the consumer/target audience, but also to directing the current attitude and behavior of the consumer/target audience toward the product or service. In marketing communication, if the consumer attitude and behavior are in the desired direction, it is aimed to strengthen it and to change it in the desired direction if it is not in the desired direction [4].

Communication is basically the process of transition of information. In order to ensure communication, both the sender and the recipient must share common ground. The symbol, letter, or picture used to transmit information must have a common meaning. Therefore, communication can also be expressed as meaning sharing [5].

In order for health organizations to carry out marketing communication activities, they must first carry out an effective communication process with their customers. The communication process consists of source, encoding, message/media, decoding, receiver, and feedback [6].

**Source** is expressed as a person, group, or organization that has the knowledge/meaning to share with an audience. **Encoding** is the process of converting information/meaning into a series of signs or symbols representing ideas or concepts to transfer information/meaning to the recipient. **Communication channel** is the communication tool selected by the source to share a meaning/knowledgeable with the receiver/monitor. **Decoding** is to convert signs or symbols into meanings or ideas. **Receiver:** It is the person, group, or organization that decodes an encoded message. **Noise** is anything that reduces the clarity and accuracy of communication.

**Feedback** is the recipient's response to the source/sender by decoding the message from the source/sender [5, 7].

Health managers need marketing communication to communicate effectively with the target audience. In order to carry out marketing communication, some considerations need to be taken into consideration. These [8, 9] are as follows:

- Health managers should get to know the target audience well,
- As a result of the activities carried out, the reaction to the target audience should be determined,
- The target audience should be contacted using the most appropriate communication channel (media),
- Feedback should be obtained and the outcomes of the communication process should be determined,
- Elements that interfere with communication should be eliminated whenever possible.

## 2.2 Marketing communication mix in health care institutions

The marketing communication mix—also called the promotion mix—consists of advertising, public relations, personal sales, sales promotions, direct sales, and digital marketing, which are used to communicate with the target audience, engage with, and convince customers [3].

The use of health services and marketing communication (promotion) concepts together is a highly controversial area. Which messages should be given to people with health problems by health organizations has always been a topic of discussion. In addition, the fact that it is not clear when and to what extent individuals will need health care is another issue that has inflamed this debate. It is also seen as normal for a healthy person to be indifferent to health care, physician, or health care provider. Based on this information, it is also clear that marketing communication in health services has different dimensions compared to other sectors and that appropriate marketing communication should be designed accordingly [9].

In recent years, health care marketing has become important and indispensable. With technological development, consumer needs and expectations have changed. These changes have also affected the health sector. However, there has been a change in health marketing understandings and practices. Health organizations have sought not only to increase the sales of products and services produced to their target audience, but also to develop lasting relationships with them. The purpose of communication design in health care organizations is to increase the awareness of customers, change their perceptions and attitudes, and strengthen their competitive position in the market [8, 10]. Today, health organizations act customer-centered and aim to produce quality services at affordable prices. This has led to the popularity of marketing activities in health institutions. In addition, the increasing rigidity of the competitive environment necessitates marketing communication activities [11].

Marketing communication for health organizations is a very important activity. The function of marketing communication in any product or service sector; it consists of efforts to communicate with existing and potential customers and ensures that customers are aware of the products and services produced by the organization. But in the health sector, the situation is different. It is not appropriate

for health organizations to use aggressive marketing communication tools, and it is argued that oral communication is more effective [11].

It is necessary to consider the image of the institution before deciding how to conduct marketing communication activities in health institutions. After evaluating the innovative structure, dynamics, level of technology use, etc., of the organization, activities should be decided on marketing communication. Before deciding on marketing communication activities, the following questions should be searched for answers [12].

- What is the image of the health care company?
- What kind of image do health managers want the health care organization to have?
- What kind of image do the health care company's clients want?
- How is it compared to the images of competitors?

Marketing communication reveals how health institutions will inform the market about the products and services they produce. Public relations, advertising, and other activities are involved in the data collection and information conversion process. For example, public relations, existing and new services of the health institution, crisis management, stakeholder relations, vision determination, etc., are used for the management activities. Advertising, on the other hand, is aimed at potential customers of the health institution and other health businesses; information about the service provided, the monetary value of the service (price), or the access to the service, such as brochures, billboards, TV, radio, newspaper, magazine, etc., helps to stop through channels.

### *2.2.1 Advertising*

The advertisement is expressed as the transmission of information about the products and services of the organization to the target audience through various means of communication (TV, radio, internet, newspaper, magazine, direct mail, billboard, etc.). As the communication tools used by consumers change, so do the ads. While the use of traditional advertising tools is decreasing day by day, today it uses digital platforms intensively, which is an important communication tool for organizations to maintain their presence and gain a competitive advantage [5].

Advertising varies from sector to sector, from business to business. Businesses, retailers, etc., that sell products or services in the consumer market often use advertising tools to communicate with their target audience and convince them to purchase these products and services. It uses advertising in enterprises operating in the star/professional market. In addition to its various benefits such as raising awareness about the products and services produced by the organization and guiding sales personnel, it also increases the confidence of customers in the organization and the products and services it produces [13].

The health sector is one of the sectors, which has seen the most growth and development within the service sector. With the increase in interest in health and health services, advertising plays an important role in determining the profitability and market share of health institutions. In the event of this situation, differences between increased competitions among health institutions, increase in the level of education, and awareness of customers and the quality of services offered by health institutions can be listed [14].

Hospitals, pharmaceutical companies, medical device manufacturers, physicians, etc., recognize the benefits of advertising for the health care industry. As a result of this, there has been an increase in advertising expenditures in health services. This increase in spending has led to debate among key stakeholders about the benefits and drawbacks of advertising in the health sector. The main problems of the discussion are seen as the physician-patient relationship, patient education, inappropriate resource use, health care costs, health care quality, and its effect on the welfare level of patients [15].

Research by Bell and Vitaska [16] revealed that hospital advertisements were received negatively. These findings reveal that physicians respond to hospital advertisements with a negative attitude in studies by Miller and Waller [17], Kinney and King [18], and are consistent with the study by Bell and Vitaska [16].

Although advertising activities are considered negatively for health institutions, they have been practiced under press and public relations activities for many years. The purpose of advertising activities carried out in health institutions is not only to promote the products or services offered, but also to help improve the education, motivation, and attitudes of health care consumers. In other words, advertising, which is an effective communication tool, is used to warn health care consumers against certain situations and to increase their interest in existing services [8]. Even if there are criticisms for unethical practices or waste of resources, it increases service consumption. Advertising activities carried out within the framework of appropriate resource use and ethical rules will continue to be a powerful marketing communication tool in promoting services to health care consumers [10].

### *2.2.2 Personal sales*

Selling health services is very complex and difficult. However, it is considered as a very productive effort from a scientific point of view [19]. The fact that health services are consumer-centered causes competition among health institutions and the importance of marketing increases [20]. The large number of specialties emerging in the delivery of medical services increases the importance of personal selling in health services marketing and requires the adaptation of existing marketing approaches.

Health institutions/businesses use personal sales effectively to introduce new products and services, brands, and new facilities to their target audience. Personal sales is the most effective way to communicate meaningfully with customers. Personal sales is one of the marketing communication tools frequently used by low-budget health care institutions/businesses, as it is performed at a lower cost compared to advertisements [21].

Personal sales is carried out through face-to-face communication with the customer. Unlike other forms of marketing communication (advertising, sales promotion, etc.), it occurs as a result of direct interaction between the buyer and the seller [22]. Considering the activities carried out by health institutions, it can be said that almost all of them consist of buyer-seller interaction. In this respect, personal selling is a marketing communication tool used in health institutions.

Personal sales in health care institutions is directly related to the quality of communication between the buyer and the seller. It can be said that it is a more effective marketing communication tool than advertising and public relations activities, thanks to the good relations established with the customer as a result of a quality communication [9].

In organizations operating in the health sector, personal sales are carried out by professional people or by training the health personnel within their own body. Making use of professional people will increase the costs related to this field. For

this reason, “Should personal sales be carried out by professionals in the health sector or should it be provided by the health personnel within their own body by training them?” There is no consensus on the question yet. While organizations operating outside the health sector use professional staff for personal sales, health organizations generally use their own staff (physician, nurse, midwife, etc.) [23]. Personnel who will carry out personal sales in health institutions must have medical knowledge. Companies that produce and sell pharmaceuticals and medical supplies have a large number of sales personnel. However, these personnel do not have as much medical knowledge as a physician. However, such personnel are used for personal sales because they have more medical knowledge than any other person.

The physician who refers patients to the hospital is considered a salesperson. But this is a wrong perception. Sales personnel act with the aim of making sales and increasing sales. However, the physician refers him to a higher level health institution for medical reasons. While the physician has the initiative to refer the patient to any health institution, sales personnel do not have this initiative [24].

### *2.2.3 Public relations*

Other marketing communication elements other than public relations focus on the organization's customers. But for organizations, not only customers, but also suppliers, staff, shareholders, media, educators, potential investors, government, and society are also important stakeholders. Public relations is an important concept in communicating with both internal and external customers [8]. Public relations is a broad marketing communication tool used to establish, develop, and maintain positive relationships with all of an organization's stakeholders. Positive relationships with stakeholders help the organization increase its sales and profitability and maintain its existence [5].

The use of the concept of public relations in health institutions dates back to 1975. Although it was known that such activities had taken place before, they were carried out at a limited level. But today, there is a wide field of activity in terms of relations with both internal and external stakeholders. Public relations activities in health institutions are used to create a positive image about the products/services and activities produced—not in an effort to increase the sales of products and services as in advertisements. In this direction, health institutions create communication programs to provide image management [9].

It can be said that with the use of public relations in the field of health, which plays an important role in shaping public opinion, it contributes to issues such as family planning, prevention of traffic accidents, combating epidemics, and reducing infant mortality, which are among the important issues of recent times.

### *2.2.4 Sales promotion*

Sales development can be expressed as other communication efforts that are usually not continuous outside of personal selling, advertising, and other marketing communication tools. Sales promotion consists of many heterogeneous activities and it is difficult to categorize these efforts. However, it can be examined in three categories for consumers, intermediaries, and sales personnel according to the audience that marketing communication addresses. For consumers, giving giveaways, coupons, bonuses, fashion shows, cashback. For intermediaries, these are activities such as purchase advances, gratuitous goods, incentive premiums, and sales contests. As for sales personnel, premium, competition, sales meetings, etc., can be exemplified as activities [25].

Sales promotions attract customers and encourage them to buy. Sales promotions are a powerful tool to accelerate customer responses. Advertisements provide benefits for purchasing products and services, but sales promotions can be a more effective method for instant purchasing. It provides short-term benefits to the organization. It is not an effective method for building images and developing long-term customer relationships [3].

### *2.2.5 Digital marketing*

Digital marketing is a non-traditional form of marketing carried out on the Internet to promote products and services, increase customer interaction, and identify customer needs using technology. It is seen as one of the most effective and prominent methods to increase brand awareness and develop business [26].

According to the data of 2021, the world population is 7.83 billion. In addition to 5.22 billion mobile phone users, 4.66 billion individuals are known to be Internet users. In addition, 4.20 billion people were registered as active social media users [27]. Social media (Facebook, Twitter, YouTube, Pinterest, Instagram, etc.) is characterized as a special area of use for digital marketing because it can be defined, communicated, personalized, and measurable by organizations. Studies have revealed that 79% of consumers prefer social media to get more information about the products and services of businesses [28]. Social networks are unique environments. Customers can contact the company collectively or individually. In addition, customers have the opportunity to communicate with each other both privately and publicly [29].

Social media marketing is the most prominent form in digital marketing, which also has a wide coverage in the field of health. Social media can be used to promote health education for health organizations. The digitization of human interactions and intimacy has led to the convergence or even disappearance of distances at the push of a button. As a result of digitalization, social media becomes a source of interaction for public health. It has the potential to change many health-related behaviors, especially in times of crisis. With the interaction in social media, multi-directional communication takes place and public health messages are spread faster. As a result of these, the health knowledge of the society increases and contributes to the development of the health level [30].

With the widespread use of digital media by consumers, the necessity of finding new marketing strategies for health care organizations has emerged. Marketing communication activities carried out on the digital platform are less costly than traditional marketing methods. In addition to this, providing communication with customers in the virtual environment makes important contributions to the elimination of distances and increasing consumer awareness. In addition, the use of digital platforms in marketing communication in health institutions plays a key role in determining the target audience ([31], p. 44; [32]).

The Web site of health institutions is also a very effective medium in carrying out marketing communication activities in the digital environment. The fact that users both get detailed information about the services and easily communicate with the health institution provides an advantage for the presence of health institutions in the market. Such platforms have also become an important tool in establishing permanent communication with customers [33].

Health care is an area open to abuse due to the ignorance of customers. For this reason, marketing communication activities should be carried out within the framework of ethical rules. People suffering from serious illnesses will tend to believe the information provided by the health care provider and trust the services to be provided. It would not be right for health institutions to attempt to direct patients to use unnecessary services or to increase their expectations [34, 35].

### 3. Result

Marketing communication is a very important field of activity not only for for-profit companies, but also for non-profit organizations (such as health care organizations). The main purpose of marketing communication is to inform, persuade, and remind the target audience about the organization and its products and services. In line with this purpose, sales are realized by attracting customer attention as a result.

In parallel with technological, economic, and social developments, consumer demands, expectations, and needs have also changed. In addition, the supply and demand in the health sector is increasing day by day. All these developments have increased the importance of marketing communication in the health sector. The increase in global health expenditures also increases the share of public budgets allocated to health. Such problems can hinder marketing communication activities. Based on cost pressure, health institutions are turning to marketing communication activities carried out in digital environment rather than traditional marketing communication methods. In addition, marketing communication activities made through various channels such as social media and Web site positively affect the image of the health institution.

Although it is not possible to implement all marketing communication tools in health institutions, advertising and public relations activities are carried out in a wide range of applications. In the marketing communication activities in health institutions, it is aimed to inform the consumers about the services, to create a positive corporate image, to convince them about the benefits of the service, and to participate in the diagnosis and treatment process. These reasons distinguish marketing communication activities in the health sector from the activities carried out in other sectors. It is understood that it is of vital importance for both the health institution and the customers.

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*Communication Management* is an edited volume of chapters written by scholars researching various areas of marketing and management sciences. It presents several issues of marketing management within the limits of marketing communication. Starting from the issue of communication channels and basic sensory apparatus for processing information and stimuli, the book continues with a description of the issue of social media in the time of accelerated digitization. The last chapter introduces the reader to the issue of marketing communication in a sharply non-standard environment. The topic itself creates the opportunity to seek qualitative knowledge for future in-depth research into the impact of the COVID-19 pandemic on both national and transnational economies.

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