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Social Media and IOT Wearables in Developing Marketing Strategies. Do SMEs Differ From Large Enterprises?

Irina Maiorescu 1,*, Mihaela Bucur 1, Bogdan Georgescu 2, Daniel Moise 2, Vasile Alexandru Strat 3 and Ion Daniel Zgura 1,*

1 The Faculty of Business and Tourism, The Bucharest University of Economic Studies, 010404 Bucharest, Romania; mihaela.bucur@com.ase.ro
2 The Faculty of Marketing, The Bucharest University of Economic Studies, 010404 Bucharest, Romania; bogdan.georgescu@mk.ase.ro (B.G.); moisedaniel@mk.ase.ro (D.M.)
3 The Faculty of Economic Cybernetics, Statistics and Informatics, The Bucharest University of Economic Studies, 010552 Bucharest, Romania; vasile.strat@csie.ase.ro
* Correspondence: irina.maiorescu@com.ase.ro; (I.M.); zgura@com.ase.ro (I.D.Z.); Tel.: +40-740-534-364 (I.D.Z.)

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Abstract: The fast development of technologies shapes the way companies address and understand their customers’ needs, including the more and more pressing call for sustainability. If, by now, many organizations use the advantages of social media in their marketing strategies, newer technologies, such as Internet of things (IoT) wearables, are not fully used to their whole potential. Thus, we conducted two research studies—a qualitative one in the form of a focus group where eight different companies’ representatives took part, followed by a quantitative one in the form of an online questionnaire, where 84 (Small and Medium Sized Enterprises) SMEs and Large Enterprises answered. The main purpose of our research was to investigate companies’ attitudes and practices about using social media and IoT wearable technologies in developing organizational marketing strategies. The results indicate that, though there are some differences in the perception and use of social media and IoT wearables for developing marketing strategies, these differences are not marked between SMEs and Large Enterprises, but rather between micro enterprises and other companies with higher numbers of employees. Additionally, there are some differences noticed between companies operating in regional, national, or international markets.

Keywords: social media; IOT wearables; marketing strategies; SME

1. Introduction

The manner in which companies are currently marketing products and services to clients is constantly being remodeled by new technologies and, at the same time, by the increasing need of society for overall sustainability. While, right now, individuals and businesses are well familiarized with using the internet and social media, new technological advances, such as artificial intelligence or the Internet of things (IoT), pose challenges [1]. Sustainability, as a global priority of this society, must be taken into consideration through all its components: economic, social, and environmental, [2], as these work in an interconnected systemic manner [3]. Sustainable development is greatly helped by technological advances [4], but along with new opportunities, new threats have to be taken into account whenever new technologies are implemented [5]. Researchers admit that “these technological innovations and the resulting applications and solutions, with their unprecedented effects and unfamiliar outcomes, compel marketers to get ahead of the knowledge curve” [6]. Implementing new technologies often
results in lowering the costs, reducing the risks of possible litigations and bad publicity, thus making the companies more economically sustainable in the long run. According to researchers, economic sustainability “is inextricably linked to both environmental and social sustainability” [7]. Still, there are significant differences in the perceptions of sustainability depending on companies’ experiences of their sustainable actions’ results [8]. Nowadays, our society is immersed in social media, and social media networks give both companies and customers the ability to have bidirectional, even instant communication and feedback [9]. Accordingly, companies from all over the world are investing resources in newer technologies and in social media platforms because they want to increase their connection and communication with clients, thus increasing their competitive advantage. The possibility of using relevant information about users’ behavior, through the means of fashionable, wearable IoT devices and their dedicated apps, for shaping future marketing strategies may encourage companies to look toward implementing such technologies. Because data retrieved through both social media and IoT technologies can influence decision making throughout organizations, it is important that companies are aware of their advantages and limitations when being used in marketing strategies.

Companies vary in terms of size, area of activity, and type of market they operate in. Hence, we aimed to obtain more insights about their various perspectives, attitudes, and practices about these two different technologies because we noticed a gap in the academic field about the research of differences and similarities between SMEs and large companies. As such, the objective of this paper is to investigate social media, as compared to the newer technologies—IoT wearables, regarding their likely impact and potential to help companies with relevant data for their marketing strategies, as well as to assess their effect on SMEs when compared to large companies. Our choice for analyzing this theme, which is likely to shape the practice and discipline of marketing for several years, is motivated by the lack of research in this area on companies, especially on SMEs, activating on the Romanian market.

Different technologies address different needs of society. Gathering information from companies, from the population, and from the environment helps planning further sustainable development actions, both at the governmental level, in terms of policies [3], and at the organizational level, in terms of understanding behaviors and trends [10]. At the same time, technologies are used to help decreasing waste of all kinds and to create premises for sustainable living. Our research will refer further on to these two types of technologies that bring information to help build decisions: social media and IoT wearables. The paper begins with a review of the relevant literature about the relationships between social media, IoT wearable technologies, and marketing strategies for those organizations aiming to better understand consumers’ behavior. Then, it continues with presenting the results of two research studies focusing on analyzing these relationships. Finally, possible applications and extensions are presented, together with limitations and recommendations for future researches.

1.1. Social Media

As a consequence of social media use, the last decade saw an unprecedented development of diverse and exacerbated interactions between entities and their clients. Businesses take advantage of social media platforms when they intend to increase geographic reach to customers [11], strengthen brands [12], or intensify their communication and connection with clients [13]. From the perspective of clients, social media offers them power and, therefore, they are taking control of the marketing communication process, turning themselves into marketing producers, partners, and commentators [14]. If, in the beginning, social media was a single marketing instrument, nowadays scholars speak of marketing intelligence sources (in this case, SMEs scrutinize, study, and anticipate buyer behaviors) becoming of major importance for marketers who use social media with the final goal of achieving competitive advantage and higher returns [15].

Scholars from all over the world have been interested in highlighting the advantages and disadvantages of social media in direct relation to SMEs. Several academics found that the use of social media platforms can ease the connection between consumers and new products, services, and brands [16,17].
Social media can be defined as “a secured generation of web development and design that aims to facilitate communication, sources information sharing, interoperability, and collaboration on the World Wide Web” [18,19]. SMEs take advantage of these platforms, perceived both by marketers and by consumers as easy instruments that contribute to the facilitation of online communication between clients and firms, and also between clients on a global scale [20,21].

Social media helps SMEs to obtain feedbacks from consumers so that they can improve their marketing strategies and add value to their brands [22]. As a consequence of using social media in firms, a new type of commerce emerged: ‘social commerce’, seen as a facilitator for individuals who use online activities linked to social media for marketing research and for making comparisons, with the final goal of taking the right decision [23,24]. Indeed, many scholars claim that social media stands as a connection bridge between SMEs and prospective buyers [25,26].

Social media, which appeared as a consequence of Web 2.0 technology development, is a key instrument for those SMEs who aim for development, as these are characterized by a fast identification of opportunities and implementation of strategies to make use of them in order to gain the competitive advantage [27].

Many scholars studied the impact of social media on businesses and particularly on SMEs [28]. SMEs are helped by social media platforms with different aspects. There are studies that reveal companies benefit from the potential of social media platforms in various surprising areas of activity, such as supply chain management [29,30]. Generally, social media is referred to by many as ‘word of mouth’ and ‘online activities’, among which can be mentioned: “blogs, consumer-to-consumer email, moblogs, and social networking websites”, among others [31]. In spite of the fact that many scholars use the concept of ‘social media marketing strategy’ [32,33], a clear definition has not been offered so far.

From a marketing perspective, social media represents platforms where individuals build networks and share opinions and/or data concerning products and services [34]. Characterized by dynamism, interconnection, and interactivity [35], they have led to several major changes in marketing.

The first one is that people, through social media entities and clients, can connect in a manner that previously was not conceivable. This new type of connection is possible due to different existing platforms, and in this vein can be mentioned: social networking sites (such as Facebook) and microblogging sites (such as Twitter), but also content communities (such as YouTube), all these allowing the creation of social networks based on shared interests and values [34]. For this reason, when speaking about social media we refer also to ‘social connectedness’ or even ‘social ties’ [36,37].

In recent years, Facebook has gained major popularity and adoption, becoming a key online growing photo/video sharing SNS (social networking services) [38]. Standing as a platform that offers massive audiences and allows entities to push their products and services to a wide range of customers, Facebook turned into one of the biggest marketplaces, being indispensable to marketing activities [39]. This is why the necessity to understand customer behavior, and consequently uses and gratifications, can help marketers in developing new solutions and increasing the reach of their services and products [40].

An important feature of Facebook is that of photo-tagging, which implies “direct communication between Facebook users” [41]. In this respect, many researchers studied specific gratifications derived from photo-tagging contribution [42] (Dhir, Chen, & Chen, 2017). Consequently, [43] (Karnik et al., 2013) identified four gratifications on Facebook: discovery, social interaction, and entertainment. Furthermore, [44] (Ryan et al., 2014) found that key gratifications behind general Facebook are “relationship maintenance, passing time, entertainment, and companionship”. In terms of age segmentation, scholars found that “the content and process U&G (uses and gratifications) hold special relevance for young people (i.e., adolescents and young adults) due to several reasons such as developing cognitive maturity, their inquisitiveness to learn and know new facts, and their desire to develop their own self-identity” [45] (Dhir and Tsai, 2017). The opposite action of tagging is that
of untagging, which stands as “the most popular and acceptable strategy for managing undesirable photos on Facebook” [46] (Lang and Barton, 2015).

According to [47] (Dhir, Kaur, Lonka, and Nieminen, 2016), there are few studies regarding users’ behavior dealing with the activity of Facebook untagging. Their study addresses the necessity to understand the untagging phenomenon that is currently popular, not only on Facebook, but also on Twitter and Instagram.

In a more recent approach focusing on online social media brand community users, and also on consumption values, researchers found that “social and emotional values are more significant for online social media brand community users than epistemic values” [48] (Kaur, Dhir, Rajala, and Dwivedi, 2018). According to this research, two strategies were proposed for brand community managers who want to increase their existing level. The first one implies growing the “level of playfulness” and the second one working “on strategies to help its young users enhance their status” [48].

The second major marketing change is that, due to social media, the interactions between companies and clients have altered, as have the manner in which they influence one another. These social interactions imply either active or passive online communication, and opinions that impact readers’ consumption behaviors [49], also known under the generic term ‘word-of-mouth (WOM) effect’ [50].

They generally rely on the structure of the social network, providing companies with quantifiable value, known as ‘social equity’ [51].

The third aspect refers to the increase of social media data, which has led to the possibility that firms can take more accurate business decisions through the better management of relationships with their clients [52]. These data provided by social media are represented by the three Vs, concerning the data volume, the data diversity, and their real-time process. Consequently, “social media data can serve as an important source of customer analysis, market research, and crowdsourcing of new ideas, while capturing and creating value through social media data represents the development of a new strategic resource that can improve marketing outcomes” [53].

On behalf of marketers, social media data can be used by them for three purposes: “opinion mining, targeted advertising, and customer relations” [54]. Therefore, concerning the first function, that of opinion mining, this implies taking advantage of social media data with the purpose of revealing expertise, judgements, and patterns steamed from structured and unstructured data [55]. In this case, the duty of marketers it to select patterns of action that may be used to reach their strategic business aims in order to offer a competitive edge to the company [56].

The second objective of marketers is targeted, individualized marketing, another opportunity offered by social media. Thus, the organization can offer personalized feedback and solutions for clients [57]. Therefore, marketers, by leveraging social media, can create personalized messages that can then lead to higher returns [58].

The third aim of marketers represents an important function of marketing strategies, namely, building a strong relationship with clients [59]. Here, marketers focus on two directions: attracting new customers and also retaining both old and new clients. In this vein, marketers must deliver correct data on customers’ preferences and therefore create a personalized relation with them [60].

1.2. IoT Wearables

Wearable devices are generally defined as advanced computing technologies that can be worn by users [61], being in the form of smartwatches, smart bands, smart glasses, smart jewelry, and other types of smart technology, using sensors that are tracking and recording users’ data [62]. IoT wearables were developed intensely between 2006 and 2013, but their real boost occurring after 2014, when the first Apple Watch appeared. Researchers [63] noticed that, lately, wearable devices are combining several key technological trends, among which we mention “a mobile channel of communication, the Internet of Things (IoT), Augmented Reality (AR), and Big Data”. In this vein, in a recent study [64] made a complex biblio-metric analysis dealing with the applications of big data analytics in enterprises, the accent being put on the necessity of enterprises to make strategic decisions in order to add value to
their business and increase the advantages of big data analytics. According to their research, superior firm strategies can be developed with regards to marketing, the authors mentioning several studies that were in favor of this outcome. Such studies included that of Erevelles, Fukawa, and Swayne (2016), according to which “the deployment of firm resources in consumer data analytics develops efficient marketing strategies” [65], as well as the research of Xu, Frankwick, and Ramirez 2016, according to which big data help “new products succeed” [66].

IoT wearables represent small computers that have multiple functions [67]. In another definition, IoT wearables represent “smart devices that can be worn as external accessories, embedded in clothing and garments, implanted in the body, or even adhered to or tattooed on the skin. These devices are able to connect to the Internet in order to collect, send data and receive the information that can be used for smart decision making. These wearables are becoming an increasingly important part of IoT technology and their development is moving from being simple accessories to more specialized and practical applications” [68].

Studies [69] also pointed out that the most important features of wearables reside in them being: unrestrictive (they have incorporated hands-free technology, which enables users to performing several activities at the same time); controllable (the user has the ability to control it always); attentive (technologies having various sensors and functioning modes); observable (giving the opportunity to use alerts, reminders, or messages in order to attract user’s interest); communicative (offering the possibility of exchanging information through various options such as Bluetooth and wireless networks) and unmonopolizing (there are several actions that the user can do at the same time, minimal attention being necessary for these activities). These advantages are presented in Figure 1, below:

![Figure 1. The most important features of wearables [68].](image)

To all these can be added one more feature: discretion. Thus, users can perform activities in a discrete manner [70], which is another major advantage of IoT wearables. So far, we have taken into account the advantages provided by wearable devices but, putting aside these positive features, these devices also imply various disadvantages; they are vulnerable to cyber threats as well as to privacy problems [71,72]. Among possible threats, researchers focus on “data losses, infection by malware, unauthorized access to personal data” [71].

According to Lunney, there are three types of wearables: notifiers (offering information about surroundings), glasses (usually referring to as augmented virtual reality), and trackers (using sensors
for recording information) [62]. However, they can also be mixt, since the border between them is blurred [69].

Many studies consider that IoT wearable technologies are going to grow constantly in the next few years [73,74]. According to existing statistics, the number of users who use connected wearables are increasing year by year. Last year, there were more than 350 million wearable users, globally speaking (Figure 2). Statistics assume that this number will grow, particularly if we consider the COVID-19 pandemic. As a consequence of the lockdown, companies have been affected directly and indirectly, either by the drop of sales, or by being forced to close down, as in the case of companies requiring face-to-face interaction with their customers. Consequently, all the marketing strategies have to adapt to the new reality and to the new regulations enforced by governments or to their own internal policies.

![Figure 2. Global wearable device users (2017–2019) and the forecast for the years 2020–2022 (millions) [75].](image)

Addressing the marketing potential, these technologies provide companies with the possibility to collect data about customers’ behaviors. However, marketers are challenged by these new wearables, as they need to identify the useful data and the manner in which they can be analyzed for implementing new digital marketing strategies. Therefore, if companies want to better know their customers’ behavior and habits, they need to optimize their marketing techniques, so that in the end they push the appropriate message. They can do this with the help of IoT wearables.

In consequence, wearable technologies offer innovative means of improving customer marketing experience because they mean embodying the message a brand desires to transmit. The 4.0 client generally searches for meaning and individualization and, therefore, wearable technologies help firms to provide precisely what he/she needs. Still, due to the fact that wearables are still innovative products that are continuously developing, along with digital marketing, academic literature on this subject is quite scarce, in spite of their growing potential [75].

Meyer et al. consider that there are six types of data important to lifelogging that can be collected through wearables devices: “captured media, mobile context and activity data, computer activity, biometric information, and behavior related information” [74]. According to them, wearable technologies can be classified into two categories; high data and low data rate technologies. These collect various sets of data of major importance for the lifestyle, health, and activity of individuals.

Other scholars state that the data important for marketing strategies with regard to customer behavior that can be collected with the help of wearables are: “search and user logs, social media monitoring and analysis, crowd sourcing systems, and social and virtual games” [76]. This data is defined as “structured web-based, user-generated content, rich network information, and unstructured informal customer opinions” [76]. Considering the contact of the electronic devices and components with the body, smart wearable devices can be classified as [77]:
• Near-body electronics—represented by electronic devices and components located near an organism without direct contact to the external surface of the organism;
• On-body electronics—located directly on a surface of the organism;
• In-body electronics—electronic devices and components that are internal to an organism;
• Electronic Textiles—represented by fabrics or textile-based electronic devices and components.

From another point of view, scholars identified three big categories of wearable devices: head (such as wearable cameras, smart glasses), body (wearable activity trackers, smart clothing), and wrist (i.e., smartwatches) [78];

- **Smartwatches**, which are worn on the wrist, behave like an extension of a smartphone, being able to display information and emails, play music, take pictures, make calls, etc. They wirelessly connect to the internet on their own or through a smartphone, contain sensors (such as accelerometers, IR sensors, etc.), and can run various apps [79];
- **Wearable activity trackers**, which enable users to track and monitor their health-related or physical fitness parameters, including the number of steps taken, the intensity and complexity of activity, heart rate, blood pressure, sleep patterns etc. [80];
- **Smart Glasses** are devices equipped with screens, video/photo cameras, microphones, and sensors and adhere to the user’s field of vision. Smart glasses enable remote, voice, picture, and video streaming [81], with various business applications such as quality management and logistics improvement [82];
- **Wearable Cameras** are devices equipped with various sensors allowing data capture that can be further used to “analyze a scene, to recognize interactions, and to classify physical activities” [83];
- **Smart Clothing** involve the integration, in the various materials from which the clothes are made, of high-tech components and miniature wearable devices [84].

In this vein, it can be said that wearables collect and transmit plenty of data concerning different aspects of the life of the individual who wears it. Therefore, marketers who have the ability and necessary technology to mine it can gain obvious competitive advantages. However, because this data is not structured and very ample, it needs appropriate infrastructure and know-how to analyze and transform it into clear marketing directions.

However, despite their already acknowledged benefits, IoT wearables require improvement in order to attain their real value [85], scholars agreeing that they open a whole new world of possibilities, especially for those organizations aiming to better understand consumers’ behavior as a basis for further sustainable operations development.

2. Materials and Methods

Starting from the relevant issues identified in the literature review, we aimed to conduct research on companies’ attitudes and practices about using social media and IoT wearable technologies in developing organizational marketing strategies.

In order to meet this goal, we designed two research studies:

1. **A qualitative research** in the form of a focus group, conducted with eight people belonging to different companies, in order to better understand the relevant issues to be further investigated about social media and IoT wearable technology use in building marketing strategies. The eight people were employees of various companies operating in the Romanian market who were licensed, working in the marketing and/or sales department of a company, or holding a top management position. We used the focus group as a research method because the group members complemented one another and creatively revealed their ideas. In most cases, additional information was obtained that the researcher may not have thought of. [86] As companies usually keep their marketing strategies secret, in order not to be copied by their main competitors, those selected for the focus group were not from the same field of activity. The answers given by the respondents
were honest, and we also had the opportunity to conduct direct observations regarding the
marketing campaigns deployed, especially on social media networks such as Facebook, Instagram,
and so on, used by the companies they represented. The interview guide had two parts; one part
on the attitude regarding IoT wearables and online social networks, from the organization’s
perspective, and another part on the analysis of the types of wearable/IoT technologies in current
use relating to online social networks and of their usefulness in the marketing strategies of the
organization. In the second part, five wearable technologies were defined: smartwatches, activity
trackers, smart glasses, wearable cameras, and smart clothing, and for each one it was seen if they
were considered useful and for what purpose they could be used at the strategic organizational
level. Based on the information retrieved as a result of this first exploratory study, we then
designed a quantitative research.

(2) A quantitative research; a survey of 84 companies of all sizes (from micro enterprises to large size
enterprises), from various areas of activity and acting in regional, national, and international
markets. Survey research is the most widely used method for collecting primary data and is the
most appropriate way to gather descriptive information. It has the major advantage of flexibility,
being able to cultivate a wide variety of information from various situations, as is the case of the
researched topic [87]. Studies indicate that online surveys are being used more and more, at both
academic and at business levels, as they have various advantages [88]. Additionally, our survey
was online questionnaire based and was a non-probability sampling-based research. However,
efforts were made to keep the size and structure of the sample as close as possible to a statistically
representative study. A total number of 84 companies of various sizes were interviewed through
their representatives, which were required to be employed either in the marketing or sales
department of a company, or to hold a top management position. The sampling structure was
made according to a set of criteria, according to our research main purpose. These criteria refer to
the number of company employees, the annual turnover, and the target market of the company
(regional/national/international). Thus, out of the 84 companies, 57% were Small and Medium
Enterprises (with less than 250 people employed and a net annual turnover of up to 50 million
Euros) and 43% were Large Enterprises.

The objectives of the quantitative research, answering to the general purpose of this paper were:

• O1 Determining the current status of using social media and IoT wearables for building marketing
strategies in the companies.
• O2 Identifying whether there are differences between the actual use of social media and IoT
wearables for building marketing strategies, associated with the size (SMEs or Large Size
Enterprises) and target market of the company (regional, national, or international markets).
• O3 Determining whether there are differences between the perceived usefulness of social media
and IoT wearables for building marketing strategies, associated with the size (SMEs or Large Size
Enterprises) and target market of the company (regional, national or international markets).
• O4 Assessing if there are differences about using IoT wearables across social networks in building
marketing strategies, associated with the size (SMEs or Large Size Enterprises) and target market
of the company (regional, national or international markets).
• Consequently, our set hypotheses that provide information according to our objectives are:

Hypothesis 1 (H1): There are no differences in the use of social media (Q20) and IoT wearables (Q17) in the
organization for marketing strategies. It answers to O1.

Hypothesis 2 (H2): The level of familiarity with the use of IoT wearables (Q11) is not different across (a)
company size in terms of employees (Q28) and (b) company size in terms of turnover (Q29). It answers to O2.
Hypothesis 3 (H3): The use of a company’s social media accounts (Q20) is not different across: (a) company size in terms of turnover (Q29) and (b) the target market of the company (Q30). It answers to O2.

Hypothesis 4 (H4): The use of IoT wearables technologies at the level of the organization for marketing strategies (Q13) is not different: (a) across company size in terms of employees (Q28) and (b) across company size in terms of turnover (Q29). It answers to O2.

Hypothesis 5 (H5): The usefulness of IoT wearables for developing marketing strategies (Q21-1 Smartwatches, Q21-2 Activity Trackers, Q21-3 Smart Glasses, Q21-4 Wearable Cameras, Q21-5 Smart Clothing) is not different: (a) across company size in terms of employees (Q28), (b) across company size in terms of turnover (Q29), and (c) across the target market of the company (Q30). It answers to O3.

Hypothesis 6 (H6): The usefulness of social media for developing marketing strategies (Q22) is not different: (a) across company size in terms of turnover (Q29), and (b) across the target market of the company (Q30). It answers to O3.

Hypothesis 7 (H7): The usage of IoT wearables across social media for developing marketing campaigns (Q17) is not different: (a) across company size in terms of turnover (Q29), and (b) across the target market of the company (Q30). It answers to O4.

Hypothesis 8 (H8): The benefits of using IoT wearables across social media (Q12) is not different: (a) across company size in terms of employees (Q28), and (b) across company size in terms of turnover (Q29). It answers to O4.

Data was first processed with Microsoft Excel and further analyzed with Minitab and IBM SPSS Statistics.

Both studies were made at the beginning of 2020, the quantitative research extending partially also into the period of COVID 19 restrictions in the Romanian market. As part of the research was deployed before these special social, economic, and political changes, in order to preserve the consistency of results across the entire sample, we chose to exclude any references to COVID 19 impact in our objective analysis.

3. Results

3.1. Qualitative Research Results

The first part of the focus group consisted of topics related to the general perception of participants about the use of social media in acquiring information or communicating with customers as part of their marketing strategies. Additionally, information about the actual use of social media inside companies for business purposes was asked.

The second part of the focus group brought into discussion the topic of wearables, and here we wanted to find out how familiar participants are with this concept of wearables, if they use such devices in their companies for business purposes in general, and marketing purposes in particular, and what devices are considered more familiar and useful to them.

The main ideas derived from the discussions were:

- All participants stated that their companies have at least one social media account. While participants acknowledged that the most popular social network is Facebook, some of them said that LinkedIn and Twitter also provided very important business information to them;
- Online social networks are often used inside participants’ companies and have the main role of promotion and communication;
- Participants have heard of the concept of IoT wearable technologies, but most of them were quite unfamiliar with these technologies, meaning that they theoretically knew what their role was but
did not use them effectively. The devices known to all participants were smart watches, smart glasses, activity trackers, smart clothing, and wearable cameras;

- There is a positive attitude towards these technologies; however, they are used more on a personal level;
- At the organizational level, there is very little or no involvement of wearables in the foundation of marketing strategies.

As a general conclusion, we can say that IoT wearable technologies have a very low level of involvement at the company level as well as in substantiating marketing decisions and strategies.

On the other hand, social media is perceived as a powerful tool that helps companies better understand their customers and the evolution of markets, which are issues of vital importance when building a marketing strategy.

3.2. Quantitative Research Results

In order to test H1, we used a Mann-Whitney test, comparing the use of IoT wearables (Q17) with the use of social media accounts (Q20); the null hypothesis being that there is no difference between the use of these two technologies versus the alternative, the median of Q17 < the median of Q20 (see Table 1).

Table 1. The results of Mann-Whitney test of the set hypotheses H1, corresponding to O1.

| Variables Tested                  | N  | Median | Results                                                                 |
|-----------------------------------|----|--------|-------------------------------------------------------------------------|
| The use of IoT wearables          | 84 | 3.0000 | Point estimate for ETA1–ETA2 is −1.0000                                 |
| The use of social media accounts  | 84 | 4.0000 | 95.0 Percent CI for ETA1–ETA2 is (−1.9999; −1.0001)                       |
|                                   |    |        | W = 5276.0                                                              |
|                                   |    |        | Test of ETA1 = ETA2 vs ETA1 < ETA2 is significant at 0.0000             |

The results indicate that the test is significant at a p-value: 0.0000, at 95% confidence. Hence, we reject the null hypothesis that there is no difference in the use of social media and the use of IoT wearables. For the IoT wearables use, the median is 3.00, while for social media use, the median of answers is 4.00, on a scale from 1 to 5 (1—very little use and 5—very high use), the difference being statistically significant. Thus, we answer our first objective—O1.

In order to test the other hypotheses from H2 to H8 (each of these is built out of several other hypotheses, based on the group discrimination criterion), the Independent Samples Kruskal-Wallis test was employed (see Table 2, Table 3, and Table 4). Table 2 contains the hypotheses that address O2, Table 3 contains the hypotheses that address O3, and, finally, Table 4 contains the hypotheses that address O4.

Table 2. The results of Kruskal Wallis test of the set hypotheses H2–H4, corresponding to O2.

| Hypothesis | Null Hypothesis (Statistical context) | Variable | Cross | Decision              | p-Value * |
|------------|--------------------------------------|----------|-------|-----------------------|-----------|
| H2         | The distribution of the tested variable is the same across categories of the cross variable | Q11, Q28, Q29 | Q28, Q29 | Reject the null Hypothesis | 0.031     |
| H2         | The distribution of the tested variable is the same across categories of the cross variable | Q11, Q28, Q29 | Q28, Q29 | Accept the null hypothesis | 0.588     |
| H3         | The distribution of the tested variable is the same across categories of the cross variable | Q20, Q30 | Q30   | Accept the null hypothesis | 0.343     |
| H3         | The distribution of the tested variable is the same across categories of the cross variable | Q20, Q30 | Q30   | Reject the null Hypothesis | 0.030     |
| H4         | The distribution of the tested variable is the same across categories of the cross variable | Q13, Q28, Q29 | Q28, Q29 | Accept the null hypothesis | 0.450     |
| H4         | The distribution of the tested variable is the same across categories of the cross variable | Q13, Q28, Q29 | Q28, Q29 | Accept the null hypothesis | 0.187     |

* 0.05 significance level.
Table 3. The results of Kruskal Wallis test of the set hypotheses H5–H6, corresponding to O3.

| Hypothesis | Null Hypothesis (Statistical Context) | Variable | Cross | Decision | p-Value * |
|------------|--------------------------------------|----------|-------|----------|-----------|
| H5         |                                      | Q21-1    | Q28   | Reject the null Hypothesis | 0.040     |
| H5         |                                      | Q21-2    | Q28   | Reject the null Hypothesis | 0.048     |
| H5         |                                      | Q21-3    | Q28   | Accept the null hypothesis | 0.076     |
| H5         |                                      | Q21-4    | Q28   | Accept the null hypothesis | 0.023     |
| H5         |                                      | Q21-5    | Q28   | Accept the null hypothesis | 0.783     |
| H6         |                                      | Q22      | Q30   | Accept the null hypothesis | 0.994     |

* 0.05 significance level.

Table 4. The results of Kruskal Wallis test of the set hypotheses H7–H8, corresponding to O4.

| Hypothesis | Null Hypothesis (Statistical Context) | Variable | Cross | Decision | p-Value * |
|------------|--------------------------------------|----------|-------|----------|-----------|
| H7         |                                      | Q17      | Q29   | Accept the null hypothesis | 0.604     |
| H7         |                                      | Q30      | Q29   | Accept the null hypothesis | 0.425     |
| H8         |                                      | Q12      | Q28   | Accept the null hypothesis | 0.484     |
| H8         |                                      | Q22      | Q29   | Accept the null hypothesis | 0.387     |

* 0.05 significance level.

As it can be noticed in Table 2, based on the results of the Independent Samples Kruskal-Wallis test, we have enough statistical evidence to reject H2, for the cross construct with Q28 and H3 and for the cross construct with Q30. We accept the null hypotheses of H4 cross constructed with Q13, stating that the answers of respondents as regards their use of IoT wearables is not influenced by the company’s size or annual turnover, nor by the target market the company operates in.

In order to gain information about the perceived usefulness of social media and IoT wearables as either being or not being influenced by company size, annual turnover, or target market, thus addressing O3, we tested further on the following hypotheses, as shown in Table 3.

As it can be noticed in Table 3, based on the results of the Independent Samples Kruskal-Wallis test, we have enough statistical evidence to reject H6 for the cross with Q21-1, Q21-2, and Q21-4, for the selected 0.05 significance level. We accept the null hypothesis H7, for the cross construct with Q22, stating that there are no differences generated by a company’s size, nor target market, that influence the declared usefulness of social media when developing marketing strategies.

Finally, in order to meet the fourth objective (O4) of our research, we tested the following hypotheses, the results being presented in Table 4.

By looking at these results, it can be remarked that there is not enough statistical evidence to reject the null hypotheses, the p-value being in all four cases above the cut-off value of 0.05. Hence, we can state that neither the perceived usefulness, nor the practice of using IoT wearables across social media networks is influenced by a company’s number of employees, annual turnover, or target market.

The size of the company in terms of number of employees was measured on a scale, with four classes constructed according to the Romanian legislation: (1) up to 9 employees, (2) between 10 and 49 employees, (3) between 50 and 249 employees, and (4) over 250 employees. The size of the company in terms of total annual turnover is divided in a similar manner into four classes, as follows: (1) up to 2 million Euro, (2) between 2 and 10 million Euro, (3) between 10 and 50 million Euro, and (4) over 50 million Euro. Finally, the target market of the company classifies all respondents into three classes, namely: regional, national, and international.
4. Discussion

As a result of our first exploratory research, conducted as a focus group, we received important information about the use of social media and IoT wearables, enabling us to formulate the hypotheses that were later tested by data collected through the second research, the quantitative one. Thus, the noticed discrepancy between the familiarity of using social media and that of using IoT wearables in their companies led us to formulate H1. The results of the Mann Whitney test indicated that there is indeed a difference in the use of social media and IoT wearables at the company level; the use of IoT wearable technologies being lower than the use of social media in building marketing strategies. It is thus confirmed that the general feedback gathered from the focus group agrees with the statistics in the area [73,89], stating that social media is more popular than IoT wearables. The popularity of these technologies among individual users is found to be similar in companies. It is surprising, however, that the median of answers for the use of IoT wearable technologies is situated at 3, indicating that half of the respondents have a high and very high familiarity with these devices, as feedback from the focus group would point to a much lower median. However, by rejecting H2, there is enough statistical evidence to accept that the level of familiarity with the use of IoT wearable technologies varies across companies depending on the number of their employees. Notable is that the medium sized companies, having between 50 and 249 employees, as well as micro enterprises (less than 9 employees) report that they are familiar in a high and very high manner with the use of wearables and IoT technologies in a significantly lower percentage than the other two types of company. Thus, though there are differences generated by the size of the company, one cannot say that SMEs are more or less familiar with IoT wearable devices than large companies. We can interpret this information in light of previous research, indicating that the familiarity with technologies providing big data (among which are IoT wearables) is given by companies’ policies of investing resources in consumer data analytics [65].

Rejecting H3 for the cross construct with Q30 (target market) reveals that the use of social media accounts differs significantly between companies working at the regional, national, and international level. Thus, the companies operating on the international markets have a significantly lower percentage of very frequent usage of social media accounts, as compared to the other two groups (regional and national markets). This may be the consequence of the fact that it is more difficult to offer personalized feedback and solutions for international clients through social media platforms, one of the main reasons marketers use these [57–90]. Because social media is greatly used for communication purposes [9,13,54], the language used to communicate through social media must be the one that most of the company’s customers use. Hence, this may be an explanation of why data resulting from testing H3 indicate that national operating companies very frequently use social media for marketing purposes. By looking at Table 2, we can remark that the use of social media (H3), as well as the use of IoT wearables (H4), is not influenced by a company’s size in terms of employee numbers.

Rejecting H5 for the cross with Q21-1 (The usefulness of Smartwatches for building marketing strategies) and Q28 (number of employees) points to the fact that those companies with less than 9 employees (micro enterprises from the number of employees’ point of view) consider, in a significantly lower percentage, Smartwatches as useful and very useful, as compared with the other three types of companies, that have more employees.

In addition, rejecting H5 for the cross with Q21-2 (The usefulness of Activity Trackers for building marketing strategies), Q28 (number of employees), and Q30 (target market), indicates that those companies with less than 9 employees, as well those companies operating in regional markets, consider, in a significantly higher percentage, Activity Trackers as being highly useful for marketing strategies, when compared with the other groups.

Finally, rejecting H5 for the cross with Q21-4 (The usefulness of Wearable Cameras for building marketing strategies) and Q30 (target market) reveals that regional activity companies consider, in a significantly higher percentage, these wearables as being very useful for marketing strategies, compared to the other two groups (national operating and international operating companies).
For all other hypotheses, there is not enough statistical evidence to show that there is a difference in opinions, activity, or behavior regarding the formulated statements.

5. Conclusions

The findings of this paper, as a result of the two research studies, lead to the conclusion that both social media and IoT wearables are technologies taken into consideration when gathering relevant data about their target segment. By conducting the first research, qualitative, in the form of a focus group, besides shaping the questions to be addressed in the questionnaire, revealed some basic information about the familiarity of respondents with the newer IoT wearable technologies and their potential application in gathering valuable customer data. By conducting the second quantitative research, in answer to our set objectives, we found differences between the actual use of social media and IoT wearables for building marketing strategies in general, and also differences associated with the size (SMEs and Large Enterprises) and target market of the company (regional, national, and international markets). We also found differences between the perceived usefulness of social media and IoT wearables for building marketing strategies, associated to the size (SMEs and Large Enterprises) and target market of the company (regional, national, and international markets). Finally, we found no differences between using IoT wearables across social networks in building marketing strategies associated to the size (SMEs and Large Enterprises) and target market of the company (regional, national, and international markets).

Additionally, though there are differences between various types of companies regarding their attitude and practice of using social media and IoT wearable technologies for building marketing strategies, one cannot state that SMEs behave in a significantly different manner than large enterprises. As results indicate, there are some difference of perception and usage of technologies generated by the number of employees and the market they address (regional, national, international), and these differences are not common to the entire SME group. There were found to be no differences regarding the annual turnover of the company, regardless of analyzed variables.

The research is limited by the sample specificity; hence, results must be considered through this perspective. Furthermore, it is limited to the set and declared objectives. Still, it does provide interesting insights and provides a starting point for future research directions.

Thus, taking into consideration the outputs presented in this paper, a deeper investigation of the particularities of SMEs in using IoT wearable technologies and social media for developing their marketing strategies, according to their domain of activity, business specificity, and size would provide a clearer and better understanding of SMEs’ mechanisms of developing marketing strategies adapted to continuous technological changes.

Another area needed to be further investigated thoroughly is the behavior and practices of Romanian marketers as concerns IoT wearables and social media, through the lens of Behavioral Reasoning Theory, as this would provide understanding of the reasons acting for or against using these technologies in marketing strategies [91,92]. Our results are a snapshot of the current situation and, in consequence, can be used by marketers in their future decisional processes when integrating IoT wearable technologies and social media in their strategies. However, due to the pandemic situation, it is expected that shifts in the global behavior of consumers and companies will occur. Research similar to the current one, deployed in the future, could also measure these changes from the perspective of social media and IoT wearables used by companies in their marketing strategies.

Last, but not least, the results of this research could be extended by further, in depth investigation into the way companies use these technologies for the sustainability component of their marketing strategies.

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