The Role of Human-Machine Interaction and Automated Analysis Concepts on Glocalization

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Article History
Received: 7 March 2023
Revised: 13 April 2023
Accepted: 19 April 2023
Published: 25 April 2023

How to Cite

1. Introduction

Recently, it has been observed that the internalization process aimed by global companies with their glocalization strategies has been implemented all over the world. Global brands carry out their global and glocal works with the changing consumer profiles and marketing strategies with the transition to a digital age. “Think globally, act locally” strategy, developing glocal marketing understanding keeps up with the world. With global marketing practices, taking into account the cultural characteristics of each country, attracting the attention of customers ensures that the brand is internalized and reaches more masses (Candan, 2020).

Today, marketing professionals show great interest in various artificial intelligence applications (Davenport et al., 2020). In general, artificial intelligence technologies consist of two basic components, humans and machines. As machines automate and predict, humans apply their insights and use machine-generated predictions to solve marketing-related problems more efficiently and beneficially (Ma and Sun, 2020).

In general, current research in the field of artificial intelligence plays an important role in identifying opportunities and threats in this field, selecting marketing strategies and practices, and creating future forecasts.

Many studies focus on the interaction between artificial intelligence and the glocalization efforts of businesses. Marketing experts argue that companies operating in the field of global marketing, with the effect of the great transformation in technology, should adapt their proposals to the local context within the framework of cultural and economic differences and carry out glocalization studies (Kjelgaard and Askegaard, 2006; Thompson and Arsel, 2004).

The glocalization approach is seen as an approach in which globalization strategies are shaped together with local cultures (Thompson and Arsel, 2004). Although artificial intelligence technologies such as machine learning, neural networks, and natural language processing may seem like global technologies, they need to be adapted to local conditions and needs in more than one culture and country at the point of application. As in the Netflix
example, machine-assisted learning algorithms have developed programming tailored to a variety of local consumer tastes (Smith and Telang, 2018).

In the current research on Human Machine Interaction (HMI), it is seen that this technology makes important contributions to a wide variety of marketing applications. He explored how it affects people's attitudes toward others. More recently, Kumar et al. (2019) highlight the role of HMI in personalized engagement and provide predictions on how AI-enabled branding and customer management practices may differ in developed and developing countries. Finally, Nam and Kannan (2020) present a recent study that will help explain the impact of cross-cultural and socioeconomic factors on customer journeys in the digital environment.

2. Conceptual Framework

2.1. Glocalization

It is seen that the concept of glocalization was used for the first time by Robertson as a combination of global and local concepts (Robertson R., 1992). The reason for the emergence of the concept of glocalization is seen as a result of global brands not being successful in every region when they apply a single advertising strategy for all target markets. The purpose of the emergence of this concept is stated as being able to benefit from the advantages of operating all over the world, although it is seen locally (Erdoğan and Ve Aksoy, 2009). Global brands create a conscious synthesis by adding the cultural characteristics of the target market to their global strategies, taking into account the cultural identities of each country. This mixed state created shows that the global and local ones are accepted together (Berger J. O., 2003).

Robertson S. E. (1997) explains glocal marketing as an effort to position the products marketed in the target market by using the motifs specific to certain countries by global brands only for that country. This approach requires integration with the local market and the establishment of a flexible management approach.

In the view of Champy (1997), glocal marketing is not considered a marketing approach that is opposed to global or local marketing. The global marketing approach has been developed as a timely and logical solution to the changing and intensifying competitive conditions. The glocalization approach is aimed to prepare a certain product for a certain target market and create marketing strategies in line with detailed analysis. However, even if strategies specific to the target market are created, the global structure of the product must be preserved (Arslan, 2016).

As an example of a company that changed its marketing strategies by glocalizing, Coca-Cola discovered that different cultures have different tastes and differentiated the drink recipe specific to each culture and produced products with more sugar in some regions and low sugar in others. It has shaped the brand logo according to the alphabet of the target market (Maynard, 2003). The CEO of Coca-Cola expressed his view on glocalization in the Financial Times as follows;

“We must not forget that we trade with communities, not markets… We will be successful in the future because we will understand and adapt to local differences. The 21st century does not want anything else…” (Daft, 2000).

2.2. Human-Machine Interaction

Human-machine interaction (HMI) refers to the ways humans and automated systems interact and communicate through touch, gestures, sound, and sensors. HMI-based, AI-supported applications require both humans to help machines and machines to help humans (Wilson and Daugherty, 2018). The HMI is enabled by cognitive technologies such as computer vision, machine learning, natural language processing, speech recognition, and robotics, developing the ability to increasingly perform tasks traditionally performed by humans (Kopalle et al., 2022).

According to a recent study by Kaplan and Haenlein (2019), they state that artificial intelligence systems and humans can coexist symbiotically, while humans can focus on feeling tasks, while artificial intelligence can be used as a tool to support people in making better decisions.

As an example of this symbiotic relationship, Huang et al. (2019), as a result of their research, examine how firms should decide whether to assign tasks to humans or machines, and suggest that artificial intelligence will first replace mechanical tasks, then analytical tasks, and finally intuitive and empathic tasks. they continue.

Given the growing ability of AI to replace humans, marketing professionals are beginning to voice their concerns about the potential limitations of AI.

For example, both Rai (2020) and Ma and Sun (2020), although machine learning methods are powerful in processing large-scale unstructured data and show strong predictive performance, these technologies are seen as lacking in transparency and interpretability.

Similarly, Proserpio et al. (2020) highlight the importance of human input and insight in artificial intelligence applications. Cook et al. (2019) and Davenport et al. (2020) think that artificial intelligence can be made more effective by increasing (rather than replacing) human managers.

In another study, Chintagunta et al. (2016) highlight the value of HMI by discussing how big data and analytics can be used to provide relevant product recommendations to customers.

Examining the IBM Watson and North Face example, it is seen that a customer-specific online experience is created to provide product recommendations. Thanks to this artificial intelligence-supported online test, “high-match” and “low-match” options were presented according to customers’ clothing preferences. This example shows that the retail industry is important in developing better human-machine-interactive applications in terms of big data availability (Bradlow et al., 2017; Dekimpe, 2020; Wang et al., 2020).
2.2.1. Role of Human-Machine Interaction at Company Level: Glocalization

Many HMI platforms today specifically support English and typically several native languages. This approach unintentionally leads to globalization through language standardization. However, we argue that HMI technologies for emerging markets that are heterogeneous and customized for specific local conditions will be more effective. Even if human-machine interactions in AI technologies are strongly influenced by customers’ preferences, expectations, and demands (Puntoni et al., 2021), AI technologies run the risk of failing in the market if human-machine interactions are not localized.

Using data from consumers living and interacting in different local markets while developing HMI technologies is important for market success. As in the case of India’s streaming media platforms, investments are being made in HMI technologies in languages other than English and Hindi to cater to India’s linguistically and culturally cosmopolitan population (Smith and Telang, 2018).

Significant improvements can be achieved in global operations by developing local operations. When the HMI-based Netflix platform is examined, it is seen that it has improved its global operations by incorporating heterogeneous preferences and local customer experiences specific to each culture. Today, Netflix produces original content in many countries (including India, Israel, and South Korea). To summarize, the glocalization of human-machine interaction has shown successful results in the development of many artificial intelligence applications.

2.3. Automatic Analysis

Data that were specifically analyzed by marketers and experts were generally obtained as surveys, observations, and experiments (through primary data collection). Although these types of analysis develop unique perspectives, they remain limited in some areas (Churchill, 1979). For example, experiments are often found to be limited in their generalizability, while surveys are often found to be limited by their lack of causality.

First of all, with digital transformation, many companies today have access to primary data to a large extent in terms of scope and scale. As in the example of Amazon, Amazon companies in India can access and benefit from the large amount of data provided by Amazon’s consumers in the USA.

Another issue is that the effect of observation in data collection processes made with traditional methods is more disturbing when compared to the data collection process of artificial intelligence. The questioning forms of artificial intelligence minimize prejudices (Spano, 2006).

Amazon uses customers’ data to determine where they spend their money. Today, Amazon is seen as unrivaled in the collection, storage, processing, and analysis of personal data. The company aims to increase customer satisfaction by using different data collection methods, targeted marketing, and predictive analytics. An example of the methods Amazon uses to collect data include Alexa voice recordings, personalized recommendation system, ring video capture, Kindle book recommendations, predictive shipping model, and one-click sorting.

With the developing information technologies, Big Data collected from digital users is used to develop new sales policies with unlimited information about users. In Amazon, the high-end economic monitoring machine collects Big Data and accesses detailed information about users, and uses all their data to sell more (Şeker and Atıktürk, 2022). Therefore, instead of forcing clients to answer a series of survey questions or introducing participants into (artificial) lab settings, practitioners and researchers now have access to a wealth of inconspicuous behavioral data collected in real-time (Matz et al., 2017).

Finally, artificial intelligence provides a simple way to obtain primary data from sources that have never been used before, by automatically collecting and collating from various digital platforms (Du et al., 2021). For example, the collection and analysis of data from consumer conversations on numerous social media platforms are automated thanks to artificial intelligence-based technologies.

Capable of extracting abundant observations from automated technologies (autonomous web scraping, natural language processing, and computer vision) and unstructured and non-numerical data (text, audio, image, and video).

Text-based data is consumer-sourced (social media shares and consumer analytics) and company-sourced (financial reports and advertising texts) data (Berger J. et al., 2020). Image-based data includes video content and a wide variety of still images, while audio-based data includes non-text (music, voice, and sounds) and spoken words Klostermann et al. (2018).

Millie, the virtual assistant, is a good example of automated analysis. To provide good and quality customer service, it analyzes the body language and conversations of consumers during shopping and ensures that the emotions of consumers are understood (Mejia, 2020). In the future, experts predict that “autonomous intelligence” will automate the collection, processing, and use of this variety of data. In this way, it is thought that the analytical competencies of people will increase greatly (Davenport, 2018).

Thus, firms can eventually leverage data-driven insights with highly detailed perspectives of their global customers and with little human influence, and act accordingly, becoming automated analytics-based organizations with broad customization offerings (Briggs et al., 2019).

Along with the many benefits of automated analysis, this technology also raises many concerns about data. Automation of data collection processes (for example, robots completing survey responses) causes subjective inferences and corruption of data.

Similarly, such algorithms are (automatically) accused of generating inaccurate content such as fake reviews or social media trolling (Shao et al., 2018). As a solution to this problem, companies such as Amazon use “natural language processing” to analyze and fix data corruption (Kauffmann et al., 2020; Proserpio et al., 2020). Limited information on the effects of automated analysis from a global perspective is another concern with automated
analysis. Therefore, it remains to be determined to what extent automatic analysis of audio, video, images, and texts can play a role in globalization, inequality, and global ethical and privacy concerns.

**2.3.1. The Role of Automated Analysis at the Enterprise Level: Glocalization**

As mentioned above, both artificial intelligence technologies and automatic analysis are universal and global due to their structural nature. Image, text, audio, and video analytics applications are usually local as they differ in terms of culture, language, or location. For example, when looking at all retail purchases, only 20% occur in digital environments. Considering the automatic analysis of shopping behavior in this context, it seems more likely that it is local rather than global. Duplex, the artificial intelligence assistant offered by Google, is a good example. In the Duplex application, customers can make local restaurant reservations based on their place of residence (Newcomb, 2019).

The success rate can be higher when artificial intelligence-based images, text, video, and audio are customized locally. Integrated marketing communications may also become more valuable with localized automated applications (IMC). When past studies are examined, it is concluded that the probability of IMC being successful is higher when it contains cultural, communication activities, language, and socio-demographic differences (De Villiers et al., 2020).

Therefore, it is extremely common for AI-based automated applications such as self-service terminals, chatbot applications, call tools, and voice-based interactions to be available in all major languages and be native (Dawar, 2018).

Natural language processing and voice analytics are often applied to automated analysis of voice, virtual chatbots, and digital voice-based personal assistants (Alexa and Siri) to interact with both existing and potential customers. These interactions involve multiple marketing activities. For example, the speech recognition software used by Youtube produces NLP video subtitles that automatically translate into numerous different languages (Gupta, 2019).

Similarly, Spotify recently launched the “Only You” application, an application exclusive to music application users that automatically analyzes music streaming behavior based on user preferences (Antonelli, 2021).

Automated techniques (emotion analysis, data mining, emotion detection, and speech recognition) seem to be shifting towards globalization as they become more and more language-specific. Regional differences indicate that automated analysis must be adapted to suit unique circumstances, both in terms of corporate culture and consumer culture (Toukalas et al., 2018).

The D-Labs application is a good example of this type of glocalization. The application can extract brand logos from images posted on Instagram (Majewski, 2020). Automated image analysis can support the use of common posts on social media so that marketers better adapt to local brand preferences in different regions (Sivakumar et al., 2018). According to Jack et al. (2012); gestures and facial expressions vary considerably between regions, countries, and cultures, and these differences are reflected in videos and images. Artificial intelligence algorithms need to be specially designed to improve the subtle nuances between gestures and facial expressions unique to different cultures. This seems to be possible only with the glocalization approach (Hasler et al., 2017).

Recently, artificial intelligence-based video analytics has been used more and more through both augmented reality (AR) and virtual reality (VR). These emerging technologies are capable of providing realistic image visualization (Schmitt, 2020). AR tools, like digital settings, can help customers try on different types of clothing or glasses online (Hoyer et al., 2020). The effectiveness of such AI-powered automatic interactions may be governed by cultural behaviors such as collectivism versus individualism, or the extent to which an interaction includes long-term orientation (Castelo, 2019; Hofstede, 2001). For example, the self-focused nature of these technologies is more embraced in individualistic cultures than in collectivist cultures. In particular, in some cultures, consumers do not prefer automatic interactions such as encounters with robots (Schmitt, 2020).

For consumers who are resistant to the technological developments that affect the whole world, mixed reality technology developments (like Microsoft’s HoloLens) can be useful for building trust and adoption.

**3. Conclusion**

The concepts of human-machine interaction and automatic analysis, which are the products of digital transformation, also show their effect in the changing and digitalizing marketing field. Firms incorporate digital tools and digital data into their new marketing strategies to identify the changing demands of consumers. Advances in artificial intelligence technologies are increasing the capacity of an increasing number of companies to collect, store, analyze and use a wide variety of customer information (Rust, 2020).

Many global companies have begun to transform various aspects of marketing by expanding the applications of artificial intelligence technologies at the firm level globally. Globalization concerns of companies will impact their ability to use AI in conjunction with automated analysis, contributing to the development of the nature of human-machine interactions. For example, AI is likely to lead to the advanced design and delivery of glocalized global offerings by providing a better understanding of consumer behavior across a wide variety of local cultures. will be. Looking ahead, we expect an increasing number of firms to move towards “autonomous intelligence” in a globalization fashion (Kopalle et al., 2022). AI-based machine learning formats will only integrate with other information management systems when intelligence is automated, increasing human analytical capabilities (Davenport, 2018).

Transformation into AI-powered businesses designed for human-machine collaboration will take place by leveraging autonomous systems and data-driven insights at the local level. As a result, AI algorithms should be specially designed to improve the small details of gestures and mimic differences specific to different cultures.
Therefore, glocalization should be given importance in the development of human-machine interaction (Hasler et al., 2017). As a result of the literature research conducted in the study, it has been concluded that the concepts of human-machine interaction and automatic analysis are more effective in the global market by transforming the marketing strategies of companies with glocalization.

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