

Digital Signage Technologies and their Impact on Retail Marketing Activities

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Abstract

The proliferation of digital signage technologies in the retail environment has impacted how organization engage with their customers. Digital signage provides a platform for businesses to broadcast their messaging with greater precision and grace than traditional signage methods and has opened up a wide range of opportunities for retail marketing activities. The paper explores the use of digital signage technologies in retail marketing activities. It examines the way in which digital signage enhances customer engagement and strengthens relationships between customers and businesses. It also looks at the increased ability of retailers to display dynamic and context sensitive content as well as the potential for digital signage to help create a more personalized shopping experience. Finally, the paper will discuss the challenges that businesses face in implementing digital signage technologies into their retail marketing. The results indicate that digital signage technologies have a major impact on retail marketing activities. It helps businesses to enhance the customer experience, boost sales and revenue, strengthen brand image and awareness, improve in-store navigation, enhance communication with customers, reduce perceived wait time etc. Despite these benefits, businesses are faced with several challenges when implementing digital signage technologies into their marketing activities, including cost, technical issues, poor location, complexity, stale and poorly designed content. Therefore, this paper provides insight into the various benefits and challenges of digital signage technologies and how it helps businesses to make informed decisions when implementing it into their retail marketing activities.

Keywords: Digital Signage, Marketing, Retail Marketing, Technology

Introduction

Public displays/advertisements were initially in the form of paper, banners, posters and boards (traditional prints) and were used as a means of interaction where they are displayed. This traditional prints advertising has seen a dramatic transformation over the past decade. There is a decline that threatens the existence of

some traditional print media outlets while market share and interest in interactive advertisement on web, mobile and other innovative media has skyrocketed.

The development of intelligent interactive advertisement systems and the global network affects all public spheres, including business. With the passage of time, a digital marketing is formed in which interaction in businesses and exchange of information between consumers and sellers take place without time or territorial restrictions. Digitalization of market relations has led to a change in marketing in a company's activities and the emergence of digital marketing, which aims to highlight competitive advantages and improve the quality of relations with consumers in an oversaturated information space (Mirgorodskaya et al., 2020).

Digital marketing (Online marketing) attracts and retain consumers through interactive, targeted and measurable communication in order to develop long-term and more trusting relationships with the target customer (Flesher, 2023). However, retailers are not giving up on their physical locations just yet. Instead, they are turning to innovative technologies to enhance the in-store experience and attract customers (Frąckiewicz, 2023). Modern customers come to the store not only for purchases but also for the emotional component of the shopping process. This explains the interest of the retail business in various interactive digital technologies to attract the user's attention and involve them in the communication process, such as gamification, augmented reality, digital information and advertising signs, etc.

The retail industry has come a long way from the days of static, one-size-fits-all signage but it has been experiencing a significant transformation in recent years, with the rise of e-commerce. This active use of e-commerce not only makes shopping more enjoyable but also helps customers make more informed purchasing decisions. Therefore, today's retail environment is dynamic, customer-centric, and heavily influenced by technological advancements (Flesher, 2023). Retailers have found that in-store marketing can affect shopper behavior powerfully. According to GMA/Deloitte (2008) as stated by Burke (2009), marketing activities at the point of purchase is more likely to deliver a meaningful return on investment than television, radio, print or outdoor advertising. One powerful tool for communicating with shoppers at the point of purchase is the digital signage.

Retailers that embrace this technology and invest in creating engaging, informative, and interactive digital content will be better positioned to compete in the ever-changing retail landscape. By leveraging the power of digital signage, retailers can not only attract and retain customers but also gain valuable insights into their behavior, ultimately leading to more successful and sustainable businesses thereby shaping the future of in-store experiences (Frąckiewicz, 2023).

Meaning of digital signage

Digital signage is a technology used to present and distribute information to target audiences via various types of digital screens (video walls, LED screens, kiosks, etc.) installed in public places and has become an effective marketing tool that allows sellers to increase sales and brand awareness (Sakovich, 2023). It is the

use of electronic displays, to showcase digital multimedia content like images, videos, and text. These displays can be found in various sizes and formats, from small screens on product shelves to large video walls that cover entire store facades. From dynamic, eye-catching displays that draw customers in, to interactive screens that provide personalized shopping recommendations, digital signage is revolutionizing the retail landscape.

Digital signage is the most effective tool that can be used to communicate with an audience. No matter the location, or application, digital signage catches people's attention. Let's face it: static signs, posters, and flyers are just not as exciting or effective as a digital sign. In fact, digital signage attracts the attention of 63% of people, making digital signage hard to ignore (HobSpot, 2022). Digital signage has the ability to show any type of media on a digital display. Digital signage is everywhere - the mall, restaurants, hospitals, universities, and lobbies. It is a great tool for marketing a new product, promoting brand awareness, communicating with staff or students, and engaging just about any audience in the space.

Digital signage is not a new concept, but its potential to transform the retail environment is only now being fully realized in fact, it has emerged as a powerful form of visual communication that can enhance the customer experience in numerous ways. Visual communication is not all about making things look beautiful rather it is a strategic tool that can impact customer behavior and shape the overall shopping experience. From the moment a customer steps into a store, the visual elements they encounter play a crucial role in guiding their actions, influencing their perceptions, and ultimately, determining their level of satisfaction with the shopping experience (Flesher, 2023). Visual representation of the most relevant offers and information becomes very important for increasing the level of interaction with customers, attracting target groups and increasing sales in offline stores.

One of the primary benefits of digital signage is its ability to deliver targeted, engaging content to customers. Retailers can use digital displays to showcase promotional offers, new products, or even personalized recommendations based on customer data. This dynamic content can be easily updated and customized, allowing retailers to respond quickly to changing market trends and customer preferences. By providing relevant, eye-catching content, digital signage can help retailers capture the attention of passersby and entice them to enter the store (Frackiewicz, 2023). Some retailers are also incorporating touchscreens and augmented reality (AR) technology into their digital signage, allowing customers to virtually try on products or view additional information by simply touching the screen.

Digital signage also has the ability to collect valuable data on customer behavior. This is done by tracking how customers interact with the displays. This data can then be used to optimize store layouts, improve product placement, and marketing strategies to better meet customer needs. In this way, digital signage can help retailers create a more personalized and efficient shopping experience. Digital displays can be easily updated with minimal environmental impact unlike the traditional print signage which can be wasteful, as it needs to be frequently replaced to keep up with changing promotions and product offerings. Additionally, many digital signage solutions are energy-efficient, using LED technology that consumes less power than

traditional lighting options. In summary, digital Signage turns an offline store into a point of interaction, a form of entertainment with elements of online communication.

Components of digital signage

According to Talin (2022), there are four components of digital signage namely;

Hardware

In order to create a digital signage system, a retailer will need hardware components like screens, media players, and network components. Additionally, he/she will need mounts to hold your screens in place, as well as casing to protect all of the equipment.

Software

Digital signage software is used to manage and play back content on digital signs. It can be used to create playlists of content, manage schedules, and monitor signage systems. There are a variety of software options available, depending on the needs of the retailer. Some popular software options include BrightSign, Signagelive, and Scala.

Connectivity

Digital signage systems require a certain level of connectivity in order to be effective. Without proper connectivity, the screens cannot be accessed or controlled remotely, and the content cannot be transferred or updated. Additionally, many digital signage systems rely on mobile technologies or WiFi to function, so a lack of connectivity can render them ineffective. For these reasons, it is essential that digital signage systems have reliable and consistent connectivity.

Content

Managing and creating content for digital signage is important because it keeps the signage relevant and interesting to viewers. Without fresh, relevant content, viewers may lose interest in the signage and stop paying attention to it. This can be damaging to businesses or organizations that rely on digital signage to communicate with their audiences. By managing and creating content effectively, businesses and organizations can ensure that their digital signage remains a valuable communication tool.



HARDWARE

Figure 1: Components of Digital Signage

Who Can Use Digital Signage?

According to Patricio (2018), anybody who needs to display dynamic content in a public environment can benefit from digital signs. While retailers are arguably adopting signage networks in the largest numbers (Retail is the largest sector in the digital signage industry), the technology is also being used to deliver dynamic messages to customers and employees alike in financial institutions, travel hubs, auto dealerships, corporate offices, and other venues. Consider the following examples as stated by Patricio (2018):

Example #1

A retail store chain looking to provide product manufacturers with an additional form of in-store advertising works with an outside ad agency to place targeted promotions across a network of screens. By outsourcing the ad sales to a professional organization, the store chain can continue to focus on its core competencies while helping to ensure that the ads will be sold, displayed and tracked for compliance (proof-of-playback). In this scenario, the retailer can utilize various metrics to determine the effect of the dynamic media on product sales – especially when the digital signage software makes it possible to run different campaigns at each store. Integrating the digital signage network into an existing co-op program can also prove lucrative for the store and vendors alike.

Example #2

A chain of regional banks wants to educate its employees on new products and services on a weekly basis, and also provide advertising content and a live television feed to patrons during business hours. The bank works with a digital signage consultant to assemble the network and supply it with content. The consultant works with the bank to create the product information spots, which appear onscreen before business hours for employee education. At the start of the business day, the network is configured to divide the screen into two areas, supply one of them with custom advertising content supplied by the bank, and tune a local news station to the other.

Example #3

A corporation with a national headquarters and several remote manufacturing facilities wants to provide employees with up-to-the-minute industry news, information on upcoming holidays and company-sponsored events, as well as a weekly address from the CEO. Using a centrally managed digital signage architecture, a network administrator at the home office can schedule each of these items ahead of time, and provide customized schedules for each facility.

Types of Digital Signage in Retail

In the retail environment, digital signage can take many forms, each with its unique advantages and uses. Two of the most common types are indoor digital displays and window digital displays (flesher, 2023).

Indoor Digital Displays

These are versatile tool for enhancing the in-store experience. They can serve a variety of functions, from promoting products and offers to providing way finding assistance or even entertaining customers as they wait in line.

The role of indoor displays in customer engagement cannot be overstated. With their dynamic, visually appealing content, these displays can catch customers' attention, pique their interest, and influence their purchasing decisions. They can also provide valuable information, helping customers make informed choices and enhancing their overall shopping experience. There are several types of indoor digital signage, each suited to different purposes. These include digital menu boards, interactive kiosks, video walls, and digital end caps, among others.

Window Digital Displays

Window digital displays are primarily used to attract customers into the store. They are often the first point of contact between a retailer and a potential customer, making them a crucial component of a store's visual merchandising strategy.

Attracting customers with window displays involves more than just putting up a flashy screen. It requires carefully crafted content that resonates with the target audience, whether that is showcasing new products, highlighting special offers, or telling a compelling brand story. Like indoor displays, window digital signage can take various forms, including video walls, high-brightness displays, and projection screens. The choice of display type depends on factors like the store's location, the amount of natural light, and the desired visual effect.

How retailers use digital signage in retail marketing activities

Traditional printed signs still do their job in stores: they attract foot traffic from the outside, guide customers around the store and influence consumer behavior. However, they can not offer as many opportunities as digital signs do.

Digital signage actually does the same tasks, but at a wider scale and with better results. According to Sakovich (2023), retailers use digital signage in marketing through the following ways;

1. Make Shop Windows More Attractive

A shop window display is a powerful tool used to present the digital signage to anyone passing by the business's storefront. These screens are placed in the front window of a business facing outwards with the aim of getting the attention of passers-by so as to convert passers-by to customers.

Retailers use digital signage screens to create more engaging shop-windows compared to those who use printed signs and banners because printed signs are static and a great deal of time and effort is required to update information on them. On the contrary, digital signage screens are dynamic and can easily catch the eye of passers-by. In addition, digital signage allows retailers to display only relevant content in their windows, since they can easily update or change it via a centralized software platform. For example, they can display discounts for specific products and change them every day.

2. Tell the Brand Story

People like exciting and fascinating business success stories. With traditional printed signage, retailers of the past had no opportunity to share their brand stories in public places. With retail digital signage, they are not limited by space or content formats.

Customers form an opinion about retailers not only based on the company's products but also to be aware of the brand identity, policy, goals and intentions. Customers want to hear its success story. By telling the brand story via digital signage screens make it memorable and engaging.

3. Promote Products and Services

In large retail stores or hypermarkets, it is physically impossible for human assistants to provide sufficient information to dozens of clients at a time. In addition, sales assistants may get bored answering the same questions again and again, which results in reduced motivation, missed details and reduced customer satisfaction. Digital signage came as a rescue to this problem.

Digital screens in stores can provide loads of useful information about goods on offer, including their physical parameters, configuration options, product comparison, video instructions and even testimonials by happy clients. This way, retailers free up staff members for more important tasks and at the same time

improve customer experience. In conclusion, large retail stores don't need to have more sales assistants on the floor to increase sales.

4. Communicate with Customers

Digital signage is an efficient communication channel for keeping retail customers updated. Using digital screens, store owners can make announcements concerning the work of stores, company news, sales and discounts, current marketing trends and other urgent information.

5. Leverage Digital Marketing Content in Stores

Many companies in the commerce industry today provide an omnichannel experience, allowing buyers to interact with them through different touch points. Hence, there is no need to strictly differentiate brick-and-mortar and online shopping experiences. On the contrary, digital marketing content can be efficiently used in physical retail stores with the help of digital signage.

For example, a retail shop can display the content from their social media channels, such as testimonial video or product presentations on digital screens in the physical shops. This way, they will provide additional value for their in-store visitors and significantly enhance their marketing strategy.

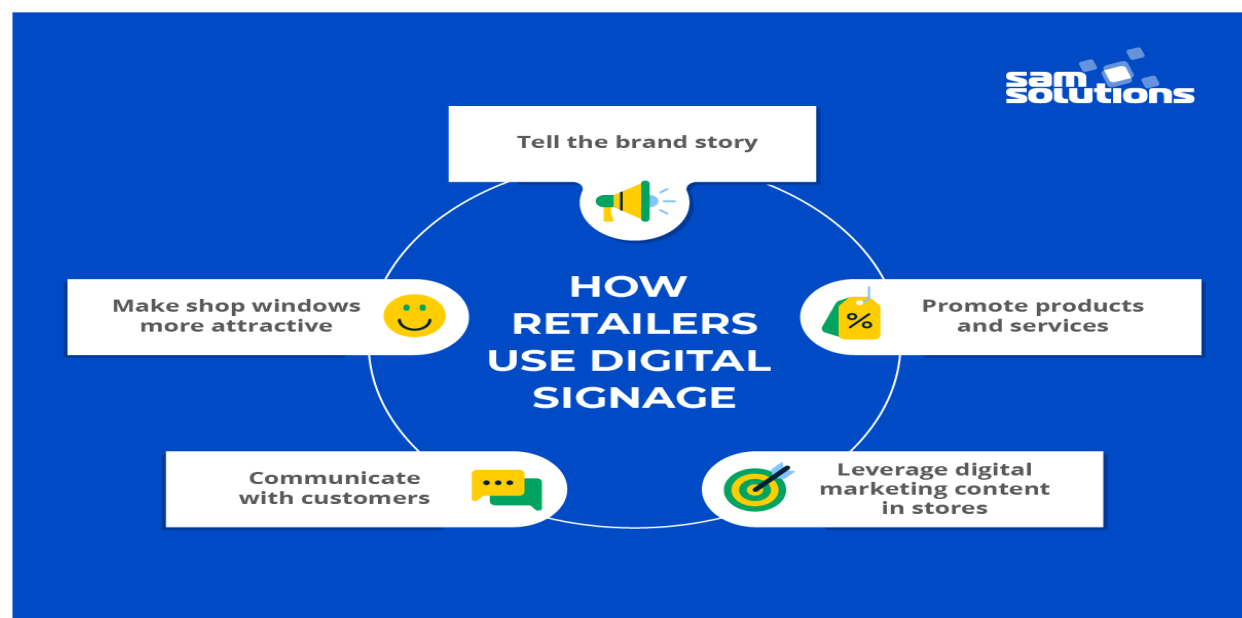


Figure 2: How retailers use digital signage (Sakovich, 2023)

The Benefits of Digital Signage in Retail Marketing

Digital signage has gained serious traction over the last decade and the number of industries employing this form of advertising and communication only continues to skyrocket. According to Flesher (2023), Digital signage impacts all of these considerations, and more.

Enhancing the Customer Experience

One of the primary benefits of digital signage is its ability to enhance the customer experience. This can be achieved by displaying engaging, interactive content that provide all the needed information about products, special offerings and the company itself. They inform, recommend, navigate and entertain, evoking positive emotions and simplifying purchasing decisions. This can make the shopping experience feel more tailored to the individual customer, increasing their satisfaction and likelihood of making a purchase. In fact, with digital signage, customers do not get lost in physical retail stores and can get help even without human sales assistants nearby (Sakovich, 2023)

According to a study conducted by flesher (2023), 83% of retailers who have implemented digital signage saw an increase in customer engagement. Touchscreen displays, for example, can allow customers to browse products, read reviews, or check inventory levels. This not only provides customers with valuable information, but it also engages them in a way that traditional signage cannot.

Boosting Sales and Revenue

Digital signage can have a direct impact on a retailer's sales and revenue. Creative and digital things attract the attention of customers and help businesses get their message conveyed to their targeted customers easily in an effective way, influence purchasing decisions, increase the average transaction value and create a long-lasting impression on them.

Digital signage can influence impulse buying behavior, with 84% of shoppers admitting to making an impulse purchase after seeing a digital sign. For example, digital signage can be used to display product information, promotions, and discounts. This can help retailers to encouraging customers to make last-minute additions to their purchases (increase sales), promote specific products, and enhance the overall customer experience (Bellad, 2023).

Strengthening Brand Image and Awareness

Digital signage can play a pivotal role in shaping a retailer's brand image and increasing brand awareness. Retailers can use it to showcase their brand's story, values, or commitment to quality and service. According to Flesher (2023), digital signage can increase brand awareness by 47.7%. Digital signage helps to make a company's brand identity more recognizable and memorable by displaying high-quality images, videos, and dynamic content. When shoppers regularly see appealing and vivid branded content in stores,

they instinctively create a positive attitude toward the company. This not only helps to differentiate the brand from competitors but also fosters a deeper connection with customers. Hence, when they need to buy a product or service you offer, they may instinctively go to your shop but not the competitor's.

Improving In-Store Navigation

In large retail stores or those with complex layouts, finding specific products or departments can sometimes be a challenge for customers. This is where digital signage comes in. By providing clear, easy-to-follow directions, digital signage can significantly improve in-store navigation.

Interactive digital kiosks can even allow customers to search for products and then provide them with a map or directions to the product's location. This not only enhances the shopping experience but also reduces customer frustration, making them more likely to have a positive perception of the store and return in the future.

Enhancing Communication with Customers

Digital signage provides an effective platform for communicating with customers. Retailers can use digital displays to convey important information, such as store policies, safety guidelines, or upcoming sales and events.

Moreover, digital signage can be used to engage customers with interactive content. For instance, retailers can display social media feeds, run contests or quizzes, or even allow customers to leave reviews or feedback. This not only keeps customers entertained but also fosters a sense of community and engagement.

Reducing Perceived Wait Time

Long checkout lines or wait times can be a major source of frustration for customers. However, digital signage can help mitigate this issue by reducing customers' perceived wait time. By providing engaging and entertaining content, digital signage can distract customers and make the wait feel shorter.

For instance, digital displays can show entertaining videos, trivia questions, or even news and weather updates. Some retailers also use digital signage to provide transparent wait time information, which can help set customer expectations and reduce frustration while making shopping experience more enjoyable and engaging.

Facilitating Data Collection and Analytics

Finally, digital signage can also facilitate data collection and analytics. Some digital signage systems can track how customers interact with the displays, providing valuable insights into customer behavior and preferences.

This can be used to collect data on customer behavior, such as how long they spend in different areas of the store or what products they interact with. This data can be used to optimize store layout, product placement, marketing strategies and ultimately improve the overall effectiveness of the retailer's operations.

Better Internal Communication

An important thing is that retail digital signage can focus not only on customers, but on store employees as well (Sakovich, 2023). Staff working environment in supermarkets, such as break rooms, kitchens, or store rooms, can be equipped with digital screens that convey employee-specific information such as:

- Personnel management issues
- Accident prevention regulations
- Scheduling
- Bonuses and discounts for employees
- Birthday and other milestone event messages
- Corporate announcements

This is a great opportunity to build up the corporate culture, effectively support internal communication and keep employees updated.

Challenges that businesses face in implementing digital signage technologies into their retail marketing and their solutions

Digital signage solutions are not without their problems, especially if you adopt the technology for the first time. This technology can revolutionize the retailers' relationships with customers and mistakes result in higher costs and disappointing results.

Some common digital signage challenges and their solutions are listed below;

Poor Planning

Digital signage has become a popular option in recent years among companies that want more impactful marketing. In fact, the global digital signage market is expected to hit USD 27.8 billion by 2026, from USD 16.3 billion in 2021, at a CAGR rate of 11.2% in the forecast period (Magner, 2021). Although the market has impressive growth potential, one needs clear goals for the technology before rolling into it.

One of the biggest problems retailers run into have the same issue at their root: Incomplete or rushed planning. It is crucial for businesses to take the time to develop a comprehensive plan for their digital signage project. This includes identifying goals, determining the target audience, selecting the best content, and choosing the most effective placement for the digital signage (Chinyoka, 2023).

Finding the Right Hardware and Software (Technical issues)

A digital signage system consists of both hardware and software, each with different roles. The many options in the market can be confusing and one may take a lot of time to identify the best solutions for the business.

Before choosing a digital signage hardware and software, consider the size of the screen that fits the wall space (the bigger the screen the better it will be to grab the attention of customers from far away), type of screen (LCD or indoor LED), Choose a cloud-based, easy-to-use content management system (cms) that provides scalability and flexibility (Magner, 2021).

Finding the right hardware and software is a significant challenge with digital signage (Chinyoka, 2023). Digital signage systems can be complex and require a significant amount of technical knowledge to set up and maintain. Technical difficulties such as system crashes, network connectivity issues, and software glitches can also occur and this can result in costly downtime and lost revenue. Hence, to avoid this, businesses should ensure they have reliable hardware and software and invest in regular maintenance and updates.

If multiple displays are installed, ensure the platform supports multi-screen content management. For instance, the digital signage software from Mvix lets you manage hundreds of screens in one or different locations. Moreover, Mvix media players suit a variety of digital signage applications, from an interactive kiosk, digital menu board to a video wall.

Poor Location

Correct placement is the secret to effective digital signage. In many cases, business owners place digital screens too high or too low and miss out on audience engagement. Other advertisers situate digital screens in low-traffic areas or locations where people don't spend much time. If you don't place your digital signage in an effective area, this can pose as a marketing challenge to your business.

First, look for a central location with high foot traffic and lingering crowds. For instance, a healthcare facility can furnish its waiting room with a few digital signs and entertain or inform waiting patients. Other suitable locations include checkout lines, ticket booths, lobbies, employee break rooms, and elevators. If you use digital signs to promote merchandise, place them close to the products.

Secondly, set the screens at eye level or slightly above eye level to grab shoppers' attention. In addition to height, consider the distance between the screen and viewer. Specifically, images and fonts should be large enough for a viewer in the farthest distance.

However, keep in mind that sunlight can interrupt visibility. For example, sunlight may overpower the brightness on window displays or screens in a brightly-lit office. Also, ensure that outdoor digital signage screens are bright enough or have an anti-glare coating or anti-reflective technology.

Cost

Digital signage systems can be expensive to install and maintain, especially for larger installations. This high cost is one of the biggest barriers to the adoption of digital signage. Additionally, the cost of creating and updating content can add up over time. Using digital signage in retail is not something to rush into, especially if the retailer's budget isn't limitless (Schmitt, 2016) because mistakes make for higher costs and poor results.

Before installing a digital signage, one needs to work with a budget and determine the cost of implementing it. The cost of implementing digital signage vary based on several factors (such as number of displays, type of display, content creation etc.). To determine this cost, it's essential to conduct a thorough needs assessment, define your objectives, and work with vendors or integrators to obtain detailed quotes tailored to your specific requirements.

The development of technology also makes it possible to use cost-effective all-in-one touch screen solutions, such as touch kiosks. With this, stores do not need to create completely new content if they don't have the funds, as they can display existing websites or apps on kiosks that have already been created for customers (Mirgorodskaya et al., 2020).

Stale and poorly designed Content

One of digital signage's greatest advantages over traditional signage is that it is not static. Even with the content playing on a loop, the image on the screen changes frequently. This means that even if a customer has seen a particular piece of content before, they're likely to give it a second glance (Schmitt, 2016). However, overplayed content eventually gets boring.

However, to maintain effectiveness, it's important to add new content frequently. Many users of digital signage networks report update their content every month, or even less frequently. In most cases, that's not often enough.

If content is always the same, eventually people will stop looking at it. And not changing it means missing out on chances to promote products and move inventory. How often one update content may depend on how large the company is, how frequently they offer sales and other promotable deals, and other factors. But there is need to have a plan in place for producing content when it is needed.

Another challenge is the quality of the content displayed on the digital signage. Poorly designed content can be a turnoff for viewers and damage the brand's reputation (Chinyoka, 2023). To avoid this, businesses should invest in high-quality content that is visually appealing, easy to read, and engaging.

Conclusions

Online sales have drastically increased in recent years, with customers turning to their gadgets (laptops, smartphones, I-pads, tablets etc.) to shop online. This has left retailers in a difficult position as online sales continue to grow and in-store sales fall. Digital signage is just one of the many tools that retail stores can use to encourage customers to make a purchase in a regular store, rather than online. Digital signage is revolutionizing the retail industry by offering a dynamic, engaging, and data-driven solution for enhancing the in-store experience. As retailers continue to adapt to the changing market, digital signage will undoubtedly play a critical role in shaping the future of brick-and-mortar stores. By embracing this technology, retailers can create a more personalized, efficient, and sustainable shopping experience for their customers, ensuring their continued success in the competitive retail landscape.

Digital signage is more than just a trend; it is a powerful tool that can enhance the customer experience, boost sales, and strengthen a retailer's brand. Deploying digital signage is not without its challenges. However, businesses can overcome them by taking a thoughtful and strategic approach. By planning ahead, ensuring reliable hardware and software, correct placement of the digital signage in a central location with high traffic and lingering crowds and investing in high-quality content, businesses can make the most of their digital signage and achieve their marketing goals.

Therefore, digital Signage technologies have a positive impact on the retail marketing activities. They are an effective tool that can improve business performance, create a modern high-tech company image, gain consumer confidence and, as a result, increase sales.

Recommendations

The transition from traditional signage to digital displays was not just a technological upgrade; it was a paradigm shift. Traditional signage, with its static messages and one-way communication, was limited in its ability to engage customers in retail marketing. Digital signage, on the other hand, offers a level of interactivity and personalization that was previously unimaginable and was used to encourage customers to make purchases in an offline store, rather than online. In summary, digital Signage turns an offline store into a point of interaction, a form of entertainment with elements of online communication.

Therefore, the researcher(s) recommends the use of digital signage in retail marketing activities by partnering with a reliable digital signage provider and user-friendly software in order to help businesses make informed decisions.

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