Online Newspaper Development within the Internet of Things Environment: The Role of Computer-Mediated Communication

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1 Computer-Mediated Communication

In simple words, computer-mediated communication (CMC) is a type of communication in which more than one or two people interact or coordinate with each other using social software on different computers having a good internet network. CMC does not refer to how two computers interact; instead, it refers to how people connect with computers. While the word has typically been attributed to CMC (e.g., instant messaging, e-mail, discussion forums, internet forums, and social network services), it has also been extended to other forms of text-based contact like text messaging. CMC helps remove geographical barriers allowing effective communication between people over long distances [39]. Any type of document in written form could be edited, stored, copied, exchanged, or broadcasted. Written documents can be used to share and transfer data within no minutes. It is used for instant communication purposes, which are cheap and simple. Messages irrespective of sizes can be broadcasted, and additional operations, e.g., automated copying to a predefined distribution list, could be programmed. People over distance can review or edit the document if any issues are found. Concerning vertical hierarchy in social connections and organizations, software used for electronic communication remain blind [3]. When people use technology to communicate, their roles, ranks, and power aren't as clear as in face-to-face interactions. Hence, influential individuals with high status aren't as dominant; meanwhile, group members can participate more equally in digital communication. Because so much hierarchical dominance

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and power information is put down, social influence among CMC people becomes fairer and more impartial [39].

"Communication" involves the exchange of information; "mediation" refers to the fact that a technological medium is used for communication purposes; and "computer" refers to the fact that the means of mediation are technological, such as computers/internet, cell phones, video conferencing, and so on. Furthermore, it is beneficial to discern between the concepts of synchronous means (e.g., chats) and asynchronous means (e.g., blogs) of CMC and also to analyze these scenarios and technical aspects that may have an impact on language habits [45].

The mass media sector has undergone a massive transformation during the previous decades. New media, for example, computers, mobile phones, and other communications networks such as the Internet and multimedia technology, have sparked this revolution. These "new media" exhibit various communication configurations; their many forms reveal the link between interpersonal communication features. New media are distinguished from traditional mass media by their interactivity, demassification, selectivity, synchronization, immediacy, affordability, pro-democracy forums, marketing tools, and speed, among other characteristics. Interactivity, on the other hand, is widely regarded as the defining feature of new media. As a result, many experts in communication technology have tried to describe the qualities, aspects, and attributes of interactive communication within the area of new media and explore the level of interactivity that new media entails. No doubt, interactivity is a concept related to mass communication and a basic idea in CMC, but this is also a truth that there is still no agreement on how to define it [21]. Interactivity is a theoretical concept investigating the origins of enchantment, intrigue, and appeal in computer-mediated groups [2].

Language usage in CMC is a very significant subject. Language can be used to cover and exploit technology concerns such as short terms used in texting on mobile phone chats. A swift may be seen in observing language use in inventive language development. In addition, Wilbur [46] noted that CMC is actually text-based and hence belongs to the same field of study as linguistics. Moreover, communication on the internet is as genuine as communication in person. This remark was prompted by the frequent usage of the phrase "in real life," which refers to offline living and implies the existence of "an unreal life" [20].

2   Scholarly Information Related to CMC

Despite geographical distances, people in 1970s believed that usage of computers to transfer and share information to people could be of great benefit. At that time, such ideas were unique and revolutionary. But few people thought the idea could be dangerous as it is not appropriate to use computers for storing political and religious information and e-mails for longer than 1 month. People exerted great effort to establish the system but were unsuccessful. In 1990, when the internet was made available to the public, the concept of using CMC became successful

[27]. In contrast to non-mediated, face-to-face communication, earlier research focused on how technology dynamically modifies the performance and effectiveness of social interaction and team processes, addressing issues such as how people communicate and comprehend self-identity, form and maintain impersonations, develop and sustain relationships, make new connections, work collaboratively at a distance, and make intelligent decisions. As a result, past research's critical theories highlighted the lack of socio-contextual information as a character attribute of CMC that works against it [42]. The ability of CMC to make communication accessible to others was previously impracticable.

Some scholars believe we're moving into an era where communication is becoming more visible, which could be a significant area of study for social sciences. Modern CMC gives people many choices for displaying or attempting to access communication. Communication can now be seen by third parties, and even by those it wasn't intended for. This suggests big changes in how we express and understand intent through communication. Early CMC theorists understood that innovations that aided interpersonal communication were created to facilitate "socially transparent networks," hence visibility was the main consideration – visibility within those early research works linked to how other users were fully informed of an individual's existence, behavior, and engagement. Visibility, for example, was defined by Bregman and Haythornthwaite [47] as "the ways, strategies, and possibilities for representation; in interpretation, it largely emphasizes the presenters' concerns with the presentation of ownself" [39].

We consider CMC as a comprehensive framework encompassing multifunctional human-to-human social contact facilitated by ICT infrastructure. All kinds of social data transmission are included in this category, ranging from simple social attention (e.g., scrolling through the Facebook timeline) to intensive communication (e.g., a chat through Facebook messenger video call and social network sites, but not games). Computers facilitate CMC because they provide access to things centered on assisted socialization and user-generated content. Various programs are researched under a shared title since they often share a standard set of essential traits and functionalities [23].

3   CMC and Development of Online Newspapers

The number of print newspapers that also have an edition online has increased tremendously. According to the different surveys performed, it has been evident that increased number of online newspapers is being offered in the fax, audio tax, and voice services than printed newspapers [16]. However, it is pointed out by Morris and Ogan that mass communication is actually not so much attentive to the implications of CMC for internet publishing. In recent decades, however, the concept of communication technologies such as electronic mail, bulletin boards, and chat rooms has grown. This improvement in communication technologies has prompted numerous developments in CMC and related social research [31].

3.1 Advantages of Online Newspapers

Online journalism provides us with an easy, simple, fast and effective way of breaking the news. Synopsis of events as they occur can be provided to the people of the society within no time. In an online journalism, journalists can provide the people sitting on internet with accurate information which is also up to date [37]. Online newspapers in CMC help in various ways. They facilitate the reader's relationship with the newspaper. Readers can post their comments and opinions below. They can contribute to the authoring of the paper's sections. Let's take the example of a newspaper that is available in printed form and the publisher prints an online edition of this newspaper in which the online content differs from the printed content. It could be advantageous for the readers to access rare information that is not available in the printed edition. Sometimes, information available in the printed version could also be left out of the online version [28]. Some little newspaper articles might not ever reach the internet during a busy news day when information online has already been flooding, leaving online readers marginally less updated than print readers. The effectiveness of the newspaper available online is additionally enhanced by its different locations where they can be accessed easily. It is possible and easy to access the news form the mobile or the computer. In a second, people can have access to the news articles and the information available online. Most newspapers will provide free access to most of the information and the little pieces or summaries of the news stories. However, there is one thing about the printed newspaper; it can be read in more detail than the online edition. Simultaneously, an online newspaper is available and even extremely old copies can be accessed with a single click. If we wish to obtain an older edition of any newspaper, we must first obtain permission from the library [11].

3.2 Delivery of Online News and Information

The collapse of hard copy newspapers and the emergence of online news articles have sparked much debate among researchers and journalists who have looked into the powerful influence of the emerging innovations on the people and the newspaper industry. Despite uncertainties about how successful such initiatives will be in the future, market forces have driven newspaper publishers to embrace the latest platform and launch trials in online news providing. In the new internet marketplace, the established economic structure and process for hard copy newspapers, where the money or profit is made primarily from customers, newsagents, and advertisements, is now not relevant enough [5]. There may still be a market for Internet news (readers and advertisements), but the essential question is whether and how this market can be profitable. One characteristic that distinguishes online news as a viable (alternate solution) media delivery mechanism is its capacity to use technologies to ensure the same material as print newspapers to a broader public at a lower cost and in real

time. E-newspapers are already a fact, fast expanding, and accessible to individuals all over the globe. E-newspapers are phenomena that are here to stay, based on their current rate of expansion and integration. Thousands of newspapers have invaded the world of internet publishing. This 'migration of information to the Internet' trend has already represented a pivotal shift in information exchange and communication from traditional formats [32].

The term "electronic transmission of news and information" relates to providing a starting point of sharing news and data digitally. This encompasses CD-ROM publication and information distribution via internet platforms, for example, the World Wide Web. According to one interpretation, an online newspaper is "a newspaper that needs the user to use an electronic gadget at some point for its transmission and reading" [17]. As a result, online newspapers have a substantial global reach and impact. However, the concern here is whether the new "online newspaper" could supplant the traditional "printed" one and how this would impact journalism. Some experts and skeptics say that, for the time being, online newspapers would not be able to take the place of printed newspapers. A number of publishers view their online newspapers as supplements rather than replacements for the printed editions. Furthermore, several observers have stated that online newspapers are auxiliary offerings that have less in common with the hard copy–printed newspapers. The publishers could not eliminate the print newspapers. The usage of online newspapers, and hence the expansion of the e-newspaper business, is further limited by local technology. Limited processing capacity and the screen and memory requirements of online newspapers mean that electronic news provision and layout actually would not be able to be user-friendly. Furthermore, online newspapers are also difficult to transport on laptop PCs. Despite these constraints, online newspapers have replaced their print counterparts significantly [35].

3.3 CMC Journalism Is a Better Option

Printed and online newspapers have content that covers the same topics and can satisfy the needs and requirements of the same reader and advertiser. Despite their differences, online and print newspapers both have the main common purpose of providing the readers with the information same in nature. Since Web and internet use in IOT environmental is expanding in terms of subscriber or user markets and the quantity of content, services, and programs available, CMC and rising online newspapers must receive assistance. When it comes to online and printed news, producers and consumers have different financial obligations. The traditional hard-copy newspaper requires expensive production equipment but no equipment for the reader.

In contrast, CMC and the online newspaper require less expensive production equipment and more complex receiving equipment on the consumer side, requiring greater upfront investment on the user's part. Some significant distinctions between online newspapers and printed newspapers may be observed due to the dynamic

nature of technology, which is the backbone of the online newspaper production and distribution system, and the various formats in which they exist [44]. In addition, CMC and online newspapers can post more material, allowing for a significant depth of news coverage unrestricted by location or time and allowing readers to access back issues and instant online archives. Online newspapers are accessible at any time and from any location with a computer and Internet connection, whereas printed newspapers have established circulation times and require readers to travel to certain locations. On the other hand, a printed newspaper does not require the reader to purchase any particular equipment to read it. "The main distinguishing feature of what characterizes news is its immediacy." As a result, one of the key advantages of online newspapers is the elevated level of news update within seconds, which can occur at any time of day or night. The editor can provide the readers with up-to-date information and news by uploading or posting the latest stories by using the internet through its computer, which can ultimately aid in easy and simple CMC [25].

4 Interactivity with News Through CMC and Issues Within IoT Environment

Readers of newspapers and online newspaper employees may also communicate by exchanging views and thoughts using internet technologies. Sending e-mail-based communications to the media company and exchanging messages in an online group discussion are two essential options for CMC. Messages in text and voice chats are another form of interactivity that allows two or more people to exchange messages in real time. According to studies, readers are ready to let their ideas be known in public conversations and personal e-mail to specific individuals. This feature of the internet has caused people to expect a level of involvement from the internet that would be impossible to achieve anywhere else. Unlike other forms of news sources available online, Newspapers have always been slow to recognize that interactivity is a necessary condition for effective Web communication [4]. One of the most significant traits of the internet and CMC is interactivity. The features of interactivity in mass communication are the most critical elements. Between journalists and readers, these features have helped people shift from one-way communication to two-way interactive communications. For example, there is an opportunity for the readers of online newspapers to drop down their opinions, views, and thoughts in comments. In this way, readers can take part in discussions in online newspapers. Commenting on the online newspapers provides the readers with an advanced level of mass communication engagement. The power of mass communication has increased in public; hence, it is important to understand how the content features in online newspapers can help in the interactive behavior of readers, for example, the thought of sharing journalistic content. In other words, the importance of mass communication engagement of readers relies on the idea that if the level of engagement were higher, there would be more readership of

online newspapers and CMC. According to past studies, the term interactivity is also controversial because the concept is used in different academic areas and the general public or society. Numerous scholars have attempted to define the term conceptually or theoretically, but the term has always been too "loose." Two types of comments in online newspapers can be posted. One type is "reactive comments" related to the content written in the news article, and the second type is "interactive comments" related to responding to the comments of others. Both the types aid in knowing what perception the newspaper content left on the readers [33].

4.1 CMC as a Tool for Organizations and Governments to Spread Information and News

CMC has become a crucial instrument for governments, agencies, and organizations to disseminate information and news to the country's general population and the global community in order to keep them abreast of global events. In recent years, reports have been involved reporting and online news sharing, which is computer mediated. The leading journalists from the organizations use their personal computers to collect and disperse news among people. The government uses its websites to spread important information to its people using internet, and so are the other agencies. Online newsrooms have been created for people's ease since it gives knowledge about news reporting. It has been made simple and easy for journalists to write and gather information more effectively [14]. The government uses CMC for its political purposes also. Online debates are being done by the government and politicians using CMC. Higher accessibility of the computer and internet has impacted the public positively also. A proper and separate space can be created for the government persons for CMC to engage and listen to public issues. The improved communication capability allows political communication to reach a broader public instead of only the inner circle of political insiders. New kinds of political communication based on new technology may make it easier for the public to participate in the political communication process. Further, than the simple sign language that politicians produced and employed in the past, enhanced participatory democracy via the digital age contributes to substantial shifts in communication methods and approaches. Certain emerging political groups with limited resources as well as those associated with minorities may be able to compete with the established political strength as a result of this [10].

4.2 The Use of Social Media and Its Social Outcomes Concerning CMC

In the twenty-first century, the internet and CMC have become the center of technology development. The inclusion of the internet has made computers more advanced than ever before. The combination is said to be a powerful technology for communication. It has become a great revolution in the field of technology and communication. The concept of CMC has given birth to social media, which has many benefits, including the authority for people to create their profiles and interact with other people. The emergence of social media is vital to make people across different locations engage and interact with one another using a communication network. The use of social media has also enabled people to share news, information, and updates in articles. These days, social media applications, for example, Instagram and Facebook, are being used as media channels to post the latest news.

On the other hand, ethics is one factor that should always be kept in mind while using CMC. Bigo Live is the example when technology has a deleterious impact if used uncontrolled [9]. Social media has been a major worry among security experts in the last two decades. Parents are deeply concerned about their children's online privacy and how to safeguard their personal information. However, the drawbacks of social networking go far beyond confidentiality. Numerous research works have linked social media to poor mental health in recent years. Multiple studies have demonstrated an association and causality, according to a recent Forbes article. According to the findings, persons who restrict their social media usage to 30 minutes each day feel substantially better than those who use it. People reported minimizing despair, stress, and sadness by limiting the amount of time they spend on social media [1]. Social networking sites have also become a very important part of everyone's life in today's era. Without the use of it, something in life seems missing. Also, it is not easy to find a person who does not connect to social media these days. CMC has become easy through social media, but the cons are also in great number if there are pros. Significantly, many students are interested in using social media for CMC purposes. No doubt, it gives the people chance for connectivity, collaboration, information, learning, and entertainment but the addiction to it could cause harm to the lives of people also. More and uncontrolled use of CMC via social media can cause addiction to the students. Gradually, the addiction may reach a level where the students get distracted from their studies. Students are then unable to focus on their studies since such students are always wasting their time scrolling their timelines and newsfeeds. No doubt, CMC helps us build friendships and good relations with people sitting on the other side of the computer, but if we see the broader picture, it could affect the relationships with a closed one. Cyberbullying is the other primary concern as well as the inappropriate content and health concerns [7].

4.3 Emerging Issues Related to the Use of CMC

Four main issues are rising day by day related to the use of CMC. The first issue revolves around the anonymity on the internet, which plays its role in increased misconduct of the news and other crimes. The second issue revolves around the reconfiguration of territorially and interest-based associations. The use of media artifacts and their social outcomes are the third main concern. Lastly, the mutual shaping of consumers and technologies also plays a role in the emergence of issues related to CMC.

Anonymity is described as "the state of being anonymous," whereas an inter-locutor is "a person who participates in a dialogue or discourse." The new technology incorporates anonymity, a crucial aspect of CMC. Because much of the globe connect to the internet, the internet community is rapidly and constantly evolving. Freedom of expression and anonymity has always been significant societal challenges in the real world. Because more people learn online technology and are involved in anonymity in this socialist environment, these challenges are becoming incredibly influential. According to internet users, anonymity is essential for the safeguarding of freedom of expression. It is self-evident that the technology for internet anonymity is readily available. Anonymity, as shown in online activities, impacts the task and social components of CMC, such as information sharing and interpersonal communication [43].

Sociologists developed the deindividuation theory, which asserts that absorption in a group, most notably addressing lowered personal visibility, results in the loss of identity and even a sense of helplessness, based on this assumption of the crowd mentality in early anonymity studies. People lose their originality, integrity, and selfhood when they become anonymous and blend into the herd, leading to anti-social activities. As a result, the early description of anonymity is distinguished by emphasizing the loss of self through immersion in a shared belief and the resulting detrimental social implications. Deindividuation is characterized as a condition in which persons in groups are not viewed or treated as individuals.

Early deindividuation theory argued that anonymity in society may lead to a "loss of self" and to at least less self-awareness to describe how anonymity causes deindividuation. Whether "loss of self" identity occurs in anonymous conditions is the determining factor for distinguishing another class of deindividuation, scholars who argue that anonymity in the group typically does not result in a loss of identity, but rather encourages a switch from individual identity to social identity and tends to increase the significance of social constructs. In addition to preventing anonymity as a source of deindividuation, initial deindividuation theorists suggested that anonymity could negatively affect social behaviors, such as impulsive behavior and attraction to deviant groups, due to the loss of identity and self-control among crowd members. According to early CMC research, online communications are more likely to become involved in the aggressive expression of intense thoughts and feelings, known as flaming, due to deindividuation [43].

Social media platforms are platforms where anonymous are sitting in a large number hiding their identity and producing content for the other users so that they could have interaction through it. Several social applications aid in CMC. The rise of mobile applications that promise anonymity as the main feature has resulted in previously unstudied social configurations [6]. Due to increased anonymity on the Web, it has been challenging to identify people responsible for misconducting the information sitting behind their computer screens. Fake ID can be easily created and used to spread false information and sometimes panic people. Additionally, the anonymity of the Internet, which has rendered society defenseless, has opened the door to antisocial conduct [13]. Beyond all this, anonymity on social media has also played a role in promoting other crimes like hacking and harassment.

The crimes are responsible for damaging nearly around about billions of dollars per year as well as human dignity, faith, reputations, and moral destruction. Consequently, it is crucial that the information of those who perpetrate such crimes in the name of CMC be traced and reported to law enforcement. Free flow communication and increased anonymity allow criminals to walk free, which is the biggest issue regarding the CMC and internet. This must not have happened, and there should be a solution to solve this issue and enjoy the advantages of CMC [15]. Anonymity plays a big part in the freedom of speech; thus, it is brought up again. Anonymity can be misused, transforming free speech into hate speech or objectionable criminal material. Since anonymity is a strong cloak for whoever is behind it, it allows them to avoid taking blame or consequences for their actions.

On the other hand, anonymous communication is not required for freedom of expression. Messages sent via anonymous are sometimes uncertain about having such a significant impact on their own unless the receiver knows and believes the sender. Since, in case the communication is anonymous, it is not easy to establish a relationship with communicators [13]. Anonymity also plays a role in affecting the behavior of people. Online interactions with unknown people in CMC may have positive and negative effects. However, the number of positive effects is less than the negative ones. Adverse effects have been discussed above. One main positive impact of anonymity in CMC involves people revealing the personality traits they might hesitate in person. Being in a crowd can sometimes cause people to act rudely and viciously. Despite this positive effect, anonymity is problematic because it allows for accountability to be avoided. According to Moore et al. [24], the capacity to act openly while hiding an individual's identity might also hurt public discussion on the internet.

4.4 Reconfiguration of Territorially and Interest-Based Associations

The technology that enables readers to write online comments on newspaper websites anonymously provides readers with extraordinary chances to contribute, raising

questions about the journalistic value of accessibility, self-regulatory practice, and competence formation. Even though technology aids journalists in providing quick information via CMC, they do not participate with the readers in the mutual shaping of news content. Scholars have suggested that online journalism has the power and ability to give readers a voice of their own [26]. At a global level, CMC also helps develop a new paradigm of human activity across the territorial borders providing feasibility. Electronic communications, no doubt, play havoc within different territorial boundaries. Since the territorial boundaries in a virtual world are separated via screens, codes, and passwords in an electronic environment, the new boundary develops a cyber space that helps legislation and legal institutions safeguard the territorial electronic environment. Nevertheless, lawmakers and law enforcers think that this new environment is very dangerous. Geographical borders are separated from the real world in the virtual world, providing the people with various advantages and disadvantages that are of great significance. Various and different sets of rules and regulations apply at the electronic territorial borders [12]. With respect to territorial concern, the main emerging issue in CMC is that people sitting behind the computer screen can access the personal information of people of different regions within the country and across the territorial borders. By just pushing a button, one can discover a person's origin, phone number, current location, and even driving instructions to his home. Hence, it has become complicated to protect people from unsafe access to personal data. Through CMC, people from different locations engage in relationships with anonymous and then due to blackmailing from them, they may try to harm themselves. This is one biggest disappointment from the internet and CMC [41]. When the internet and the computer were not so common in use, many people thought that engaging with different people via CMC would make people to become mechanical. It would also somehow be able to cause harm to humanization. The fear of people was challenged later on, and various different experiments suggested that people who communicate via CMC were ruder than that of those who communicate face to face [8].

4.5   Introduction of New Artifacts and Their Social Outcomes

The term "mass media" refers to a segment of the media designed and created to reach large groups of people such as a state's population. With the rise of regional broadcast stations, mass-circulation newspapers, and magazines in the 1920s, mass media became popular. Newspapers, television, and other forms of broadcasting are examples of mass media. Internet media is a relative newcomer to the mass media definition. Online media include personalized web pages, podcasts, and journals [36]. Web applications, forums, hashtags, and newsfeeds, among other social media tools, have revolutionized the way people interact, engage, and communicate. Furthermore, most of these innovations have found their way into agile cooperative approaches and modern software development tools, either as an add-on or as part of a broader set of tools that include text editors and issue trackers to IDEs and internet

sites [40]. However, the issues related to such artifacts are rising day by day. A fundamental "infrastructure of involvement" that facilitates audience and numerous broadcast mechanisms can be found in social media applications. Their design encourages and fosters collaboration, often a by-product of individual actions. It also empowers people's participation and involvement in activities traditionally held by a small range of participants.

Many researchers acknowledge that software development procedures are more than just generating source code and that "articulation work" in a software engineering project must be encouraged. "Articulation" is defined by Gerson and Star as "all tasks required coordinating a specific activity, including scheduling subtasks, recovering from errors, and assembling resources." Discussions on design decisions, provision of bug-fixing duties to developers, and agreement on interfaces are all examples of articulation work. On the other hand, social media has changed how humans generate and curate information artifacts online in recent years [18]. For example, Wikipedia, a free encyclopedia created collaboratively by using wiki software, is one great example of several people coming and joining together to create web content using the technology and inventiveness of social media. Again, one major issue related to media artifacts is the possibility of misconducting information. False information and news articles on the Web can lead people to have false knowledge about a particular thing. Another social outcome that is of great concern is of ethical point of view. Wikipedia has now established the de-facto standard for encyclopedias, regardless of the lack of institutional systems to ensure the reliability and conciseness of content.

Moreover, social networking, especially the micro-blogging site Twitter, increasingly influences daily politics and affairs. Twitter, for example, was crucial during Egypt's 2011 revolt and in the aftermath of Japan's earthquake and tsunami in 2011. These instances demonstrate how vast groups of people may efficiently generate and curate web content without the use of formal rules and processes, utilizing a range of social media technologies such as Wikipedia articles, tagging, and weblog [38].

4.6   The Mutual Shaping of Consumers and Technologies

Journalism is rapidly transforming the way, most of it due to advances in information technology, but expecting that technological breakthroughs cause changes in news creation directly and discontinuously is a myopic view of dynamic processes. The journalism profession has adapted to technological advancements and helped shape communication technology in the past. Depending on the velocity of technical change in a specific medium in the twentieth century, news outlets could take years to figure out the best ways to adapt and shape innovations to meet their needs [29]. The present rate of electronic communication technology development and dispersion is becoming more challenging to manage. Media sources increasingly rely on digital platforms, which frequently have low entrance hurdles. This allows a slew of new competitiveness to emerge swiftly, posing a threat to news organiza-

tions' consumers and sponsors. This extremely fast-paced technology environment is not the main cause of falling viewership and profits. However, it does cause some companies, particularly the newspaper industry, to discuss sustainability rather than expansion. Many news outlets are modifying their production methods and people to adapt. A few news organizations have succeeded in introducing good services and tools, but achievement could be transitory, and also the social conventions ingrained in the environment of media companies or organizations would also be there, which many in the business would struggle to retain, even though if it is related to stifling innovation [30]. The mutual shaping of technology (MST), according to Boczkowski [3], includes "the orientation and velocity of technology adoption as well as the development of media artifact." He also discusses how mutual shaping of technology might be used to analyze technology change in the context of journalistic organizations.

The mutual shaping of the technology concept is designed to help us better understand how innovation from the communication perspective can impact and be influenced by a media outlet. Theoretical approaches to mass communication inquiry provide perspectives into the links between cultures, technologies, and communications. Many of the widely accepted theoretical asserts are predictable. They depict CMC developments as "floods of innovation" flowing over communities. They overlook or dismiss the cultural forces that determine the evolution of information technologies. Harold Innis [48] provides a framework for many types of research on the association between communication technology and society. Although his method is not directly linked to the transmission of MST, it addresses similar problems, such as technical inventions in communication in dynamic connections with cultures across time in the modern hemisphere. Innis, who examines diffusion processes through the prism of history, is more concerned with the social as well as cultural consequences of the new and latest communication inventiveness and technologies than with their adoption rates. Innis' reputation among media scholars is undoubtedly due to the influential role he gives mass communication innovation in social and cultural development. He allocates a significant influence to improvements in communication technology [19].

The mutual shaping of technology construct, as previously said, aims to maintain a positive attitude toward two competing paradigms: diffusion of innovations theory and social shaping of technology construct (SST). The diffusion of innovations theoretical model examines how news and information can be dispersed throughout a community or a society. Scholars of media innovation have emphasized the importance of taking a comprehensive perspective on the history and future of communication technology development. In retrospect, the internet was socially shaped as it emerged, and there is no reason to believe that future digital innovations will be any different. The SST approach studies the same coin from a different angle. It consists of studies on "social contexts of innovation...social and economic elements that may affect technology..." and has brought to light the significance of a vast array of stakeholders and those who are impacted [22]. The subject of concern is how technologies and artifacts are created, as well as what societies do with them once they have been adopted. According to SST, social factors determine

how, not just if, technologies are adopted, and how the technology that is adopted shapes future generations of the innovation. Academic and industrial circles are interested in researching new business models for online journalism. Thousands of news agencies have been laid off or bought out recently, particularly in the newspaper industry [34].

5 Conclusion

CMC is a type of communication in which more than two people are involved, sitting behind their computer screens and communicating with each other. CMC has made everyone's life easy. Nowadays, CMC in journalism has benefitted journalists and readers worldwide. The online newspaper has not entirely but majorly replaced the printed newspaper. People can read news articles by just using the computer or tapping the mobile screens. Within the IoT environment, online journalism provides us with an easy, simple, fast, and effective way of breaking the news. A synopsis of events as they occur can be provided to the people of the society within no time. In online journalism, journalists can provide the people sitting on the internet with accurate information which is also up to date. The classic hard-copy newspaper necessitates costly production equipment but no equipment on the reader's end.

In contrast, CMC and the online newspaper require less expensive production equipment and more complex receiving equipment on the consumer side, requiring a more significant upfront investment on the user's part. The concept of CMC has given birth to social media, which has many benefits. CMC has also become easy through social media, but the cons are also in great numbers if there are pros. Some issues are also rising day by day related to the use of CMC within an IoT environment. Anonymity on the internet playing its role in increased misconducting of the news and other crimes is one major rising concern. MST and the use of media artifacts also have issues related to social points of view. If, on the one hand, computer-based communication provides benefits, then, on the other hand, it also raises issues for which we must seek answers.

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