

## **Impact of technological innovation adoption on journalism practices in Malaysia**

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### **ABSTRACT**

Journalism practices in Malaysia rooted in the print media industry and has expanded along with the development of technological innovations since more than 200 years. The first newspaper was published in 1806 in Penang and it is regarded as the beginning of formal journalism practices in this country. Thus, it is important to examine the newspaper industry's evolution from the perspective of adoption of new technology by newspaper industry practitioners with an emphasis on the mainstream newspapers, and the impact on journalism practices. This paper focuses on continuous technological innovations – during pre-computer mediated communication and computer-mediated communication eras, - including current Artificial Intelligence (AI) adoption, that have changed the print media journalism practices in Malaysia. The writer was guided by Interactive Communication Technology Adoption Model, Communication and Technological and Cultural Change Model, Technological Determinism Theory and Diffusion of Innovations Theory. Findings, based on qualitative approach, show that the way journalism practices being carried out – information gathering, news reporting and news writing, editing and content development process have changed and impacted partially. The adoption of new technologies also brought changes and impact in the newsroom landscape. One significant finding is that although most of newspapers have a long history of establishment, the level of adoption, changes and impact differs from one language newspaper to another. The fundamental principles, forms and characteristics of journalistic practices of newspapers industry in this country remain the same. Findings also show that the adoption of new technologies and impact were influenced by both internal and external factors. However, the impact on journalism practices is not solely determined by technological innovations but other factors such as laws and regulations, media system, ownership, political

ideology, national aspiration and editorial policy of the respective media organisations.

**Keywords:** *Journalism practice, Malaysia, technological innovations adoption, impact, newspapers*

## INTRODUCTION

Journalism and journalists are important components in the news industry. Both, either directly or indirectly, have close 'relations' with every part of our lives (Stovall, 2005). They communicate with public in the form of news products or services. During the early days, the term journalism and journalists were used interchangeably in the newspaper industry, then in the print media business when magazine publications emerged, and followed by mass media in general, as new mediums and new media are invented including electronic media in the early last century and mobile phones and internet in the mid of 1990s. In other words, the scope of both terms expands and evolves concurrently with technology advancement. Bjornar, Are and Njal (2024, p. 96) described that the practice of journalism has undergone many changes in the last few years, with changes in technology being the main driver of these changes". More than four decades ago, Trewin (1975) stated journalism as a difficult word to define because it covers a diversity of jobs in a media organisation. He further said, like 'industrialist', or 'scientist', or 'politician', the term embraces a group handling every task on the editorial side of newspaper or magazine publishing – from junior reporters to editors, from photographers to layout artists – as well as many jobs in radio and television. However, it was not always so, explained Trewin, who defined journalists as one whose business is to edit or write for a public journal. According to Johnston (1979), a journalist is no longer simply reporting events or a 'recorder' of a history in the making, but an analyst and interpreter of the events he or she reports. Journalists' interaction with sources (Whitney, Sumpter & McQuail, 2004), which is also a kind of communication sometimes involve confidentiality either directly or indirectly. They communicate either face-to-face by attending the press conference or one-to-one interview session, via telephone, e-mail or any new innovations as a new medium to gather information, and file their stories. According to Willis (1990), "the relationship of journalists to their sources is one of the most critical – yet perplexing – areas of reporting." (p. 75). The linking to sources – also a form of communication process, according to Whitney, Sumpter and McQuail (2004) is one of factors that determine the manufacturing of news. The other factors include

assembling the raw material for conversion into content of newspapers, timing, framing, and economic influences.

As journalism carries issues that dynamically evolves, it is considered a dynamic field exposed to changes (Vijay, 2005). Molly and Janson (2004) explained, journalism has recreated itself to suit each new communications medium as it came along, from radio then television, and currently internet and multifunction of mobile phones. Gillmor (2004) stated that devices for collecting, working with, and distributing data are becoming smaller and more powerful every year. New devices are available from time to time with the latest innovations which enable or assist journalists in their everyday working life to collect information and write and rewrite their stories, and then publish them.

### **JOURNALISM PRACTICE IN MALAYSIA – PERSONAL EXPERIENCE**

The first newspaper in Malaysia was published in 1806 (Mohd. Safar, 1996) and by considering the more than 200 years of existence, Malaysians have witnessed about 10 generations of journalists with tremendous changes in all aspects; politically, economically and technologically. They have the experience of using various newsroom or newspaper working tools, both traditional and modern facilities according to their era. However, the majority of the current generation of journalists were never exposed to pre-computer mediated communication environment. They have wider experience in using computer-mediated communication system, especially the usage of computer and mobile phone or a digital system to collect information to produce their news and feature articles. As the society able to see the mass media technological advancement, more and more organisations entered the media industry in Malaysia (Holst, 2006).

An interesting caricature that appeared in the book titled *A. Samad Ismail: Journalism & Politics* (A. Samad & Boon, 1985), that depicts the scenarios of a newsroom environment in the *New Straits Times*, in 1980s, with old technologies but 'new' for journalists in 1970s-early 1990s. The illustration enabled us to compare with new working environment as a result of computer-mediated communication era and subsequent new innovations since last more than two decades. Quotes that accompanied the caricature: "Calvin! Take down this story from Danapal..." and "Give me my typewriter back" bring us to assume that previously journalists had to share typewriters – the 'modern tool' that was available for journalists in those days and sometimes others had to lend 'their hand' or help to note down story from their officemates as there was no online data transmission system in the 1970s, and

the scenario was experienced until mid of 1990s in most newspaper organisations. Compared to the message of this caricature, today's journalists are experiencing a different and modern newsroom with new technologies and advanced tools like the e-mail system, online database and news, digital photographs, and fax machines. In the following section, myself as former fulltime journalist, joined the journalism field in 1991, will share my personal experience from the technological point of view in the development of journalism in Malaysia. At that time the Editorial Department of Utusan Group was undergoing changes from a pre-computer communications environment to a computer-mediated communications environment in the late 1980s and early 1990s, and subsequently enhanced their system from time to time to meet the current needs and challenges before they closed down their operation in 2019 and emerged back almost two years later. (*Utusan Malaysia* was one of few newspapers in Malaysia that ceased operations due to financial reasons, and back into the industry in 2020) (*MalaysiaKini*, 2020).

At the time myself joined Utusan Group as a cadet journalist, there were only two sets of typewriters at the editorial department – the small size, hand carry typewriters – one allocated for journalists and another set in the superior's room. Both disappeared after a few months. The 'availability' of only two typewriters in the Utusan Group's Editorial Department, which accommodated at least 100 journalists and reporters, really surprised myself as a young journalist. Where were the other typewriters? A few veteran journalists like Tan Sri Dr. Mazlan Nordin, former Chief Editor of Utusan Group and ex-Chairman of MPI, the former Group Editor-in-Chief of *New Straits Times*, and former Chief Editor of Utusan Group were still keeping their typewriters. Typewriters were replaced by personal computers although each journalist was not allocated with a personal computer then, but they have to use a pool of personal computers for simple word processing software. No laptops were available in the early 1990s as we are witnessing today. Mobile phones too were provided via a pool system. Those assigned to cover out-stations (including overseas) assignments had to send their news material by calling the headquarters using a fixed telephone line, fax or telex. Someone had to be in the office to facilitate by taking down stories and retype it for editor to edit them. Sometime, journalists outside the headquarters used to send their material through public transport such as taxi, bus, train and also planes. Editorial support staff had to standby at the taxi, bus or train terminal or at the airport to collect the news material. That was the scenario 1990s when the Editorial Department of Utusan Group was moving towards an era of implementing a fully computerised system. Utusan Group started to implement the computerised system in the Editorial Department from the second half of the 1980s. When myself entered the journalism

field in early 1990s, as an apprentice journalist at the *BERNAMA* (National News Agency of Malaysia), witnessed the transformation process among media organisations; *BERNAMA* had already implemented the computerized system by using big personal computers for typing news material. Based on conversations with journalists of other media organisations, was informed that they too experienced similar scenarios in 1990s. Myself had witnessed and experienced tremendous changes in journalism practices in Malaysia, especially in terms of news gathering and news writing activities – a move of from analogue system to digital system.

From just using a simple tape recorder and a notebook, currently journalists have a variety of tools for the same purpose of to carry out their tasks. Today, not only personal laptop, media practitioners using and have opportunity to use tablet or smart phones of various types and models, that is rich with features and apps to enable them to work remotely – from anywhere and to file in their stories as soon as possible and anytime – effectively and efficiently. For record purpose, media industry already exposed to new tools and remote working environment since late 1990s. Today's reporters or journalists are equipped with various tools and advanced facilities with multimedia features such as digital still camera, digital tape recorder, mobile working stations, 5G-handphones, and high-speed internet services, and also AI assisted features, which has made journalism a modernised profession and practicing mobile journalism. Today, most journalists no longer carry a pen and notebook with them when they are in the field. To accomplish their daily journalism routine, they are totally depending on digital tools and equipment. A total huge and dramatic changes due to technological innovations. This is a real virtual newsroom environment – a new working environment that was a dream for many media organisations including Utusan Group at the end of 1990s. The all-in-one devices feature rich facilities, which enable journalists to work independently without photographers, increase their journalism ability and skills, generate multitasking journalists, enable them to work efficiently and effectively and enhance the speed of newsgathering, reporting and editing activities – the core activities in journalism (Kovach & Rosenstiel, 2001; Pavlik, 2001; Dooley, 2007; Phadke, 2008). Not only has the existence of new technology reduced the use of manpower in most media, it also includes the purpose of reducing the operating costs of editorial departments, and has even led to the birth of a generation of multipurpose and multitalented journalists in the convergence era.

## **TECHNOLOGICAL INNOVATION, ADOPTION AND ITS IMPACT: AN OVERVIEW**

The previous century witnessed three technological shifts in the dissemination of news (Smith, 2005): (i) radio, (ii) television, and (iii) internet (or online media), and now social media emergence. Indirectly this shows that new technologies are being introduced one after the other from time to time, and it directly changed the news production, dissemination and distribution. Based on Smith's view, the writer also assumes that print media journalism practices have not only changed by adoption of new technologies, including the one that were developed for them to gather information and write news, but also as result of other news media technologies. As stated by Braman (2004), technologies do not appear all at once in their final form and people access and use technology in different ways (Howard, 2004). Howard added that the technology itself and how it is used evolves daily. It has progressed gradually from the time mankind began to look for tools that would help them for their needs since thousands of years ago. Braman explained that technologies come into being through three stages: (i) invention, (ii) innovation, and (iii) diffusion. Each stage has its own characteristics in improving and also changing the communication process of mankind including in the newspaper industry and in the field of journalism. The technological advancement occurs continuously, and the progress was tremendous in the last 100 years and no other time in history has technology been as pervasive in human lives as it is today (Khalil, 2000). Technology never stops after an innovation of new method or tools are developed, but it progresses, from the Stone Age to the Information Age and Biotechnology Age and comprise sectors and disciplines (Uricchio, 2003).

Technology in the modern age has a direct relation to the phenomenon of innovation and novelty (Gunning, 2003). He added that "the introduction of new technology in the modern era employs a number of rhetorical tropes and discursive practices that constitute our richest source for excavating what the newness of technology entailed" (p. 39). McGinn (1991) described technology as tool, technique and culture former. Based on his opinion, technology is a tool and machine that helps to solve problems, produce desired products, and fulfil a need or to satisfy a want, and it also contributes to form or destroy activity. Therefore, technology can also be referred as objects (tools, machines, instruments, weapons, appliances – the physical devices of technical performance), as knowledge (the know-how behind technological innovation), as activities (what people do – their skills, methods, procedures, routines), as a process (begins with a need and ends with a solution), and as a socio-technical system (the manufacture and use of objects involving people and other objects in combination). The term technology varies from field or

sector, and their functions. For example, technology is referred differently in the communication field compared to the education, medicine, science or engineering disciplines although the bottom-line effect of technology is to bring betterment in human lives or in our daily activities, and human beings always rely on technology and the influence of technology on society increased dramatically starting about 200 years ago with the industrial revolution.

Technology is an object or sequence of operations created by humankind to assist in achieving some goal. A technology is a body of human knowledge that can be passed along from one place to another and from one generation to the next and from one industry to another, and also from one nation to another. It favours the use of technical devices and processes even in solving social problems including the communication process such as communicating with others, to collect information by journalists, and produce news service by media organisations for their audience. Technology's contribution is not only in how goods and services can be produced, but also in what can be or even has the potential to be produced. Communication technology played a major role and may be regarded as a Rostovian "leading sector". According to Madanmohan (2003) and Haddon (2004), information and communication technologies and new media creates new forms of communication and both enhances and restricts different aspects of communication.

Many of the new communication technologies are adopted and implemented by organisations, not individuals. For example, according to Chu, Syed A. Rahim and Kincaid (1976), adoption is a paradigm of the diffusion, and the adoption process takes into account various kinds of decisions: (i) individual, (ii) contingent, (iii) authority, and (iv) collective. Chiasson and Lovato (2001) argued that the diffusion and infusion of IT is a complex process that is influenced by numerous factors such as perceived characteristics of the innovation, subjective norms, stages of adoption, user competence, implementation processes, and organisational factors. Kam and Singh (2002) and Kraemer and Dedrick (2002) listed a few factors, both local and international forces such as government policies and strategies, investment on new technologies, understanding about the usage benefits and advantages, and globalisation and competition that contribute to the adoption process.

## **JOURNALISM AND PRINT MEDIA TECHNOLOGY**

In his article, Yellowbrick (2013) pointed that technology has revolutionised journalism, transforming the way news is gathered, reported, distributed, and consumed. He also listed five other takeaways: (i) technology has democratized

news production, empowering citizen journalists and challenging traditional news gatekeeping, (ii) digital tools and resources have made research, fact-checking, and information presentation more efficient and engaging, (iii) digital platforms and social media have become vital channels for news distribution, (iv) data journalism has emerged as a powerful storytelling tool, enabling the presentation of complex information through data-driven narratives, and (v) advances in technology, such as AI and AR, have the potential to further transform the field of journalism. According to Pavlik (2000), changing technology influences journalism in at least four broad areas: (i) how journalists do their work, (ii) the content of news, (iii) the structure or organisation of the newsroom, and (iv) the relationships between or among news organisations, journalists and their many publics. Various authors and communication scholars including Gentile (2006) agreed that journalism is undergoing tremendous change with the proliferation of blogs and citizen journalists and news consumers having more control over what news they hear and see. Gentile also stated that technology allows a faster flow of news in varied forms. According to Challinor (2006), the media landscape is changing as a result of messaging and mobile phone revolution – part of technological innovation. Gentile and Challinor gave an overview of the current scenario in terms of new technology. On the technology changes and how members of society accept it, Wood (2001, p.30-31) explained that communication scholars will continue to study whether emerging technologies merely alter how the society, in this study the journalists, communicate or actually change the kinds of relationships they build. The journalists either current generation or previous generations experienced the usage of new technologies in various forms and environments.

In 1978, Williams said that even the trusty typewriter of the reporter had become obsolete as a newspaper tool. According to Shaw (1977) and Fedler (1993), until the 1970s, newspaper reporters typed their stories on sheets of paper, and then used a pencil to correct their errors. Since then, newspapers have experienced a period of rapid technological change. Fedler, who observed changes since 1970s said that “most reporters now type their stories on computers or word processors” (p.1). Everything – from writing to editing – done electronically and the system can save a single newspaper millions of dollars a year by eliminating its need for typesetters. This was the scenario in the United States of America (USA) in the 1970s. Boorstin (1974), who analysed the changes of process – from newsgathering to news making, explained how news sources and facilities of newsgathering are more elaborate and diversified as new technology is available and the demand for various and more news materials are increasing. The 1970s scenario, according to him, is much more different than 1800s journalism practices.

Print media journalism is the pioneer among journalism practices which were also affected by technological changes and innovation. Related to this view, Challinor (2006) stated that newspapers are now proving to be early adopters of the potential new technology. In other words, the changes that contributed by the adoption of new media technologies comprise not only the print journalism, but also electronic journalism. In discussing new media technologies and its effects, Thompson (1999) explained that the development of new mediums of communication and new means of transport also affect the ways in which individuals experienced the spatial and temporal characteristics of social life. Does this mean that the technological innovations cause new cultural and phenomenon among human beings? By answering this assumption, he explained that "if the media have altered our sense of the past, they have also created what we could call mediated worldliness" (p. 20). Information and telecommunication technologies have played an important role throughout the evolution of all species. The biggest change in communication field in the last 40 years, since the advent of television, has been the invention and growth of the internet (Severin & Tankard, 2001). The Internet has also undergone significant changes since its introduction, with various features and conveniences accompanying it, including the ability to conduct online searches and research, which has proven capable of improving the quality of journalism and reporting, as well as the publication or broadcasting of news materials. Pulkkinen (2003), who studied the communication structures in research on information and communication technologies (ICT) integration in education in the years 2000-2001, said, ICT has become a personalised commodity, and since the introduction of the World Wide Web (WWW), there is no sector in our society where ICT has not changed. It appears certain that information will be even more important in the future as the world, industry and society move into an increasingly technological age.

Computerisation has made many other changes in the print media as well (Hodgson, 1987; Straubhaar & LaRose, 1997). At first computers substituted typesetting machines by creating letters on film that was then transferred to metal printing plates. However, the layout and paste-up of a page was still done by hand. As more elements of the page were stored in the computer, more of the page layout could be done on computers as well. Scanning or digitising photographs further simplified this process, so they, too, could be edited and placed on the page electronically.

In 1998, Biagi also mentioned the prediction by The Newspaper Association of America and other newspaper analysts projecting few advances in the future. One

of the advances is that reporters in the field would be able to send more stories from portable computers through cellular telephones in their cars, without the need of a telephone line for their computer hook-up, and that photographers will be using video and digital cameras. Scanlan (2000) also stated that compared to earlier generation today's journalists have an array of tools to choose from. It is important that it is not the tool but the way it is utilised that makes the difference. For example, journalists of *Verdens Gang*, a Norway's newspaper, are using mobile phones, reader blogs, and other forms of interactivity to strengthen its journalism, reader relationships, and to create new, profitable media platforms (Hansen, 2006). Garrison (2001) in his study that aimed to examine the spread of online information technologies within USA daily newspaper newsrooms over a six-year period beginning 1994, found that the use of interactive information-gathering technologies in newsrooms had reached a critical mass for: (i) general computer use, (ii) online research in newsroom, (iii) non-specialist content searching, and (iv) daily frequency of online use. Garrison's study, which is based on Diffusion Theory, provided an insight into use patterns and does not reveal much about diffusion. To succeed in the new generation of newsrooms, reporters need to master a range of new technical skills that the seasoned reporters of today never had to learn. Those skills include new ways of gathering information, such as building computer spreadsheets, mining online databases, searching the internet, and e-mail and chat programs for collaboration, and interviews. They will use laptop computers, satellite telephones, wireless internet connections, geographic positioning systems and digital cameras (Itule & Anderson, 2000). This assumption has become a reality today, and the adoption of new newsroom technologies and changes that follow are not confined to the print media only.

In the media industry, the experience of adopting new technology is divided into two environments: (i) pre-computer mediated communication era, and (ii) computer-mediated communication era. Although this environment was developed almost two decades ago, it is still relevant even though we are presented with the existence of AI platforms, Internet of Things (IoT), and social media. Pre-computer mediated communication era refers to an era where the media industry used non-analogue tools or devices for news gathering, processing and production of output for the audience. Among them was the typewriter and normal static phone for journalists to produce news material, and for editors to edit materials produced by their staff. Meanwhile in a computer-mediated communication world, all the processes of the media industry totally depend on the digital medium. But according to Aldrich (2000), all transformations are time-dependent historical processes. To gain full appreciation of their significance, organisational

transformations must therefore be placed within their historical context. Mass media evolves because people from all walks of life need help to understand the world around them.

### **TECHNOLOGICAL CHANGES ADOPTION AND CONTRIBUTING FACTORS**

A change or changes could be caused by either internal or external factors or sometimes both. Internal factors include activities that are initiated by all levels of employees, especially by their management or the company's leadership to implement new technology and bring about changes in their operations and in the way of doing business. On the other hand, external factors include activities brought about by competitors, stockholders, laws and regulations, socio-economic situation, natural occurrences, and general economic conditions. The introduction of IoT based facilities and innovations will cause and bring changes in the organisation and among their stakeholders. Of course, before the introduction of IoT, or in other words, before the emergence of computerised systems in the 1970s in developed countries and late 1980s in Malaysia, the management or leadership also implemented programs to change their working system and environment according to the new technologies available at that time. For example, before the 1940s, journalists in Malaysia, produced news stories by writing them on carbonised papers (and, need to have multiple copies) and forward them to their supervisor or editors for the purpose of editing. This scenario was changed since the end of 1940s after typewriters as typing tools were introduced, especially in the case of *Utusan Melayu* where the company provided a 'soft loan' for their staff to buy typewriters to improve and enhance news writing skills.

The availability of new tools for journalists improved gradually until today encompassing all levels of activities – information gathering, news writing and news editing. If previously journalists have no other choices but needed to go out of the office to gather information, nowadays they are able to complete their tasks and responsibilities from their office with the contribution of latest innovations, including smart working ways of gathering information via social media, for example via FB streaming, and with the help of other social media platforms. Technological advancement and innovations also have created a new generation of reporters – the mobile journalists – although they move around less than before (Northrup, 2005; Pascual, 2005). Apart from that we also have witnessed the emergence of desktop reporters. Improving an organisational process through the implementation of a new system requires changing the activities and tasks related

to the process. Often this means changing the way individuals, groups, and the enterprise work as seen in today's organisational process.

The traditional and centralised organisations are now simplifying and redesigning their operations and services with the aim to radically reduce the costs of business. In other words, business reengineering refers to the redesign of business processes, combining steps to cut waste and eliminating repetitive, paper-intensive tasks in order to improve cost, quality, and service and to maximise the benefits of information technology (IT) (Laudon & Laudon, 1997). Organisations are focusing on developing new IS where they can perform business reengineering. Thus, everyone is hoping that organisation structure would change because IT reduces the cost of coordination while increasing its speed and quality.

As stated earlier, changes in any organisation regardless of the size, is a constant process whether society wants it or not. It usually means something different, a better way of doing work and doing things (Kent, 2001). The conditions or forces that contribute to the changes are not under the control of a specific business organisation. Nor can the organisation control all the factors and internal variables as the change begins to happen. Based on the view shared by Stair and Reynolds (1998) on the Change Model, changes that taking place in an organisation, is contributed by ICT implementation. Although their explanation focuses on an ICT environment, it is still appropriate to use this view to describe the change process that occurs since pre-computer mediated communication. The changes are a process that occurs continuously regardless of an ICT or non-ICT environment and is contributed by internal and external factors. Based on their arguments, changing is a process consisting of sensing, assessing, planning, inventing, implementing, monitoring, adjusting, reassessing, and so forth. The Change Model includes indicators for both external and internal "drivers of change". External drivers include such things as product innovation, the competition, government (such as policies and funding), or industry changes like globalisation. Commitment alone does not guarantee success; the lack of commitment will almost surely increase the probability of failure. External forces could create a condition for the change to take place. Internal drivers include factors such as the introduction of new technology, the character/talent/morale of the workforce, interdepartmental relations, the leadership style of the new president, communication activities, the acquisition of a company or merger with another company, etc.

## IMPACT OF NON-TECHNOLOGICAL FACTORS ON JOURNALISM PRACTICES

It is also important to examine the role of other factors such as global trends and socio-political environment either at the local and international level including globalization of news media, political and economic factors (Fradgley & Niebauer, 1995; Majid & Boudreau, 1995; Obijiofor & Green, 2001; Picard, 2004; McQuail, 2005). According to Paneth (1983), the new languages of communication, social needs, the continuing struggle to keep the press free, the growth of information and sources, computerised systems indicate that journalism practices is likely to change as much in the future as it has in the past (p. 239). Malaysia inherited its newspaper system from the British (Mohd. Safar, 1996), including laws enacted by the British. Mohd. Safar stated that the capital of main newspapers in Malaysia such as the *New Starits Times*, *Berita Harian*, *Utusan Malaysia*, and *The Star* is controlled by political parties or companies close to the government. For example, the first attempt took place in 1961 when United Malay National Organisation (UMNO), one of the main political parties in Malaysia, bought over shares in *Utusan Malaysia*. On the other hand, certain vernacular dailies, such as *Tamil Nesan* (established in 1924 and ceased operation in 2019), *Malaysian Nanban* and *Makkal Osai* were owned by family members of politicians and their associates. Most of the mainstream newspapers have 'close relations' with ruling parties in Malaysia, but there also a few newspapers that operate independently such as the *Oriental Daily*, which is now only available online. Apart from political factors, social factors such as racial uncertainties also contributed to the government control of the press system in Malaysia. For example, after the 13 May racial riots, where massive revamp was experienced in the socio-political arena, including the introduction of news policies and regulations that only allowed a 20 percent share to be held by foreigners in local media companies. Other rules and regulations either media-direct or media-indirect laws were introduced subsequently when the need arose.

In his study, Holst (2006), "even though ICT can exist without freedom of expression, information and communication, limitations in these fields result in a competitive disadvantage" (p. 48). He further said that in the Malaysian context, the media system and policy is more complex than in fully authoritarian states where it is evident what can be printed and transmitted and what not. As Holst said, Malaysia does not have a censorship agency that controls newspapers on a daily basis or television news before transmission. Almost all major television stations and publishers are directly and indirectly owned by the central government ruling coalition (this dominance lasted until the 14th general election in 2018).

Apart from that, a code of ethics for journalists were also formulated and implemented since 1980s, and the revised code, that consists of six main principles was launched by MADANI Government in February 2024. Although some claimed that mass media in Malaysia, especially the mainstream newspapers, radio and television stations are controlled by the government, and has close ties with ruling party, but others felt differently. One of the noteworthy aspects of the Malaysian mass media system, especially among the print media is that there are various language newspapers available. Culturally this is one of the main differences in the newspaper industry, and the cultural and economic aspects also might influence the adoption and implementation of new technologies. McQuail (2005) argued the current dynamics of media industries, especially the trends toward expansion, diversification and convergence of media mainly on the basis of new technology and new economic opportunities. In explaining non-technological factors, he proposed three questions (p. 219-220):

- i. What are the likely consequences of media concentration and can the trends indicated be managed on behalf of public interest?
- ii. What are the consequences of media internalization for media and society?
- iii. How far are changes in media being driven by technology and how far by economic or politics?

Based on his third question, the changes in media including the journalism practices (as the focus of this study) are driven by many factors – technology, economic and politics. The politics and economic factors (such as ownership and advertisers' pressure, state laws and regulations) that McQuail mentioned also relates to the Political Economic Theory, which influences the media organisations' operation. Thus, although McQuail didn't stress on journalism practices per se in his argument, it is important to cross-examine the non-technological factors to answer the main of this writing.

## **METHODOLOGY**

In order to achieve the objectives of the study, the researcher used qualitative approach as it is more suitable to generate data by examining human behaviour or their experiences (Stewart, 2002). The naturalistic behaviour or experiences are related to technological innovation adoption and its impact on journalism practices. According to Iorio (2004, p. 14) using qualitative methods in journalism is not difficult, and the advantage is that it brings the reader and viewer into the settings. In qualitative research, some researchers used the term data collection, while others

labelled it as data gathering or data making process. Morse and Richards (2002) said that in qualitative research, data is made rather than merely collected. Throughout the study, the researcher used the term data generation process – the term that was introduced by Mason (1996) as a process of collecting and making data via an in-depth interview, document analysis, and observation. Another important aspect of this study was conducted using three methods – an in-depth interview, observation, and document analysis (covered a period of around 200 years) – to generate data that is needed. Location of this study relied very much on the research questions and objectives of the study. Thus, in-depth interview sessions were conducted at various places according to the convenience of informants. Some informants also gave their interviews according to researcher's convenience and time. Most of the interview sessions were held at the informants' working place, while a few of them at their homes, hotels or restaurants. As one of the informants was stationed in Ipoh, Perak, the interview was conducted there. A total of 24 informants voluntarily participated in the in-depth interview sessions. The information includes details about the place, time, duration and frequency they were interviewed. On the other hand, the researcher made observations at the offices of all four entities that were involved in this study. The researcher personally attended to the observation sessions. Meanwhile, to generate data from documents, the researcher visited the libraries of the New Straits Times Group, Utusan Group, Nanyang Press Holdings and Tamil Nesan. Furthermore, the researcher also made visits to the National Archive of Malaysia. In addition, individuals who had personal collections such as diaries, books and anniversary publications were approached in order to get particular materials. Some of them were in the Klang Valley and others in Penang Island, located north of Peninsular Malaysia. The in-depth interview session is the main method while document analysis and observation are supporting methods.

### **TECHNOLOGICAL INNOVATIONS AND ITS IMPACT ON JOURNALISM PRACTICES – A COLLECTIVE FINDINGS**

The continuous adoption of new technologies since before the independence era proved that the entire media organisations recorded various changes in terms of technology adoption in the last five decades. It needs to be stated that adoption, changes and impact in the last five decades were closely connected with the environment before 1957, and to other related activities like pre-production and production etc. For example, the media organisations' investment in adoption and implementation of new technologies has been a continuous process since their inception. Furthermore, they also invested and were interested in having the latest

or advance printing technologies. This was the focus since before the 1950s and the adoption of printing facilities were also interrelated with other upstream activities such as news gathering, news writing and content development.

In terms of changes, it is clear that media organisations faced and experienced a lot of developments during the time frame of the study. First, the adoption and changes were divided into two periods: pre-computer mediated communication era and computer-mediated communication era. By dividing into these two eras, the study gave a general picture about the tools and facilities that were used and being used by journalists and newspaper organisations in Malaysia. However, further analysis allowed myself to summarise the adoption and subsequent changes into the following themes: faster and greater speed of editorial process, drastic changes in editorial process, from limited to enriched facilities, changes in roles and responsibilities, digital and online editorial process, remote editorial activities and process, comfortable and convenient working environment, online and desktop publications, new editorial products, change in upstream and downstream process, shortening the process and stages of activities, more news and more editions and language constraints and problems. These themes also indicated that changes occurred in a gradual manner during the pre-computer mediated communication, but the changes were more drastic and moved faster in the ICT environment, especially since mid of 1990s. Thus, the adoption and changes are a continuous process.

Various factors played respective vital role in determining why newspaper organisations and journalists embraced new technologies from time to time or in their respective era. In short there are at least 10 factors: management leadership and company policy, fulfil journalists' needs, to face competition, socio-economic status, education and peers influence, worldwide trends, influence of external stakeholders, role of the government and their policy, availability of the latest technologies in the market, and to cater and fulfil audience's needs. No single factor that contributed to the adoption changes; rather it was influenced by more than one factor or collective reasons. Among these, the management leadership and policy, availability of new technologies and worldwide trends in the market from time to time were the three main factors considered most vital.

Although there is clear indication of the changes that resulted by from technological adoption and factors that influenced adoption, but the opposite was true in terms of impact on journalism practices. Nobody could deny the impact or the level of impact on journalism practices but the informants shared a mixture of

feelings and opinions. Some of the informants said that there was no strong impact on newspaper journalism practices and others felt that journalism practices only faced minor impact. It is clear that the newspaper organisations and journalists felt both positive and negative impacts. However, it is important to state that we could witness improvement in productivity and creativity, news presentation, challenges on accuracy and credibility, new working environment, multitasking editorial activities, fast journalism and faster delivery, journalism principles remained, standard of journalism, interaction level, productivity level, less mistakes and errors, and changes in perception.

In the last five decades, all the four oldest newspaper organisations that were examined showed some similarities and differences. Some organisations especially the English and Chinese media seem to be more advanced than other language newspapers at certain periods in time and in certain areas. The Malay and Tamil newspaper followed subsequently. At the beginning of the post-independence era, English dailies especially the *New Straits Times* (in those day the *Straits Times*) was more advanced than the Chinese dailies. But in the 1980s, the Chinese dailies turned out to be more advanced in providing supportive editorial tools and facilities to their journalists but the English dailies were equipped better in terms of printing tools.

During the computer-mediated communication era, the English and Chinese dailies were still ahead compared to the Malay and Tamil newspaper organisations. They embraced multimedia journalism, which is one of the great impacts of the ICT era, faster than others. Although the New Straits Times Group is the oldest newspaper organisation in this country, they were not the most advanced in this area. However, in the first quarter of 2009, the New Straits Times Group took the initiative to launch their real-time web coverage and NSTLive interaction with the readers. Generally, all media organisations examined had one clear and dynamic similarity: they adopted new technologies that were available for them and continuously met the changes and went through different levels of impact.

## **DISCUSSION**

It is very clear and precise that the newspaper industry in Malaysia had undergone dramatic changes in terms of technological innovations adoption and implementation of new tools and systems that facilitates their daily operations. Over the past two centuries, the newspaper industry in Malaysia has continuously used new technologies, including smart platforms and AI, which are widely discussed at

all levels of journalism, in serving the best and highest quality written material to remain relevant. In order to operate dynamically and fulfil their functions and roles, and to cater audience's needs and preference, the newspapers in Malaysia, regardless of size, format, language and editorial policy, adopted new technologies as a continuous process. As mentioned by Marjoribanks (2000) based on his research on newspaper organisations in Australia, Britain and United States of America (USA), all of the newspapers analysed had undertaken extensive programs of technological innovation and workplace reorganisation since 1970 and new technologies were introduced in each instance.

A similar situation was also experienced by newspaper organisations in Malaysia. Malaysia is a unique nation. Each newspaper's operational growth was in tandem with the development of technological innovations, telecommunications and transport system. Findings clearly shows that each newspaper in the country had undergone changes in terms of tools the organisations and their journalists used, the level of physical changes, and their impact on journalism practices. The English and Chinese language newspapers in Malaysia are more advanced in terms of technological adoption and implementation. They are far ahead since the early days in order to compete in a challenging market. On the other hand, the Malay language newspapers are slightly behind the English and Chinese newspapers.

The English and Chinese newspaper organisations have always been far ahead in adopting and implementing new technologies. For example, as mentioned by the informants including those from the English news organisations, Chinese newspapers adopted modern technologies such as the facsimile and hand phone facilities earlier than the others. Between both language newspapers, it is very difficult to say whether it is the English or the Chinese newspapers which is advanced. However, what is clear is that the English newspaper organisations are more advanced in terms of using modern printing technologies from the beginning while the Chinese newspaper organisations are better from the perspective of adopting editorial operation equipment especially the tools needed by the reporters to carry out their tasks and responsibilities. Although both English and Chinese newspaper organisations were far ahead than Malay and Tamil language newspaper organisations since the end of 1980 to the mid of 1990s, English newspapers emerged the more dynamic in terms of adoption and implementation of new technologies compared to the Chinese newspapers.

It is clear that current journalists have the opportunity to access information online either by using their respective organisation's online system or the system that their

company subscribes or other search engines or information databases. In the era of pre-computer-mediated communication, journalists were 'forced' to flip through piles of newspaper or magazine clippings. They had no other choices, but to go through a kind of 'hardship' if they want to collect or gather information to strengthen their writing and offer a quality product for their readers. The old generation of journalists only had traditional forms or 'one-way' channels, including having to present or appear physically at the source's place to gather information. They went through great difficulties to accomplish their duties and responsibilities. In more cases it would take a long time to get answers or feedback from their sources, thus leading to difficulties to meet their deadline. Today, journalists have access to better and advanced tools, system and platforms to gather information and producing news, and file in stories. In general, the space for news gathering and news writing processes are getting better and better from one era to another, and allows media organisations and journalists to offer their readers quality coverage.

On the methods of news coverage, in the late 1980s, the tools available for journalists were limited. Nothing more than a note taking book, analogue recorder, typewriter and fixed line telephone. Furthermore, typewriters were only available for journalists in the English and Malay language newspaper organisations. Some were only exposed to telefax and radiophoto which were used by photographers. However, today's reporters have various tools, both digital and analogue form. This enables them to work faster and at the same time increase their capacity of gathering information and writing news stories. The current generation of journalists use a mix of methods to cover news events and assignments. They can meet their news sources either face-to-face or by using new tools – from SMS or MMS, email to use of social media platforms such as WhatsApp, Tik Tok, X (Twitter), and Facebook – all-in-one system or platform.

Do journalists have better facilities to carry out their tasks and responsibilities currently? In general, the answer is, "Yes". Technology advancement allows journalists to have better communication tools. Another aspect is the comfortable and convenient elements in journalism practices in Malaysia. Technological innovations contributed to a better working environment for journalists at the editorial department. The findings also concluded that there are various factors contributing to the adoption of new technology tools and changes in newspaper journalism practices in Malaysia.

Technological innovation changes also contributed to the impact on journalism practices. But the big dilemma or question remain in front of us – whether

technological innovations really has brought an impact on the journalism practices in Malaysia. Findings show that the newspaper industry has experienced greater and positive impacts than negative. Among the impacts are enhancement in the productivity level. It also contributed towards creativity improvement, news format presentation, new media working environment, quality of news and quantity of news, new roles of journalists and multitasking elements, and credibility and integrity.

The technological innovations and new technologies including AI today only serves as a tool that providing supporting facilities to journalists at all levels of editorial operations and their organisations. As experienced by other industries, journalism in Malaysia also faced a similar scenario. Whether there is a positive or negative impact on journalism depends on how journalists utilised technologies and their skills, abilities and thinking. For example, the new tools and facilities only could help them to a certain stage. Asking good and quality questions in order to have valuable information and analysing them before writing news, editing them and developing quality and good content, is up to the individual reporter, editor, subeditor or photographer. This is also related to other aspects such as inaccuracy, misreporting or misquoting of sources. The nation has experienced a number of such cases in last two decades, including national flag issue, not only by traditional newspapers but among online news portals and websites. We have witnessed various classical example, for examples in the last one decade, how the new tools only play their roles as latest facility to help journalists and their organisation to improve the quality of news reporting and news (and newspaper) delivery. Including the AI assisted era we are facing currently. We should be able to enhance the quality of journalism practice if able to balance the use of technological innovations and personal ability of mind and thinking.

### **SUGGESTION FOR FUTURE STUDY**

The study was conducted to examine the impact of technological innovations on journalism practices in Malaysia since the country gained independence in 1957. The researcher applied a qualitative approach in order to generate data by focusing on the four oldest newspapers in the country. The entities selected represented the Chinese, English, Malay and Tamil languages. The study mainly focused on journalism practices: information news gathering, news writing and editing, and content development. The study also covered to some extent pre-press activities, which is part of newspaper production. Overall, the newspaper industry consists of various processes. They are editorial which includes news writing and image

development, production, marketing, promotion and other related aspects. But the study only focused on editorial activities and parts of production as both processes are closely related.

Thus, the researcher is of the opinion that it is better if future research focuses on the impact of technological innovation in production and printing processes. It is important because based on the findings on each of organisations, either Chinese, English, Malay or Tamil language newspapers as these organisations comprise editorial, production, printing and advertising departments or processes. All the organisations focused in improving their printing operations, so that their final product could reach the market on time. Some organisations already moved forward to avoid plate making process, but rather to send the page layouts straight to the machine for printing. They also established modern printing plants and upgraded their printing plant from time to time. The researcher believes that further study on technological innovations from the printing and production perspective would enhance and diversify knowledge in journalism field in Malaysia. Two entities studied ceased operations, and one of them reemerged after one year gap, and thus, further studies will give another perspective for the media industry.

As this study only focused on the qualitative approach, future studies should employ the quantitative approach to get views from reporters, editors and subeditors themselves. They are the main stakeholders in terms of technological innovations adoption and implementation. It is believed that the quantitative approach will give a bigger picture of adoption and implementation of new technologies. Since the industry has witnessed various rapid changes – in term of ownership, socioeconomic changes, and also technological innovations, and political landscape changes, continuous studies and researches are needed for us to understand better the impact on journalism practices.

## **CONCLUSION**

Changes in journalism practices evolve from time to time as new technology is available for the users, and in this case, it is for the newspaper industry in Malaysia and their staff. As stated by Ramendran (2007), technological innovation has not changed the basic role of the journalists. In the ICT era, the adoption and usage of new technologies have brought dramatic changes to journalism practices. It has brought positive and negative changes. It is interesting to share the view of Kovach and Rosenstiel (2001) who pointed out that the nature of the new technology is one of the three key forces causing the shift from journalism-connected to citizen-

building. Kovach and Rosenstiel also stated that journalism's function was not fundamentally changed by the digital age stating that the techniques may be different, but the underlying principles were the same.

As strongly shared by Aaditya (2024), we have to accept that technology has drastically transformed journalism, from the way journalists gather and report news to how audiences consume information. Aaditya added, "while these advancements have made journalism more accessible, faster, and visually engaging, they also come with challenges, particularly around credibility and the rise of misinformation." Thus, aspiring journalists should embrace latest digital tools, and using them to innovate and maintain the integrity of their work in an increasingly tech-driven world. The important point is that changes experienced so far will not stop here. It is a continuous process (McQuail, 2005). As described by Stephens (2007, p. 295), "the toys grow prettier and prettier, and the alphabet, paper, the printing press, electronic and broadcast communication, satellites, and computers has worked for us and on us, and each continues to practice its magic." Journalists, newspaper industry and journalism discipline in general, will be exposed to and will experience changes continuously.

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