

Literacy Studies Media Relations Studies on Digitalization and Artificial Intelligence on Company Reputation in the Digital Era in 2008-2019

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Abstract

All human activities are currently interconnected through many communication systems and technologies that are active in the global intensity of industry 4.0. Some technology-based disruptive companies will start and change the role of business in the context of the industrial revolution 4.0 by using social media such as Instagram or WhatsApp which do not require large funds as a scale of capital roles. This technological advancement emerged as a new communication system on information and engineering approaches that were oriented towards the future of the manufacturing industrial revolution 4.0 by involving Computer Information Technology (ICT). As the application of ICT to social life, for more than 10 years we have witnessed changes at all levels of society with new trends in consumer behavior and services accompanied by improvements in hardware and computer access. The ease of service and communication that is integrated by Industry 4.0 is based on mobile computing, cloud computing, and big data with the provision of services that can be accessed globally via the internet. The results show that as a development of the industrial 4.0 work concept, a positive image in this digital era can be concluded that media relations activities in the digital era are carried out by Public Relations practitioners by utilizing digital media such as the use of social media and the use of the organization's own website. The use of social media makes it easy for Public Relations practitioners to do public relations work, such as in disseminating and conveying information to the public. The role and activities of media relations itself in this digital era refers to information and communication technology that can integrate various applications, functions and content of digital media production by providing an efficient influence on interactivity between users. The technology group focuses more on those that have a significant impact on manufacturing, namely: (1) Data, computing power, and connectivity (wireless networks), (2) Analytics and Intelligence (artificial intelligence in objects (AI)), (3) Human-machine interaction (augmented reality (AR) solutions), (4) Digital to physical conversion.

Keywords: Public Relations, Big Data, Artificial Intelligence, Media Relations, Digitalization.

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INTRODUCTION

The continuity of public relations activities according to Urwick (1976), is part of the organizational management function related to mechanical management, dynamic management, and relationship management (Ruslan, 2017). In relation to relationship management, stakeholder theory explains that the process of building relationships is carried out by organizations with actors related to organizational operations (Kriyantono, 2014). One of the communication activities in the PR program that becomes the "spirit" of PR is media relations, which is an activity in establishing relations between PR and the mass media (Iriantara, 2011). This media relations activity aims to publish and publicize PR work programs through the mass media to facilitate

communication activities between PR and the public (Ruslan, 2017).

In particular, in providing information to gain public support and trust (Ardianto, 2014). For companies, the existence of the media according to Christensen and Cheney (2000) is one of the stakeholders related to company branding through visibility and legitimacy within the scope of corporate communication (Chouliaraki, 2014). This means that through visibility and legitimacy through the media, companies can position themselves and build an image in the public by including information and news through the media. This is the first step for PR in establishing a cooperative relationship between companies and the preparation of media agenda publications (Theaker, 2004). Dissemination or

publication in managing this information can work together through the press, print or electronic media or traditional media (Ruslan, 2017).

Public Relations, according to Kriyantono (2017), that told actually, the literal meaning of 'public relations' term is not the same as 'Humas' (society relations). The meaning of the word 'hubungan' is equal to 'relations' but 'masyarakat' (society) is different from 'public'. The term 'society' is too broad while the 'public' is only a part of the broader society. Public is only a group of people or groups in the society. The public does not have to be in a certain geographical area, does not have to know each other, and does not need to be bound by the same social norms, but, it is bound by common interests towards an issue and therefore the membership is temporary (Cutlip, Center, and Broom, 2011; Kriyantono, 2016a; Lattimore, Baskin, Heiman, and Toth, 2010; Seitel, 2001).

With the transformation of public relations from conventional to digital changes the company's public relations practice to be more efficient and practical, which explicitly requires new management and strategies to maintain the company's image and reputation in order to remain well created. As the presence of the internet and digital media in public relations work practices that provide work efficiency. PR needs to realize that with the internet, the public can access all press releases or news releases that are sent and accessed on the homepage on the company's website, on the other hand PR can also create mailing lists to distribute press releases via e-mail (Kriyantono, 2014). In the composition of PR in the digital era 4.0, the most involved aspect is the number of digital platforms and social media in reaching cyber communications related to online content management as a PR strategy in strengthening the company's image and reputation. By communicating with the public, the program will be in accordance with public needs and the public can respond to messages conveyed during a crisis by understanding what the public knows (cognitively), believes, and perceives the information it receives (Kriyantono, 2012).

In Indonesia, several large companies have started to transform by applying the latest technology, one of which is PT. Schneider Electric Manufacturing Batam (SEMB) and PT. Petrosea Tabang which is also the lighthouse for industry 4.0 in Indonesia. In the report of the Annual Meeting of The New Champions 2019 World Economic Forum, the company is one of the leaders of several world industries that are innovating digitalization 4.0. Cann (2019) explained that PT Petrosea became a service provider for the mining industry by directing optimal delivery, real-time monitoring using drone surveys and successfully increasing profits within 6 months, while PT Schneider Electric developed a spectrum of solutions based on

industry 4.0 by using the IIoT platform. who are part of the broad Schneider Electric community to reach customers and corporate partners by improving operations across the ecosystem.

According to Siswanto Sutojo (2004), a positive image and strong company reputation are part of the technical aspects of winning market competition by developing marketing strategies and effectiveness (Ardianto, 2014). The importance of the strength of the reputation and branding of this company can be obtained from the presence of digital media (Ringlsetter & Vizjak, 2003). Therefore, companies need media management with the aim of developing brands and branding images (Kochhan & Moutchnik, 2018). According to exposure from Kriyantono, Riani and Safitri (2017) that public relations is prioritized to Prior relational reputation on the public's perception of how the company has cared for the public in previous situations. If the company did not treat the public well on the other occasions, it has a bad prior relational reputation (Coombs, 2007a; Coombs, 2007b). Coombs (2007a, p. 3) called the prior relational reputation "distinctiveness". From the description above, it is obvious that this theory is closely linked to Weiner's Theory of Attribution (Choi & Lin, 2009; Coombs, 2007a; Coombs, 2007b; Jeong, 2009) which states that a person tends to seek the information about the causes of a negative and unexpected event (Kriyantono, R., Riani, Y. A., & Safitri, R. I., 2017).

In the academic literature it is stated that public relations has the function of carrying out information services, namely "management of communication between organizations and their publics" (Grunig & Hunt, 1984, in Kriyantono, 2019). Academic opinion above is also written in the regulations on public relations from the government. Regulation of the Minister of Administrative Reforms Bureaucratic Reform No 30 and 31 of 2011 states that Public Relations of the government is management in the field of information and communication in government institutions. PR is more than just forming the desired institutional image, but also carrying out the function of public services. As emphasized in excellence theory, professional public relations focuses on achieving success between the organizations represented by the public relations and the community served (Cutlip, Center, & Broom, 2011, in Kriyantono, 2019). Fragmentation and communication media channels in this company can be done through various mobile devices (Sandra & Karmasin, 2013). Through digital media, companies indirectly provide participation and interactivity for anyone, including producers and consumers (Harlow & Harp, 2007). For this reason, companies and organizations need to maintain communication relationships in building companies with the internal environment (internal relations), the environment for investors (investor relations), the media (media relations), the government

as regulator (government relations) and also the community (community relations) (Primayanti, 2017).

From this explanation, it is in line with the vision and mission of the Ministry of Industry of the Republic of Indonesia (Kemenperin) which designed the strategy in the roadmap with Making Indonesia 4.0. Airlangga Hartarto explained that there is a strategy and a big leap for the industry by utilizing information and communication technology to give birth to a new business model with a digital basis in order to achieve high efficiency and better product quality (Ministry of Industry of the Republic of Indonesia, 2018). Minister of State-Owned Enterprises (BUMN), Erick Thohir, also said that several state-owned companies will now transform into companies that optimize the empowerment of digital technology 4.0 systems by building partnerships with Microsoft. Microsoft will provide learning programs for PLN and Pertamina in implementing and exploring digital technology to develop human resources and modernize data center infrastructure development via the cloud, re-architect applications, and assess data assets (Andrianto, 2020).

According to Azhary, S., & Kriyantono, R. (2018), Internet presence should be considered by public relations practitioners to serve as media important in interacting directly with stakeholders, including the public (White and Raman, 2000), because by reflecting on the history of technological determinism perspective (McLuhan, 1962), it can be seen that every innovation in technology communication brings the public closer to the world democratic one. The practice of public relations activities that using the internet then we are familiar with the term electronic public relations (e-pr) or cyber public relations or online public relations, namely PR practitioners who use or utilize the internet as a medium of publicity (Onggo, 2004). With using net relations, public relations can deliver messages directly to the public in the form of online writing to reach very broad public (Coombs, 2006). the internet that is often used by public relations is very varied, depending on their respective creativity. These facilities include features that: they embed in their organization's website (Wilcox and Cameron, 2009, Azhary, S., & Kriyantono, R., 2018).

In this regard, the author focuses on discussing the study on media relations management in the digital era for companies that have emerged in the industrial era 4.0, especially with the existence of an artificial intelligence system that is able to facilitate PR work. According to Kriyantono (2019) in aspect of Media Relations in Public Relations Practices that Research serves to provide empirical information in the field and not from subjective construction so that research becomes the most important source of inspiration for Public relations to design its communication programs to be targeted, including media relations programs

(Kriyantono, 2015). Media relations is very important to get optimal broadcasting from the media (Kriyantono, 2016), to find out public perceptions and analyze the effectiveness of planning, including sponsorships and community relations, and become the main opinion leader during a crisis (Jong, 2007). The importance of media relations is further emphasized by Ahmed (2006, p. 22, Kriyantono, 2019). This shows that with the digitalization of this technology, the author seeks to examine how the trend of digitalization of media 4.0 is used in corporate communication strategies in the Public Relations sector. The research was conducted using qualitative methods through literature studies from international and local journals that examine media relations in the digital era, especially in AI systems. As a study of the analysis of the technology industry in accordance with the field of Communication Science, in this case the author gives the topic " Literacy Study of Media Relations Studies on Digitalization and Artificial Intelligence in Journals - Journal of Public Relations Indonesia and International Year 2008 - 2019)"

LITERATURE REVIEW

Industrial Digital Revolution 4.0 and Public Relations Practices

The concept of digitization according to J. Scott Brennen and Daniel Kreiss is a way of restructured domains of social life leading to digital communication and media infrastructure (Bloomberg, 2018). In social life, this leads to interactions that shift from analog technology to digital technology (email, chat, social media). In business, digitization is the use of digital technology to change business models that provide digital business opportunities. In short, digitization is the concept and process of changing from analog to digital, including the development of information technology that provides convenience in human activities that are more efficient and practical. In relation to the practice of public relations, it will not be far to discuss corporate communication or corporate communication which is needed to carry out company performance or management through PR programs. Before discussing further about the implications of the concept of industry 4.0 and public relations, here the researcher will first describe the role of communication in the industrial era which then discusses the role of public relations in the industrial revolution 4.0.

Communication Science in Industry 4.0

The concept of the industrial revolution 4.0 began at the turn of the current century and was built on the digital revolution (Schwab, 2019). This phenomenon, according to Mosconi, (2015) was first mentioned in 2011 in Germany as a proposal for the development of a new concept of economic policy in a high-tech strategy (Roblek, 2016). In this case, the industry will revolutionize the organization of global value chains, with the existence of "smart factories". Smart factory that enables the creation of a global

visual and physical manufacturing system that works together flexibly (Schwab, 2019). This wave of innovation is driven by the Internet of Things (IoT), data, and services, which are related to network subjects and objects that can communicate in real time (Kagermann, 2015). In general, this trend appears as an increase in digitization and product interconnection in value chains and business models that are connected between people, objects and machines (Haefner & Panuwatwanich, 2018).

From a communication perspective, IoT and CPS are compositions that are highly dependent on mobile internet, which requires high internet-based telecommunications networks in industrial communications (Wollschlaeger *et al.*, 2017). With the advent of IoT and IoS, Spath *et al.* (2013) claim that the development and use of communication media within the company lies in Social Media, Social Web and Web 2.0 which will facilitate all communication activities (Bartodziej, 2017). Social media currently provides users with a new experience for the presence of products through internet integration in offerings that are able to validate, confirm and check products related to customer satisfaction as the company's product reputation (Jara, Parra, & Skarmeta, 2012). Some technology-based disruptive companies will start and change the role of business in the context of the industrial revolution 4.0 by using social media such as Instagram or WhatsApp which do not require large funds as a scale of capital roles (Schwab, 2019).

All human activities are currently interconnected through many communication systems and technologies that are active in the global intensity of Industry 4.0 (Marcon, 2017). This technological advancement emerged as a new communication system on information and engineering approaches that were oriented towards the future of the manufacturing industrial revolution 4.0 by involving Computer Information Technology (ICT) (Faheem, *et al.*, 2018). As the application of ICT in social life, for more than 10 years we have witnessed changes at all levels of society with new trends in consumer behavior and services accompanied by improvements in hardware and computer access (Igor & Juhasova Bohuslava, 2016).

Implications of the concept of industry 4.0 in Public Relations

In corporate governance, corporate communication is an important part of communication related activities with internal and external coordination (Lies, 2012). This leads to the role of Public Relations which is seen as the main component in corporate communication which acts as internal communication or referred to as internal PR, and also as marketing (communication) in an organization (Hauer, 2018). The purpose of corporate communication through the performance of Public Relations is to establish

relationships with the community in creating and improving the image of the organization (Kiesenbauer and Zerfass, 2015). Referring to the concept of industry 4.0, the role of corporate communication will not be far from the concept of digitalization with interconnection through CPS and IoT which provides convenience with flexible and real time communication through new PR tasks in implementing innovative PR tools (Hauer, 2018).

According to Wilcox and Cameron (2009), advances and innovations in this technology offer interesting opportunities for public relations practice, especially in the dedicated use of tools with intelligent skills. PR profession in the industrial era 4.0. according to Yuswohady (2019), experiencing technological disruption, an implication of industry 4.0 with the presence of big data and artificial intelligence (AI) which have been used to develop the quality and effectiveness of the PR function exponentially (Arief, 2019). Talking about AI, Galloway (2018) explained that the concept of AI in public relations relates to technology development systems that have a human-like appearance or character (humanoid) in their cognitive abilities and carry out PR activities independently or together with PR practitioners.

From research conducted by Stephen Waddington (2019), the industrial era 4.0 has implications for the role of PR in improving the decision-making process and influencing company productivity with an efficient timeframe through AI and big data technology. However, this technological sophistication cannot be replaced by human skills (soft skills) in adapting (adaptivity), creativity (creativity), emotional intelligence (emotional intelligence), and building relationships (relationship building) (Loupa, 2018).

Just like any PR campaign that uses URLs or hashtags in social media. According to Lynch (2018), this is the implementation of AI and big data in using algorithms that are able to manage data validly and allow PR in managing promotions as well as engagement with stakeholders and audiences on social media. This interconnection is able to improve the company's image through the components and roles of Public Relations, Media Relations and Corporate Marketing by involving the organization's external communication in the form of promotions that are carried out in real time (Hauer *et al.*, 2018).

Most experts state that the presence of AI in public relations practice is a combination of technology and human insight in increasing strategic thinking by synthesizing digital marketing concepts in companies (Lynch, 2018). This leads to changes in functions, systems, management and workflow processes in the PR industry (Panda, 2019). PR practitioners will change the concept of market orientation (marketing oriented)

as content related between companies and customers (Hauer et al, 2018). For example, for social media users, the concept of related content will help customers find the content they are looking for through social media by directing to the site and link to the related page. So that automatically the company is able to capture its own market share according to the content and media used.

Media Content Divergence in Public Relations Practices

The development of digital technology in the media or commonly referred to as media convergence in extracting information exchange is a process of change that occurs in the culture of society. In social culture, convergence occurs in the various communication styles of communicators in accommodating the content of the media used (Giles, 2016). In this context, the media are referred to as key drivers or the main driver in the integration of technology between cultural and commercial through the production and distribution of media content (Jenkins and Dauze, 2008). This creates a new experience in the use of new media through digital platforms related to media content and social interaction between the community and media companies (Jenkins, 2006). The development of this technology has changed the production of communication in distribution, delivery and storage by 90% in accessing real-time information through the internet and new media, especially in the use of social media and access to the World Wide Web (Cutlip, et al., 2016).

Referring to the classical theory from McLuhan, that the media is able to shape behavior and thoughts in managing information related to other people and give different influences in the characteristics of each media (Littlejohn and Foss, 2009). As is the case, the use of social media has become the development of communication media, especially for companies in accessing and selecting content according to the digital platform used. According to data from Hootsuite (2018) the most widely used and effective social media platforms in spreading the word are; Youtube 43%, Facebook 41%, WhatsApp 40% , Instagram 38% and Twitter 27% (Arief, 2019). Likewise for profit companies, research conducted by Facebook (2019) states that 69% of the audience in Southeast Asia knows and gets information through digital platforms through advertisements on posts on social media.

From some of these digital platforms, according to Cao (2014) criteria on social media allow the audience to choose different media; this picture becomes a process of data or content divergence from social media. Content on social media is in the form of digital information (audio visual) that is formed by users in the form of digital information (audio visual). According to John Battelle (2006), there are forms of media used by society today systems and services,

namely: (1) Packaged Goods Media, in which content is produced, packaged, and distributed through traditional (newspaper, cable, mail) and modern (internet) channels; (2) Conversational Media, which is referred to as performance media or media performance in companies using social media as consumer content (consumption content). Content in social media has become a very important thing in the company's needs, because it is able to provide the power to interact, control, create and distribute information (Daugherty, 2003).

For corporate communication to upload content on social media requires content settings according to the type of social media network. According to Arief (2019: 129-130) content management on corporate social media is intended as an understanding of the function of social media according to its objectives and characteristics. The content on this social media is informative, semi-formal, with a more friendly and professional communication style.

Company's Positive Image and Reputation in Public Relations

The ever-changing view of public relations reflects the evolution of public relations practice within organizations and society (Cutlip, 2016). In all types of organizations, both commercial and non-commercial in the public (government) and private (private) sectors, public relations is a form of communication in creating an understanding through knowledge and impactful activities (Jenkins, 2003). This public relations activity produces products that are very important for the sustainability of the organization, through public relations messages and the meaning of messages that can produce a positive meaning or image of the organization in the eyes of the public (Kriyantono, 2014).

In a company, image is an impression that the organization has in total that comes from the behavior, reputation and self-image of the public towards a company or organization that is created to have a positive value (Ardianto, 2004). In general, companies will form and implement corporate programs by shaping their image and reputation through the role of PR (Gray and Balmer, 1998). According to Nguyen and Leblanc (2001), the perception of the company's image and reputation is created from trust and positive interactions in regressing the level of customer loyalty to the company. To build the image itself, the company can start by determining and selecting community groups or target groups who have an important role in business success (profit making) and have a positive perception of the company by conducting market research (Ardianto, 2014).

Corporate image is a form of projection of a well-structured and positive corporate communication

program so that it develops into a reputation as a result of consistent and effective performance over time (Gray and Balmer, 1998). Through the role of PR, reputation in the business function is positioned in corporate communication, corporate affairs, corporate relations as a potential form of corporate identity (Hutton et al., 2001). A strong corporate reputation has the characteristics of a high level of visibility, a distinctive corporate identity, the value of corporate communication, corporate transparency, and organizational consistency in communicating internal and external messages (Cornelissen, 2013).

In the management function, public relations is considered as a professional who performs the role of a manager who uses research and dialogue to build healthy relationships with his publics in helping organizations to interact with social components (Kriyantono, 2014). The management function in public relations has the understanding that public relations plans, builds and maintains good and beneficial relationships between the organization and the public and can influence the success or failure of the organization (Cutlip, 2016). The planning system in PR itself is a form of planned communication, both internally and externally, between an organization and all its audiences in order to achieve specific goals (Jefkins, 2003).

The emergence of public support and understanding of the organization or company is bridged by work programs and PR activities that are managed by a PR function and structure within the organization's management (Ardianto, 2014). Organizational management in public relations represents an open systems approach rather than a closed and reactive systems approach (Cutlip, 2016). This is done so that the company works more optimally in achieving the formation of a positive image and a good reputation, of course also supported by the functions and structures of PR in the ranks of top management (Ardianto, 2014). In the concept of structuration, public relations is considered a dynamic form of communication and is seen as a process in supporting all levels of the organization to construct social reality in order to create shared meaning (Kriyantono, 2014). In external companies, public relations is considered as one of the communication functions that manages publicity, promotion, media relations, and supports company marketing (Grunig, 2008). Therefore, corporate communication managed by PR practitioners will relate to various external communication channels and media from the organization or company to communicate with customers (Balmer, 2006).

The Concept of Agenda Setting Theory in Media Relations

Media relations is closely related to the agenda setting model approach by looking at a number of issue

models or topics that receive media attention that are considered important in a certain period (Sambo, 2019). In the context of public relations, the concept of agenda setting discusses the process of determining the media agenda and public relations agenda (agenda building) (Kriyantono, 2014). In agenda building, PR practitioners will contribute by providing information subsidies to journalists through news releases, media advisories, press conferences, interviews and so on (Kiousis and Wu, 2008). This media production itself will respond to social and cultural developments which in turn are able to influence these developments (Littlejohn, 2011). The assumption of the agenda building concept views salience as a process that involves reciprocal relationships in influencing groups other than the media and public opinion such as policy makers, interest groups and corporate groups (Kiousis et al., 2007).

The expansion of the agenda setting theory discussion was then lifted from the assumption that public relations must be proactive in providing information and even influencing the media and public agenda with the aim of disseminating the organization's views on an issue including offering solutions that will be and are being implemented (Kriyantono, 2014). This is related to what Kurt Lang and Gladys Engel Lang (1959) explained that the mass media is able to impose attention on certain issues in building a public image by presenting objects that must be considered, known, and felt by individuals in society (Severin and Tankard, 2014).

In PR practice, the mass media has an important role because the mass media has the power to shape and influence public opinion, and its ability to transmit and reproduce messages quickly, simultaneously and can be reached by a large audience (Kriyantono, 2014). Understanding the power of the media in setting the agenda is important in the management of a PR communication strategy.

RESEARCH METHOD

In this qualitative research, the researcher examines by using the literature study method. This study is intended or carried out by utilizing library sources to obtain research data (Zed, 2014). Literature studies are related to theoretical studies and other references related to values, culture and norms that develop in the social situation under study (Sugiyono, 2016). In this case, the researcher conducted a literature study related to the topic of media relations in the digital era and artificial intelligence. Research using this literature study is the same as other research, but the sources and methods of data collection are by taking data from the library. In this study, researchers collected data sources from scientific articles from international and Indonesian journals. The method with this literature study is to collect data related to research

by reading, recording and processing research materials or data.

In this study, the researcher uses an interpretive paradigm that sees reality as a construction of understanding or interpreting social reality with a qualitative research type. with library research design. Research using an interpretive paradigm according to Deacon (1999) is a research that focuses on investigating how humans interpret social life by understanding language, sounds, imagery, personal style and social reality (Daymon & Holloway, 2011). The purpose of research with an interpretive paradigm is to seek an understanding of how we form meaning through interactions and how to behave towards meanings that have been formed (Ardianto, Anees, & Bambang, 2009). Through the interpretive paradigm, the reality in social life will adjust to the context that is considered relevant and can be understood in a variety of ways which is influenced by experience, context and time (Kriyantono, 2014b). In the interpretive paradigm, the conceptualization of qualitative research is a methodological approach that produces data logically and systematically either in the accumulation of knowledge (such as policies) or in those that have been determined (empirically) from an object of research (Thorne, 2016).

Furthermore, in this study using the type of qualitative research. Qualitative research is research that departs from social reality by knowing how complex information sources and methods are in presenting structured and natural data (Cresswell, 2010). The presentation of qualitative research data emphasizes the depth (quality) of the data, not the amount (quantity) of the data (Kriyantono, 2014). This is aimed at gaining in-depth knowledge with a holistic (whole) understanding of the object of research from a cultural, social or global scale perspective according to the reality that exists in society.

RESULT AND DISCUSSION

The Role of Media Relations in the Digital Age

The role of media relations in the digital era, researchers will present data about the transformation of public relations in the digital era, which is the basis for media relations activities carried out by PR in the digital era. In the explanation below, the researcher relates the digital era of PR 1.0, PR 2.0, PR 3.0 to PR 4.0 at this time.

Information data and research articles are clarified from scientific articles in international journals and local (Indonesian) journals. In international journals, researchers examine several publishers including Routledge, Emerald, Elsevier, Communication & Society/ Comunicación y Sociedad, Sage Publisher, and SCMS Journal of Indian Management. As for the Indonesian journals themselves, the researcher studied several publishers

including the Social Science Journal, the International Journal of Progressive Sciences and Technologies (IJPSAT), the Information and Communication Technology Journal, and a book entitled "Public Relations in the era of Artificial Intelligence". The literacy studies in these articles in this study analyze the themes that discuss media relations and public relations in companies in a digital context and their implementation in the concept of artificial intelligence and have been published in the period between 2008 and 2019, with a total of 15 articles.

Transformation of Corporate Public Relations in the Digital Age

Revolutions and changes in the era of globalization in the past few decades have had an impact on every channel of life. One of them is in the economic, social, and cultural fields, which in this case refers to the company's role in responding to dynamic changes. At the same time, the complexity of public relations as an important component of corporate communication has also undergone several changes. Before the existence of digital media connected to the internet, PR practitioners did all their work independently traditional and manual. As in news clippings, making press releases, or by distributing newsletters, were carried out by the company's PR staff by utilizing the current media such as television, radio, and newspapers. The form of communication in this phase describes one-way or vertical communication from one source of communication to many target audiences or one to many, so that PR 1.0 activity describes PR as a broadcaster (Arief, 2019).

Entering the disruptive era, the sophistication of communication technology is one of the challenges for PR practitioners in expanding their network. One of them is the presence of communication devices designed to reach a wider audience with the internet network. So that in practice there is a need for a new strategy based on the concept of cyber-PR as a dynamic communication component. The internet itself is a communication network that connects all devices such as computers in a wide and global network, although it is different from operating systems and machines (Ahmadi & Hermawan, 2013). The use of the internet in public relations activities is possible in establishing good relations to maintain public support, such as by spreading press releases or news releases through home page on the company's world wide web via the internet (Kriyantono, 2014). The concept of digitization has evolved to restructure digital communication systems and media infrastructure into social life, including business models. Digitization itself refers to the adoption in increasing the use of digital or computer technology for organizations and industries (Scott & Kreiss, 2016). On the same hand, digitalization is a process of forming between social structures and communication technologies that create networks in society (van Dijk, 2005).

For companies, this digitalization concept turns the market into a dynamic digital platform. This information civilization makes the product position a platform where all its power starts from data to become information and provide knowledge (Kasali, 2018). This information and knowledge will of course be disseminated and consumed by the public without limits. The same thing, in the explanation of Harlow & Harp (2013), states that the digital era provides easy internet access for consumers in spreading news using digital media. The existence of this digital media provides picture of horizontal communication, interconnected; communication from many sources to many audiences or many to many (Arief, 2019). It is also believed by the public that digital media provides a greater reach than print or radio media because it is seen as having the potential to become a more democratic alternative media (Harlow & Harp, 2013).

In the performance of public relations, the presence of digital media or online media is called by some experts as a form of PR 2.0 transformation. The roles, functions and tasks of PR 2.0 are switched as connectors between the audience and practitioners through online media or digital platforms (Arief, 2019). The dialogical, interactive, relational and global nature of online media is very suitable in strategic public relations management, although at the same time some traditional methods are still used in distributing newsletters and bulletins (Grunig, 2009). The use of digital media offers more opportunities and benefits for companies through the creation and dissemination of consumer-generated content to increase engagement and company credibility (Pearson, 2010). Digital media is also one of the ideal tools in filtering information such as in systems search in cyberspace just by entering keywords regarding issues or issues related to the company or organization (Grunig, 2009). Data and information relating to this company or organization becomes a form of metadata, the result of digital media. Metadata is a form of simplification of information produced in digital form related to systems and indexes for searching or storing digital data that are created and clarified by users (organizations) (Scott & Kreiss, 2016).

In the next period, PR transformed into PR 3.0 which in its performance has used social media in disseminating information. Social media this is the most widely used, most liked and trusted media by the public, so the task of PR is not only to monitor offline and online media but also social media (Arief, 2019). In addition, the presence of social media also provides access to strengthen media relations activities (Eyrich, Padman, & Sweetser, 2008). The use of this communication technology provides convenience in work and speeds up the circulation of information. With social media, the public is easier in carrying out social interactions in the communication component digital (Krishnamurthy, 2014). The existence of social media is

also considered as a middle ground or a middle ground in social networks that is able to send messages while strengthening relationships between users so that they are able to integrate widely in the industry as digital tools (Eyrich, Padman, & Sweetser, 2008). For example, the use of social media such as Facebook, Twitter, Instagram, YouTube, to blogs that become digital platforms.

Furthermore, at this stage, PR is referred to as PR 4.0, whose performance is supported by the sophistication of artificial intelligence (AI) systems and big data. This new development in analytical techniques using AI will help PR practitioners in a wider context of work (Galloway & Swiatek, 2018). AI itself is the ability of machines that use data algorithms to make decisions (systems) like what humans have done, for example the ability to think systems and act rationally like humans (Rouhiainen, 2018). AI is strategically a tool that can lighten PR work, so that anything else can be done, simply AI can make work easier by simplifying tasks such as in media coverage (Yaxley, 2018). Various tools can be utilized by PR as a function to simplify PR tasks such as in distributing releases to various media, managing corporate campaigns to managing analytical data using AI technology (Arief, 2019). In this era, new tools and new PR competencies will revolutionize PR work and practitioners must be able to adapt to technological trends in order to stay relevant.

The transformation of public relations related to technological developments and digitalization poses a challenge for PR practitioners to evolve in setting new strategies to gain reputation in the public. In the same way, technological developments and the 4.0 industrial revolution require understanding and information in the strategic management of organizations. As a comprehensive communication function and role, public relations are a communication management function to build relationships between organizations and their publics (Kriyantono, 2014a). This relationship involves two subsystems that is responsible for building relationships and ensure the internal functional role of the company or organization and build relationships in the external environment including with other organizations, the public and the media (Petrovici, 2014). In this regard, public relations today according to CIPR (The Chartered Institute of Public Relations) is about how the reputation of what is done, what is said, and what others say about the organization with the aim of gaining understanding and support and influencing opinions. and behavior between organizations and the public.

The Role of Media Relations in Digitalization and Artificial Intelligence

In the application of digitalization and artificial intelligence systems in public relations 4.0 activities, companies and organizations will adapt and

require implementation in strategic management. The application of digitization in the context of digital public relations leads to the use of social media, whose role is very much needed in connecting audiences and stakeholders. Management of social media for PR is an alternative in digital communication management, including current media relations activities. The relationship between PR and mainstream media in this digital era requires social effectiveness in utilizing digital tools or online tools. This is because several studies conducted by PEW Internet and the American Life Project show that the role of digital tools such as social media for companies can represent communication tools rather than business tools in general (Kent & Saffer, 2003).

Likewise in its scope with artificial systems intelligence, where AI is able to provide convenience in managing digital tools including social media. This is as explained by Panda (2019) in his research that:

AI has the potential to automate and perform various tasks such as writing data, organizing and updating media lists, assisting in crisis management converting and transcribing audio into text, following and predicting media trends and monitoring and managing social media.

From the explanation of the article, the effectiveness of AI in PR performance provides the potential to be able to work more easily and efficiently in managing social media. This effectiveness also plays a role in digital media relations activities, where AI is able to provide convenience in media monitoring activities. In research conducted by Galloway (2018), explaining AI technology is able to help organizations manage reputation and create engagement in monitoring media. Media monitoring activities themselves are carried out to evaluate PR activities in media relations activities. This AI capability is one of the interesting things in imitating human intelligence that is able to see a different world, so that AI is able to process and identify patterns and organizational data that affect reputation (Gourley, 2018).

The importance of reputation for companies and organizations is able to provide a great asset to survive and succeed. Reputation is able to make the company more prominent among the public and a competitive advantage. Effective PR in maintaining the company's reputation will create good communication in building relationships with all stakeholders, including investors, employees, customers, journalists and the government. The existence of positive relationships and interactions between the company and the public will create public opinion on the communication activities that have been carried out by the company through suggestions, views, comments that are freely given through social media. This social media activity is able

to spur help on interconnected offline activities (Harlow & Harp, 2013).

From his presentation, Justin Ellis & Alyce McGovern (2015), the use of digital media refers to information and communication technology that can integrate various applications, functions, and content of digital media production by providing an efficient influence on interactivity between digital media users. This digital media consists of web 2.0, web 3.0, mobile mobile and users who use computer devices and the use of social media. So that in its implementation the use of social media will bring the interaction between the public and companies closer so that it is necessary to regulate the content published through the media.

CONCLUSION

Based on the results of data presentation and discussion of research on media relations management in improving a positive image in this digital era, it can be concluded that media relations activities in the digital era are carried out by PR practitioners by utilizing digital media such as the use of social media and the use of the organization's own website. The use of social media makes it easy for PR practitioners to do public relations work, such as in disseminating and conveying information to the public. The role and activities of media relations itself in this digital era refers to information and communication technology that can integrate various applications, functions and content of digital media production by providing an efficient influence on interactivity between users. Furthermore, the strategies in media relations management in this digital era lead to the management of social media for PR and the media.

One alternative strategy in this activity is to utilize digital tools or online tools in social effectiveness in the digital era. As in the management of content on the organization's social media or the company itself, which can be referred to as owned media, which is intended as a disseminator of information internally and externally to the organization itself. The use of social media also requires content management to bring closer interactions between the public and companies.

RECOMMENDATION

Based on the results of the research that has been done, the researcher can convey several suggestions, that Looking at the limitations of the research, the researcher hopes that further research can be carried out with the same research theme and new trends. Then the researcher hopes that further research requires an evaluation in further research on media relations management in the digital era. So that in future research, we can study or to study more deeply related to the role and management of media relations in the digital era to new trends that follow the

advancement of information technology and the era of modernization.

For the Practical Advice that Researchers hope that in this digital era, the role of media relations in improving the company's positive image has positive implications for Public Relations practitioners and media crews. Especially in the current pandemic situation and conditions, the application of digital media in media relations activities can be maximized with digital tools such as the use of social media. So that it will make it easier for Public Relations performance in building relationships with the media as well as with the public and company stakeholders quickly and in real time.

REFERENCES

- Ahmadi, & Hermawan. (2013). *E-Business & E-Commerce*. Yogyakarta: Andi.
- Andrianto, F. (2020). Signing of Memorandum of Understanding between PLN, Pertamina and Microsoft. Jakarta: Ministry of SOEs. Retrieved from <https://bumn.go.id/media/press-conference/signatanganan-nota-kesempah-antara-pln-pertamina-dan-microsoft-q4>
- Ardianto, E. (2014). *Handbook of Public Relations (Comprehensive Introduction)*. Bandung: Symbiosis Rekatama Media.
- Ardianto, E. (2014). *Public Relations (Comprehensive Introduction)*. Bandung: Symbiosis Rekatama Media.
- Ardianto, E., Anees, Q., & Bambang. (2009). *Philosophy of Communication Science*. Bandung: Symbiosis Rekatama Media.
- Arief, N. (2019). *Public Relations In The Era of Artificial Intelligence*. Bandung: Symbiosis Rekatama Media.
- Azhary, S., & Kriyantono, R. (2018). Understanding of Public Relation Officer towards Transparency and Accountability of Information in Online Public Relation Implementation in Public Institutions. *Pekommas*, 3(2), 267628.
- Bartodziej, C. J. (2017). *The Concept Industry 4.0 An Empirical Analysis of Technologies and Applications Production Logistics*. Berlin, Germany: Springer Gabler.
- Bayles, S. (2015). What value do paid media hold for the PR industry? In S. Hall (Ed.), *FutureProof: The go-to guide*. London, UK: Sarah Hall Consulting.
- Bloomberg, J. (2018). Digitization, Digitalization, And Digital Transformation: Confuse Them At Your Peril. *Forbes Media*. Retrieved from <https://www.forbes.com/sites/jasonbloomberg/2018/04/29/digitization-digitalization-and-digital-transformation-confus-them-at-your-peril/#4640c0172f2c>
- Breakenridge, D. (2009). *PR 2.0: New Media, New Tools, New Audiences*. Upper Saddle River, NJ: Pearson.
- Bughin, J. E., Ramaswamy, S., Cui, M., Allas, T., Dahlström, P., Henke, N., & Trench, M. (2017). *How Artificial Intelligence Can Deliver Real Value to Companies*. McKinsey & Company. Retrieved from <https://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/how-artificial-intelligence-can-deliver-real-value-to-companies>
- Bughin, J., Chui, M., & Harrysson, M. (2015). *Transforming The Business Through Social Tools*. McKinsey and Company. Retrieved from <https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/transforming-the-business-through-social-tools>
- Cann, O. (2019). *Scaling Intelligent Manufacturing: 10 Factories Leading the Way in Innovation*. China: World Economic Forum. Retrieved from <https://www.weforum.org/press/2019/07/scaling-intelligent-manufacturing-10-factories-leading-the-way-in-innovation/>
- Cao, N., Lu, L., Lin, Y.-R., Wang, F., & Wen, Z. (2014). SocialHelix: Visual Analysis of Sentiment Divergence in Social Media. *Journal of Visualization*, 221-235. doi:10.1007/s12650-014-0246-x
- Cho, S. (2006). The Power of Public Relations in Media Relations: A National Survey of Health PR Practitioners. *Journalism and Mass Communication Quarterly*, 563-580.
- Chouliaraki, L. A. (2014). *Media, Organizations and Identity*. New York: Palgrave Macmillan.
- Cohen, S., Dengate, J., Morrell, L., & Lee, K. (2015). The Media and Protected Areas. In G. L. Worboys, M. Lockwood, & A. Kothari, *Protected Area Governance and Management* (pp. 441-472). Canberra: ANU Press. Retrieved from <https://www.jstor.org/stable/j.ctt1657v5d.22>
- Cresswell, J. (2010). *Research Design Qualitative, Quantitative, and Approaches Mixed*. Yogyakarta: Student Library.
- Cutlip, S. M. (2016). *Effective Public Relations*, 9th edition. Jakarta: Kencana.
- Daugherty, P., Carrel, B., & Biltz, M. (2018). *Intelligent Enterprise Unleashed*. Accenture Technology Vision.
- Daymon, C., & Holloway, I. (2011). *Qualitative Research Methods in Public Relations and Marketing Communications*. USA and Canada: Routledge.
- Dramastuti, R. (2012). *Media Relations, Concepts, Strategies & Applications*. Andi: Yogyakarta.
- Drones and an algorithm. *Agenda*. Retrieved from <https://www.weforum.org/agenda/2018/06/this-ai->

is-learning-to-recognize-ocean-plastic-using-drone-photos.

- Elisawati, V. (2019, July 03). Era 4.0, the role of PR is increasingly vital for institutions. Jakarta: PR Indonesia. Retrieved from <https://www.prindonesia.co/detail/1228/Era-40-Peran-PR-Makin-Vital-bagi-Institut>
- Ellis, J., & McGovern, A. (2015). The End of Symbiosis? Australia Police– Media Relations in The Digital Age. *Policing and Society*, 1-20. Retrieved from <http://dx.doi.org/10.1080/10439463.2015.1016942>
- Eyrich, N., Padman, M. L., & Sweetser, K. D. (2008). PR Practitioners' Use of Social Media Tools and Communication Technology. *Public Relations Review*, 412–414. doi:10.1016/j.pubrev.2008.09.010
- Faheem, M., Shah, S., Butt, R., Raza, B., Anwar, M., & Ashraf, M. (2018). Smart grid communication and information technologies in the perspective of Industry 4.0: Opportunities and challenges. *Computer Science Review*, 1-30.
- Galloway, C., & Swiatek, L. (2018). Public Relations and Artificial Intelligence: It's Not (Just) about. *Public Relations Review*, 1-7. Retrieved from <https://doi.org/10.1016/j.pubrev.2018.10.008>
- Gourley, S. (2018). This is How AI Can Help You Make Sense of The World. *World Economic Forum*. Retrieved from <https://www.weforum.org/agenda/2018/06/this-is-how-ai-can-help-you-make-sense-of-the-world>.
- Gray, E. R., & Balmer, J. M. (1998). Managing Corporate Image and Corporate Reputation. *Long Range Planning*, 695-702.
- Grunig, J. E. (2009). Paradigms of Global Public Relations in an Age of Digitalisation. *PRism*, 1-19.
- Haeffner, M., & Panuwatwanich, K. (2018). Perceived Impacts of Industry 4.0 on Manufacturing Industry and Its Workforce: Case of Germany. In S. ahin, 8th International Conference on Engineering, Project, and Product Management (EPPM 2017) (pp. 199-208). Springer International Publishing.
- Harlow, S., & Harp, D. (2013). Alternative media in a digital era: Comparing news and information use among activists in the United States and Latin America. *Communication&Society/Comunicación y Sociedad*, 26(4), 25-51.
- Harris, B. (2018). The latest weapons in the fight against ocean plastic?
- Hasan, M. I. (2002). *Main Materials of Research Methodology and Its Applications*. Bogor: Ghalia.
- Hauer, G., & Patrick Harte, J. K. (2018). An Exploration of the Impact of Industry 4.0 Approach on Corporate Communication in the German Manufacturing Industry. *int. J Soup. Chains. Mgt*, 125-131.
- Hinson, D. K., & Wright, M. D. (2008). How Blogs and Social Media are Changing Public Relations and the Way it is practiced. *Blogs & Social Media Public Relations Journal*, 2(2), 1-21.
- Howard, C. M., & Mathews, W. K. (2013). *On Deadline: Managing Media Relations, Fifth Edition* 5th Edition. United States of America: Waveland Press.
- Igor, H., & Juhasova Bohuslava, J. M. (2016). Proposal of communication standardization of industrial networks in Industry 4.0. 20th Jubilee IEEE International Conference on Intelligent Engineering Systems (pp. 119-123). Budapest, Hungary: IEEE.
- Iriantara, Y. (2011). *Media relations; Concepts, Approaches and Practices*. Bandung: Symbiosis Rekatama Media.
- Jara, A. J., Parra, M. C., & Skarmeta, A. F. (2012). Marketing 4.0: A new value added to the Marketing through the Internet of Things. Sixth International Conference on Innovative Mobile and Internet Services in Ubiquitous Computing, 852-857. doi:10.1109/IMIS.2012.203
- Jenkins, H. (2006). *Convergence Culture: Where Old and New Media Collide*. New York, USA: New York University Press.
- Kagermann, H. (2015). Change through Digitization—Value. In H. M. Horst Albach, *Management of Permanent* (pp. 23-44). Berlin-Germany: Springer.
- Kasali, R. (2018). *The Great Shifting Series of Disruption*. Jakarta: Gramedia Pustaka Utama.
- Kaul, V. (2013). Plugging In: New PR Technologies. *SCMS Journal of Indian Management*, 33-53.
- Kent, M. L., & Saffer, A. J. (2014). A Delphi Study of The Future of New Technology Research in Public Relations. *Public Relations Review*, 1-9. Retrieved from <http://dx.doi.org/10.1016/j.pubrev.2014.02.008>
- Khodarami, E. (2009). Media relations. *Disaster Prevention and Management*, Vol. 18 No. 5, 535-540. doi:10.1108/09653560911003732
- Kiesenbauera, J., & Zerfassa, A. (2015). Today's and Tomorrow's Challenges in Public Relations: Comparing The Views of Chief Communication Officers and Next Generation Leaders. *Public Relations Review*, 1-13. Retrieved from <http://dx.doi.org/10.1016/j.pubrev.2015.05.013>
- Kochhan, C., & Moutchnik, A. (2018). *Media Management*. Wiesbaden, Germany: Springer Gabler. Retrieved from <https://doi.org/10.1007/978-3-658-23297-9>
- Koslow, S., Sasser, S. L., & Riordan, E. A. (2003). What is Creative to whom and Why? Perceptions in advertising agencies. *Journal of Advertising Research*, 96-110.
- Kriyantono, R. (2012). Measuring a company reputation in a crisis situation: An ethnography approach on the situational crisis communication

- theory. *International Journal of Business and Social Science*, 3(9).
- Kriyantono, R. (2012). The situational theory of the publics in an ethnography research: Identifying public response to crisis management. *International Journal of Business and Social Science*, 3(20).
 - Kriyantono, R. (2014). *Practical Techniques of Communication Research*. Jakarta: Kencana.
 - Kriyantono, R. (2014). *Western and Local Public Relations (Research and Practice Applications)*. Jakarta: Kencana.
 - Kriyantono, R. (2017). Do the different terms affect the roles? A measurement of excellent and managerial role of business and government public relations practices in Indonesia. *International Journal of Applied Business and Economic Research*, 15(6), 193-209.
 - Kriyantono, R. (2019). Public relations activities of state universities based on excellence theory. *Avant Garde*, 7(2), 154-170.
 - Kriyantono, R. (2019). Research strategies and media relations in public relations practices. *Jurnal KOMUNIKATIF* Vol. 8(2), 178.
 - Kriyantono, R., Riani, Y. A., & Safitri, R. I. (2017). Public's attribution vs punitive behavior in Indonesian public relations practice. *Media Relations in Public Relations Practices*
 - Lies, J. (2012). *Internal Communication as Power Management in Change*
 - Lynch, C. (2018). How PR Pros Should Prepare for Artificial Intelligence. *Ragan's PR Daily*. Retrieved from <https://www.prdaily.com/Main/Articles/482543a6-4e1f-4111-af8b-9e46019028cc.aspx>.
 - Macnamara, J., Lwin, M., Adi, A., & Zerfass, A. (2016). 'PESO' media strategy shifts to 'SOEP': Opportunities and ethical dilemmas. *Public Relations Review*, 377-385. doi:10.1016/j.pubrev.2016.03.001
 - Marcon, P.F. (2017). *Communication Technology for Industry 4.0*. Progress In Electromagnetics Research Symposium (pp. 1695-1697). St. Petersburg, Russia: Spring (PIERS).
 - Marx, W. (2017). *Artificial Intelligence and PR: What You Need to Know*. business2community. Retrieved from <https://www.business2community.com/public-relations/artificial-intelligence-pr-need-know-01969903>
 - Mcstay, A. (2018). *Emotional AI: The Rise of Empathic Media*. London: Sage.
 - Meranti, & Irwansyah. (2018). The study of digital practices: transformation and contributions of industry 4.0 in the practice strategy. *Journal of Information and Communication Technology*, 27-36.
 - Miles, H., & Saldana. (2014). *Qualitative Data Analysis, A Methods Sourcebook, Edition 3*. USA: Sage Publications. Translation of Tjetjep Rohindi Rohidi, UI-Press.
 - Ministry of Industry of the Republic of Indonesia. (2018). *PRESS RELEASE Making Indonesia 4.0: RI's Strategy to Enter the 4th Industrial Revolution*. Jakarta: Ministry of Industry of the Republic of Indonesia. Retrieved from <https://kemenperin.go.id/article/18967/Making-Indonesia-4.0:-Strategy-RI-Masuki-Revolution-Industri-Ke-4>
 - Nguyen, N., & Leblanc, G. (2001). Corporate Image and Corporate Reputation in Customers' Retention Decisions in Services. *Journal of Retailing and Consumer Services*, 227-236.
 - Onggo, B. J. (2004). *Achieving Publication in the Interactive Era Through Online Media*. Yogyakarta: Publisher Andi.
 - Panda, G., Upadhyay, A. K., & Khandelwal, K. (2019). Artificial Intelligence: A Strategic Disruption in Public Relations. *Journal of Creative Communications*, 1-18. doi:10.1177/0973258619866585
 - Pearson, R. (2010). Fandom in the Digital Era. *Popular Communications*, 84-95. doi:10.1080/15405700903502346
 - Petrovici, I. (2014). Aspects of Symbolic Communications in Online Advertising. *Procedia - Social and Behavioral Sciences*, 719 - 723.
 - Primayanti. (2017). *PR & Media Relations, We & Media Partners Must Go Together*. Jakarta: SOE Public Relations Forum. Retrieved from <https://fhbumn.or.id/index.php/2015-09-06-10-27-19/Note-dari-Friend/item/1902-pr-media-relations-kita-mitra-media-obligatory-in-line>
 - Processes: Study on The Possibilities and The Reality of Change Communications. *Public Relations Review*, 38, 255-261. doi:10.1016/j.pubrev.2011.12.015
 - Purwandini, D. A. (2018). Corporate Communication in the Industrial Age 4.0. *Journal of Social Sciences*, 53-63. doi:10.14710/jis.17.1.2018.53-63
 - Reuters. (2016). Reuters collaborates with Graphiq to deliver a suite of interactive data visualizations to publishers. Retrieved from <https://www.thomsonreuters.com/en/press-releases/2016/august/reuters-graphiq-interactive-data>-Retrieved from <https://www.thomsonreuters.com/en/press-releases/2016/august/reuters-graphiq-interactive-data-visualizations.html>
 - Ridley, D. (2012). *The Literature Review: A Step by Step Guide for Students*, 2nd edition. London, UK: SAGE Publications Ltd.
 - Ringlstetter, M., & Vizjak, A. (2003). *Media Management Leveraging Content for Profitable Growth*. Berlin Heidelberg New York: Springer. doi:DOI 10.1007/978-3-540-24786-9

- Roblek, V. M. (2016). A Complex View of Industry 4.0. Germany. sgo.sagepub.com, 1–11.
- Rouhiainen, L. P. (2018). Artificial Intelligence. (S. Planeta, Ed.) Barcelona: Alienta Editorial.
- Ruslan, R. (2017). Public Relations and Media Communication Management. Jakarta: Raja Grafindo Persada.
- Sambo, M. (2019). Contemporary Media Relations. Jakarta: Prenada Media.
- Sandra, D., & Karmasin, M. (2013). Media and Convergence Management. Heidelberg New York: Springer. doi:10.1007/978-3-642-36163-0
- Schwab, K. (2019). Fourth Industrial Revolution. Jakarta: Gramedia.
- Scott, B. J., & Kreiss, D. (2016). Digitalization. The International Encyclopedia of Communication Theory and Philosophy, 1-11. doi:10.1002/9781118766804.wbiect111
- Seiple, P. (2010). How to Leverage Social Media for Public Relations Success. Cambridge: Hubspot.
- Stephen, A. T., & Galak, J. (2012). The Effects of Traditional and Social Earned Media on Sales: A Study of a Microlending Marketplace. Journal of Marketing Research, 624–639. doi:10.1509/jmr.09.0401
- Strauss, A., & Corbin, J. (2009). Fundamentals of Qualitative Research. Yogyakarta: Student Library.
- Sugiyono. (2016). Qualitative Quantitative Research Methods and R&D. Bandung: Alfabeta.
- Tanjung, M. R., Laksamana, A., & Wibowo, F. A. (2018). UNDERSTANDING AND USING TECHNOLOGY FOR PR 4.0. Indonesian Public Relations. Retrieved from <http://www.perhumas.or.id/memahami-dan-menggunakan-technology-bagi-humas-4-0/>
- Theaker, A. (2004). The Public Relations Handbook Second Edition. New York: Routledge.
- Thorne, S. (2016). Interpretive Description Qualitative Research for Applied Practice, Second Edition. New York: Routledge.
- Valin, J. (2018). Humans Still Needed: An Analysis of Skills and Tools in Public Relations. London: Chartered Institute of Public Relations. Retrieved from https://www.cipr.co.uk/sites/default/files/11497_CIPR_AlinPR_A4_v7.pdf.
- van Dijk, J. (2005). The Network Society: Social Aspects of New Media. London, UK: Sage.
- Ver'čić, D., Ver'čić, A. T., & Krishnamurthy, S. (2014). Looking for Digital in Public Relations. Public Relations Review, 1-11. Retrieved from <http://dx.doi.org/10.1016/j.pubrev.2014.12.002>
- Wardhani, D. (2008). Media Relations: A Means of Building Reputation Organization. Yogyakarta: Graha Ilmu.
- Wiesenber g, M., Zeffass, A., & Moreno, A. (2017). Big Data and Automation in Strategic Communication. International Journal of Strategic Communication, 1-20. doi:10.1080/1553118X.2017.1285770
- Wilcox, D. L., & Cameron, G. T. (2009). Public Relations: Strategies and Tactics. Boston, MA, United States: Allyn & Bacon.
- Wright, D. K., & Hinson, M. D. (2009). An Updated Look at the Impact of Social Media on Public Relations Practice. Public Relations Journal, III, 1-27.
- Xie, Q., Neill, M. S., & Schauster, E. (2018). Paid, Earned, Shared and Owned Media From the Perspective of Advertising and Public Relations Agencies: Comparing China and the United States. International Journal of Strategic Communication, 160-179. doi:10.1080/1553118X.2018.1426002
- Yaxley, H. (2018). The Public Relations strategic Toolkit: An Essential Guide to Successful Public Relations Practice. In A. Theaker, & H. Yaxley (Eds.), 147–150.
- Zed, M. (2014). Library Research Methods. Jakarta: Torch Foundation Indonesia.