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The Use of Big Data to Determine the Government's Communication Strategy

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Abstract

Evolution in information and communication technology (ICT) occurs so fast and dynamically that it brings extraordinary changes in various industries and human life. Public relations has also needed to be more responsive and ready with the use of communication technology. Government public relations teams need to be aware of the importance of information and how to manage it. They can use big data to develop communication strategies and as a tool to help make decisions, policies and programs. However, according to previous research, government public relations teams largely use big data for media monitoring. This conceptual paper aims to explore other potential uses of managing big data in government public relations to welcome the age of society 5.0.

Keywords: Big data; media monitoring; communication strategy; government public relations

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1. Introduction

The evolution in information and communication technology (ICT) happened very fast and dynamic that brought tremendous changes in various industries and human life. The Industrial Era 4.0 has brought humans into a new era where globalization and the development of digital technologies such as the Internet of Things (IoT), Artificial Intelligent (AI) and robotics carry great significance to human civilization. The environment and the values that exist in society are becoming increasingly diverse and complex. Technological advances that have occurred have also caused anxiety in the realm of social life. Humans are so dependent on communication and digital media that they lose feeling and empathy due to a lack of social interaction. The flood of information also makes people vulnerable to misleading information and creates confusion. Alienation in social relations and the digital divide are big issues that result in social-economic disparities.

In responding to these challenges, the Japanese government initiated a roadmap in the form of Society 5.0 or society 5.0 which is a concept of a human-centered and

technology-based society (Harayama, 2016). The main objective of promoting society 5.0 is to improve the quality of life of the community by mobilizing the productive and technological potential of Industry 4.0 (Ferreira & Serpa, 2019).

With globalization, it is certain that in the future this will also be adopted by other countries, including Indonesia. At this very moment, the changes that have occurred have actually caused disruption in various sectors and the way people think and act. As a result, humans have adapted to new ways of communication. In public relations itself, disruption leads to the emergence of innovations and new ideas that make a publicist have to innovate and think fast. Disruption also changes the business model, way of thinking and acting of a corporation. With the disruption, PR also adjusts the communication technology they use. The development of communication technology, communication tools, automation, and digital media demands that the public relations industry be more innovative and creative in terms of products and services. It also influences the planning, implementation and management stages of a communications strategy. This has led to a convergence in the world of public relations where public relations combines digital and traditional communication strategies that make it possible to reach the target consumers or the intended public in the best way, as much as possible at the right time while still providing appropriate content.

Digitalization has brought humans into the information explosion. In that sense, there is a lot of data that is found and finally only stored because of ignorance of how to process the data. Though information can be a very important weapon today. For example, in a strategic decision-making process, the collected information data can be used as a reference for consideration. Big data is a promising technological invention, which can present data on a very large and diverse scale so that public relations can utilize, process and present it as needed.

With the demand for PR orders to change the existing paradigm to a unit that is closer to the community, government public relations must move faster and be more sensitive in providing information to the public. Big data can be a potential source for government public relations to dig deeper into strategies in dealing with society. The use of big data can go beyond just use for media monitoring. Based on these assumptions through this conceptual paper, the researcher wants to explore further the use of big data for government public relations in developing a communication strategy that is close to the public.

2. Literature Review

This conceptual paper uses the literature study method as a data collection technique. Furthermore, this method is a way of identifying existing theories and research, which can influence the choice of research topics and methodologies to be used. (Ridley, 2012). The data sources used are the results of scientific studies that have been researched before, such as books, journals, bulletin and reports. Based on this, the author also collects, processes and studies data that has links to the object of the author's discussion.

2.1. Public Relations and Government Public Relations

Public relations is a strategic communication process that builds mutually beneficial relationships between organizations and their publics (Cardwell, Williams, & Pyle, 2017). Public relations in the organization has a function as quality work that helps organizational management in achieving organizational goals, believes in matters of transparency and accountability, respects the rights of citizens, identifies duties and responsibilities of government, proper control of people over the work and rights of everyone in critique and evaluate organizational programs and practices and have specific strategies (Gilaninia, S., Taleghani, M., Mohammadi, 2014). PR has to be based on conceptual thinking, collaborative orientation and information-oriented to effectively contribute to organizational effectiveness and with innovation and modernity, originality and creativity continue to be involved and coincide with developments and respond regularly to public opinion (Gilaninia, S., Taleghani, M., Mohammadi, 2014).

The emergence of the internet raises new ideas and hopes and demands PR to be creative and innovative. This is also what triggers PRs to stay up to date with developments and stay ahead of current trends and to be competitive and desirable for their audience. Digitalization takes a major part in human life, from smartphones, tablets, personal computers and gadgets, to home assistants, voice recognition systems, personal finances, medical devices, and many more. It is no surprise that the PR and marketing industry has changed. From the way PR professionals talk to people (emojis, gifs, stickers and hashtags), to the way they use their channels (social media, mobile apps, native ads) and how content is generated and distributed (big data analysis of consumer behavior and interests, automation marketing content). Digital PR uses social media to help communicate with the public. Also the emergence of artificial intelligence (AI) and big data makes public relations more competent in processing information and

utilizing the data they have to determine targets and targets. A digital PR must have a core team that is proficient in the fields of media, creative, research, and others who integrate with the core account team as needed (Johnson & Roth, 2018).

Government Public Relations (GPR) has to explain the impact of government programs and policies on its citizens, including controversial issues that are circulating (Kusumasari, 2017). In Indonesia, the implementation of government public relations is carried out under Presidential Instruction Number 9 of 2015 concerning Public Communication Management. In this Instruction, GPR has several work agendas, namely: 1.) Public relations as a determinant of the agenda of issues in society to build public trust in the government as a source of accurate and reliable information; 2.) Establishing a communication network institution; 3.) Compile and monitor the implementation of regulations on GPR by Ministries and Government Agencies; 4.) Provide and disseminate public information content throughout Indonesia.

2.2. Big Data

Big data is generated from an increasing plurality of sources, including Internet clicks, mobile transactions, user-generated content, and social media as well as content generated intentionally through censorship networks or business transactions such as sales requests and purchase transactions (Yanardag & Diken, 2014). Big data has three characteristics, namely a large amount (volume), high variety, and can be generated quickly (velocity) so that it exceeds the capacity of conventional database processing (James, 2014).

There are five main sources of high volume data: 1.) public data, 2.) private data, 3.) data exhaust, 4.) community data, dan 5.) self-quantification data (Yanardag & Diken, 2014). Public data itself is data that usually held by the government, organizations related to government and local communities that have the potential to be used by large business and management applications, for example data from the transportation, energy use and health sectors. Private data is data that is held by private sectors, non-government organizations, or individuals that reflect personal information, for example, consumer transaction data, consumption via smartphone or site searches in cyberspace. Then, data exhaust in big data refers to passive ambient data which is a collection of data generated from various activities, for example when individuals use their smartphones to produce ambient data as side data for their daily activities. Community data is the distillation of unstructured data, especially text, into dynamic networks that capture social trends, for example product reviews. Self-quantification data is a type of data that

is disclosed by individuals through the quantification of personal actions and behaviors, for example a bracelet that monitors exercise and movement.

With the abundance of existing data, it is necessary to carry out analysis in processing deeper data to obtain knowledge and information as needed. In big data case analysis, the data mining method is one of the ways that is usually done. Data mining is the process of finding patterns and interesting knowledge from large amounts of data. Data sources can include databases, data warehouses, the web, other information repositories, or data that is dynamically streamed to the system (Han, Pei, & Kamber, 2011).

2.3. Media Monitoring

In modern society, information growth and information management emerge as one of the key factors for an organization. Appropriate and efficient information management is an accurate strategy that can be used by organizations in determining steps and making decisions. Information management can be done through monitoring media. Media monitoring is the process of reading, watching, or listening to editorial content from media sources on an ongoing basis, and then, identifying, storing and analyzing content containing certain keywords or topics (Comcowich, 2010). Most private companies, government and non-profit organizations use media monitoring as a tool to identify if the brand or important figure in the organization is mentioned in a media (Comcowich, 2010). *Media monitoring* often used to describe the process of filtering out issues that could potentially cause a crisis (Strauβ & Jonkman, 2017). Media monitoring not only considered important for identifying problems at an early stage but also useful for monitoring a crisis. Media monitoring can also be a part of good issue management.

For most PRs, media monitoring is a core job (Snje'ana, 2003). PRs monitors content both through conventional media and digital media. With the emergence of digital media, monitoring media is divided into several types of media. PRs monitors print media, electronic media, online media and social media (Comcowich, 2010).

Broadly speaking, the media monitoring process produces two analysis reports, namely Public Issues Monitoring (PIM) and Media Content Analysis (MCA) (Kusumasari, 2017). Public Issue Monitoring is part of the media monitoring process which is carried out through tracing news headlines while Media Content Analysis is a media monitoring process based on the content or content of the news.

2.4. Society 5.0

In 2016, an initiative called Society 5.0 was proposed by the Japanese Cabinet in the 5th Science and Technology Basic Plan with a vision to create a ”Super Smart Society”. When looking back at human history, society can be defined to what extent. Early in civilization, society 1.0 was defined as a group of people who hunted and gathered in harmonious coexistence with nature; Then society 2.0 was formed based on agricultural cultivation groups, improved organization and nation-building; Society 3.0 is a society that promotes industrialization through the industrial revolution, making mass production possible; and society 4.0 is an information society that realizes the increase in added value by connecting intangible assets as an information network (Fukuyama, 2018).

The goal of Society 5.0 is to create a society where everyone enjoys life to the fullest (Fukuyama, 2018). In the sense that the goal of economic growth and technological development can be beneficial to society and not only for the prosperity of a few people. Even though society 5.0 comes from Japan, this reference is expected not only to refer to one country, Japan, but it is hoped that the framework and technology developed will contribute to solving social problems that are challenging around the world. (Fukuyama, 2018).

3. Result and Discussion

3.1. Evolution of Public Relations

Communication technology systems that emerged in the industrial era 1.0 related to the existence of corporations and public relations, for example the invention of the telegraph and radio. Communication between an organization and stakeholders was mediated by these tools. Another communication technology was the use of print posters, printed newspapers, telegraphs, and analogue radio by corporations to create news releases and campaigns for specific purposes. Besides, PRs can also use the Word of Mouth (WoM) or speak directly to the public. In this era, public relations still carry out its function with one-way communication (Binsar, 2018).

The context of corporate and public relations in the 2.0 revolution involved organizational forms that were increasingly complex because they were associated with mass-scale production such as the automotive industry using assembly lines. The role of public

relations is carried out using analogue media such as written reports, newspapers, radio and television stations to promote and maintain the company's brand image.

The corporate environment in the era of industrial revolution 3.0 was getting wider and more globalized and the emergence of computers equipped with software helped corporate performance, for example in terms of planning, monitoring, sales and evaluation. The emergence of digital technology affects the way public relations communication works, for example with the emergence of information technology using an integrated management system known as Information Technology (IT). This era is known as automatic production, marked by the emergence of computers and the Internet (Agrawal, Schaefer, & Funke, 2018). Along with the advancement of the internet, public relations in industry 3.0 are facing changes in global information by utilizing an online website and blog platform technologies such as the corporate web and Facebook. Social networking sites provide a space for organizations or corporations to interact with the public and provoke dialogue communication (Binsar, 2018).

The role of public relations in creating a communication strategy to enhance the image of a corporation must also be more unique. Audio-visual industry technology is starting to be used in various corporate online platforms to increase public engagement, such as photo activities, corporate videos, etc. High interactivity and multimedia-oriented websites do have a significant positive effect on building relationships and reputation. Also, online public relations can save money and time, the quality and credibility of information in building relationships with the public.

Currently, we are in Industry 4.0 where industrial productivity starts to develop further than the third generation through an innovative integration of Artificial Intelligence (AI), Internet of Things (IoT), Information and Communications Technology (ICT), and Big data into one single platform (Agrawal et al., 2018). The adoption of ICT then further blurs the boundaries between the real world and the virtual world in what is known as Cyber-Physical Production Systems (CPPSs). CPPS is an online network of social machines structured in a similar way to social networks. CPPS connects IT with mechanical and electronic components which then communicate with each other via a network (Deloitte, 2015).

Corporates in the industrial era 4.0 have a great opportunity to use the Internet of Things (IoT) and the Internet of Service to reach the public. With AI, IoT, and ICT technology, PR tasks can be easily replaced. Like when AI can be a customer service that is ready to serve at any time, it can also learn about customers through their habits in using the internet every day. Thus, corporations can collect any data and perform data mining to improve accuracy in targeting the public or serving customers. According to

Roblek (2016), communication via the internet which allows interaction and exchange of information continuously is not only carried out between humans (C2C) and humans and machines (C2M) but also between the machines themselves (M2M).

The industrial revolution affected the role of public relations in many ways so that the public was no longer the same as before and changed the way they interacted with one another. The widespread use of social media such as Facebook, Instagram and Twitter have made public interactions no longer occur in the real world, but has shifted to the online world. The public relations managerial role also changes as interactive communication channels emerge (Binsar, 2018). In the future, public relations must also be ready to face the era of society 5.0, where technology is used to create a prosperous and quality community life.

3.2. Big Data in Society 5.0

Society 4.0, known as the information society, accesses cloud or big data services via the internet and looks for, retrieves, and analyzes information or data. While in Society 5.0, a large amount of information or big data from sensors in physical space accumulates in the virtual world which is then analyzed by artificial intelligence (AI), and the results of the analysis are used by humans for various purposes.

In Society 4.0, a common practice is to collect information via networks and analyze it by humans. However, in Society 5.0, people, objects, and systems are all connected in cyberspace and the optimal results obtained by artificial intelligece exceed human capabilities are given feedback into physical space. This process brings new value to industry and society in ways previously impossible.

As a concept of a human-centered and technology-based society (Harayama, 2016), big data is the key in society 5.0. The point is that technology relies on sharing data between sectors to develop machine learning. For Japan, society 5.0 plays a role in re-creating society, so that their economy will be ready with the number of productive age population entering old age and a shrinking workforce.

A wide variety of big data is collected from low-power intelligent sensing devices and networks stored in information storage devices, which can then be analyzed and visualized using analytical tools such as artificial intelligent (AI) with high computing power in cyberspace (Kitsuregawa, 2019). This valuable data is often not used by humans. These data can inform strategic actions that must be taken by decision-makers to provide solutions to social and economic problems. It is hoped that the transformation of big data collected through the internet in all areas of life can become a pearl of new

wisdom that will be dedicated to improving human capacity to open opportunities for humanity. This transformation will help humans to live a more meaningful life.

3.3. Utilization of Big data in Government Public Relations Strategy

Good governance can only occur when decision making is based on adequate information and independent judgment (Sullivan in Subiakto & Rachmad, 2014). This requires factual and reliable information so that decision-makers can produce strategic policies. Public relations itself has now become an important part of decision making. In Indonesia itself, the work base of government public relations is continuous management of information and communication to gain public understanding and support for Government Programs and Policies. ("Lingkup Program Government Public Relations," 2016).

In the digital era, the human entity has also turned into data. Data or information such as demographics, habits, and consumption culture become the capital for an organization in determining its steps. It is not an exaggeration to say that now big data is a fairly powerful industry. When various kinds of data are successfully combined, the results can greatly influence the policies and decisions made by an organization. It is not wrong if the proper big data management can be a useful public relations strategy in this 5.0 society era. Initially, many Ministries and Government Agencies used big data in media monitoring only. Even though big data can be an accurate source in designing a campaign to map the segmentation that will be targeted. Big data has become an important tool in helping a corporation to build image and reputation. Technology developments such as Artificial Intelligent can process increasingly sophisticated big data so that a public relations officer can segment correctly starting from the type of campaign, the consumer to determining the solution of a crisis with minimal errors. However, big data can provide benefits if the users do strategic thinking to process, analyze and create the resulting data. The ability to understand data and process is a special value for a public relations officer. The use of big data can also be useful for a government organization in cost efficiency and save time without reducing accurate and up-to-date results. Big data can be used to solve problems and achieve communication goals. Big data provides a variety of different possibilities that can be taken in solving problems using big data (Wiencierz & Röttger, 2017).

GPR absorb aspirations and accelerate the delivery of information about government policies and programs in the implementation of public communication. GPR also disseminates to the public narratives and supporting data related to government policies

and programs by using various communication channels to the public in a precise, fast, objective, good quality, national perspective and easy to understand.

GPR is required to change the mindset from being merely technical services to being a visionary public communication practitioner and working in an innovative and creative rhythm, thinking holistically and across sectors so that there is a transformation towards government performance that can adapt to environmental developments and good governance. If applied daily, GPR in planning and making a news agenda related to what will be and is being done regarding the campaign or service product to be provided can determine the various media or facilities to be used and the target community to be targeted. Of course, the implementation of such activities will be easier when GPR can utilize big data appropriately. Then, the output and outcome of a program or campaign that is running can be more measured through data management so that GPR can evaluate and improve for the upcoming campaign or program.

Big data system itself can be implemented through building your own system, subscribing or building part of it (Kusumasari, 2017). Building your own system here means that GPR can build a big data system from scratch, although in the process it can be done by hiring a third party. Then, GPR can also subscribe to third parties who provide big data as needed. Finally, GPR can also build a part of its own system that is considered strategic for the benefit of the organization and leave the rest of its development to outsiders.

In the public relations industry itself big data can be divided into four streams, namely internal data streams, shared data streams, external data streams and public relations data streams. Internal data streams are in the realm of the organization and access is more controlled. Data can be in the form of internal websites, press releases, or internal social media. Shared data streams are obtained through channels that are often accessible to many people. Meanwhile, external data streams are taken from outside sources such as conversation recordings, social media, news, academic studies and media monitoring. Finally, the public relations data stream can be taken from the data generated by public relations in the form of output and outcome reports.

In the era of digital media, public communication carried out by the government is not enough to just convey information, but must have an integrated information control foundation, through the data interface as a big data, which continues to be developed as a background for the dissemination of public communication information and control tools for leaders in make changes both internal and external (cahyono, 2017).

Implementation of the use of big data is a common practice by GPR At the Ministry of Communication and Informatics, media monitoring is one of the duties and functions

under Presidential Instruction No. 9 of 2015 (Kusumasari, 2017). Big data is the right technology choice in monitoring media which is flooded with large and very varied data. The data obtained is processed so that it becomes accurate information that can be used by policymakers in making decisions (Kusumasari, 2017). Public issues are one of the information that must be managed properly by GPR. These public issues can be controlled through news monitoring through both conventional and digital media. With proper handling, a government agency can prevent and mitigate risks before a crisis occurs. Apart from conventional media monitoring, the monitoring activity that is mostly carried out by GPR is social media monitoring. In managing information circulating on social media, public relations also need to pay attention to the number of links, social media reach, the number of positive and negative responses because the results of this analysis can provide an overview of the public's response to policies or programs in a government organization.

Public complaints to public service agencies are one of the controls that can be exercised by the community to the government so that they can formulate policies that are right on target. The government facilitates them through *Layanan Aspirasi dan Pengaduan Online Rakyat* (LAPOR!) and *Sistem Pengelolaan Pengaduan Masyarakat Publik Nasional* (SP4N) which is managed by GPR. SP4N and LAPOR! become a forum to find out which national priorities get the most attention from the public in real-time and comprehensively. At this time SP4N and LAPOR! have been integrated with 81 Ministries / Institutions, 5 Regional Governments, and 44 state-owned enterprises in Indonesia (LAPOR!, 2019). Data analysis and reports can be processed more quickly and efficiently by GPR so that the government can find out a map or pattern of issues and problems that occur in society. Management of big data information that comes from the public can be an input for the government in making more effective and efficient public policies.

In implementing the Electronic-Based Government System, the availability of big data as a source of all information is an important indicator, one of which is about public services (KemenPANRB, 2019). The existence of Law No. 25 of 2009 concerning Public Services is a reference for the Ministry of Administrative and Bureaucratic Reform in implementing big data technology. The Public Service Information System (SIPP) is used as a one-stop electronic information media covering information storage and management as well as a mechanism for delivering information from public service providers to the public (KemenPANRB, 2019). SIPP becomes big data information in the form of public services managed by government public relations. The public can access

information ranging from service standards, SOPs, Community Satisfaction Index, Public Service Index and so on.

Government agencies that are primarily oriented towards achieving public satisfaction can use big data in making their policy strategies. Big data can be supporting data in presenting various useful information (Kominfo, 2015) as follow: 1.) Getting feedback and public response as a basis for policy-making and improving public services. This feedback can be obtained from government service information systems as well as from social media; 2.) Creating integrated services with special segments so that services can be more effective and efficient; and 3.) Finding solutions to existing problems, based on data.

Through big data, GPR can take information from several sources and analyze it to facilitate strategic decision making. Decisions supported by large amounts of data allow an organization to anticipate needs, mitigate risks, deliver relevant programs, personalize services, and optimize community experiences. Big data can analyze information efficiently and gain valuable insights promptly. Government agencies can use the information to adapt to changes to build a positive reputation in society.

However, the utilization of big data cannot be maximized as long as the data cannot be processed properly. Like public relations in a company, GPR must also be prepared with increased capabilities both in terms of technology use and analysis. the ability to sort, mix and match, make correlations, analyze to present is commonly owned by digital public relations.

4. Conclusions

Advances in communication technology have made PR work easier and at the same time provide its challenges. PR is not only the mouthpiece of information but also an important part of providing opinions in the process of making certain policy decisions. This also applies to government organizations. Good information management can provide its benefits for government public relations in making a work program. The big data industry itself is no stranger to the government. It's just that there are still many government institutions that use it only for media monitoring. Media monitoring in government is useful for monitoring content circulating in the media, both print, broadcast and online and social media in a systematic manner which allows users to access real-time information and measurement tools in applications to enable users to make better decisions and respond to an important situation. Use of information through SIPP, SP4N, and LAPOR! It is another example of the implementation of big

data management that should be maintained and developed by government public relations so that the use of technology makes work easier and on target.

Big data can be a valuable resource for government agencies in many sectors. In its application, big data technology can be useful for solving communication problems such as media monitoring, public complaint channels, public service information channels, and determining campaigns or strategic programs to become a reference for evaluating ongoing programs or policies. From the results of the data processing, government public relations will be able to package it in the form of public communication with the current packaging that is trending and easy to digest, without reducing the substantial meaning of the message. presentation models in the form of infographics, video graphics, and animations on strategic issues and development performance.

However, GPR needs to continue to make public communication effective and efficient, by increasing synergy between institutions, removing sectoral barriers, so that government public communications can support discussions on the digital realm. this is very much needed in anticipating the changing demands of public communication content to become more actual and right on target. GPR itself actually lacks a culture of analysis and utilization of data and resources to analyze data. There are still many GPR officers who ultimately hand over data processing to a third party, the digital PR agency, to manage existing data and information. So that there needs to be attention from the human resources department to provide further training or education in data processing and analysis.

In the future, big data management should be able to become a communication strategy that is considered appropriate to welcome the era of society 5.0 so that the government can not only build positive perceptions but also improve people's welfare according to their needs so that in the future Indonesia can also achieve a "super-smart society". The use of digital data as big data for the prosperity of society in society 5.0 is considered a noble step that should be considered by the Indonesian government. It is time for technology to bring people to live a quality and sustainable lives.

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