

ANALYSIS OF ONLINE MEDIA LIVE STREAMING TRENDS ON WEBSITES AND YOUTUBE NEWS TELEVISION IN WEST JAVA

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Abstract: The increasing adoption of online live streaming by most news television in West Java is utilized as one of the online broadcasting media. This research was conducted using a qualitative approach and meta-analytic method from data from one of the private news television stations in West Java. The results of the analysis show that the trend of using online live streaming on websites and Youtube to get news information continues to increase and allows users to adopt online broadcasts more than conventional ones which will also trigger business shifts and media convergence in West Java.

Keywords: trend analysis, live streaming, television news, website, Youtube

1. INTRODUCTION

Internet penetration currently has a fairly high effect with the emergence of many digital media in various fields, including broadcasting, especially television. The development of information and communication technology has made many predict the sinking of conventional broadcasting media in West Java, so a media transformation strategy is needed as a reinventing step, namely a strategy to utilize existing technological developments to create something new (Harliantara, 2022, p. 83).

In West Java, an increase use of internet access occurs from year to year both in urban and rural areas. It is recorded that in 2022, there will be an increase in the use of internet access for people over the age of 5 by 11.85 percent, from 20.49 percent in 2021 to 32.34 percent in 2022. According to the West Java Central Statistics Agency (BPS), the increasing number of internet users cannot be separated from the rapid development of cell phone technology. This is indicated by the increasing percentage of numbers cell phone ownership in 2022 is 59.59 percent compared to 38.05 percent in 2010 in West Java (BPS, 2022, pp. 115-127).

In recent years, the increase in mobile devices equipped with advanced cameras and high-speed internet has led to online live streaming technology becoming popular. Live streaming refers to continuous broadcasts that are carried out directly or in real time (Lohmar, Einarsson, Fröjdh, Gabin, & Kampmann, 2011, p. 3). This live streaming is supported by software that

allows anyone to share user experiences directly through various digital media (Lu, Xia, Heo, & Wigdor, 2021, p. 1-2).

Residents of the United States even spend their time watching streaming video with the same duration as they spend time working. This high number of video streaming reflects the continued increase in consumption of video content over the past few years, mainly driven by streaming services. This increase in consumption of online live streaming and video streaming has caused people to spend less time on other entertainment activities, such as reading and listening to music (Westcott, Loucks, Downs, & Watson, 2021, p. 4-17). The increased consumption of content through streaming technology has fundamentally changed consumer demand consumption of television and video which then causes competition between the two (Boehm, Lee, Esser, & Raab, 2021, p. 4-24).

The internet then made most of the mass news media, such as print newspapers and television, converge and utilize information and communication technology and the internet in carrying out their obligations to convey information. This then naturally spurred conventional journalistic activities to become more efficient by plunging into online formats. Journalistic products in conventional media then come in new forms, such as digital newspapers (e-papers) and online live streaming that can be accessed by the public through various media platforms connected to the internet (Fadli, 2021, p. 166). This is happening not only in the field of journalism, advertising and public relations have also experienced the convergence of new forms, such as digital advertising and digital public relations.

Look at the phenomena that have been described Previously, television broadcast programs in West Java were also not spared from media convergence through the use of various digital media platforms in information delivery activities. Several national news television stations in West Java have flocked to utilize and use digital media technology and social media that are currently popular, such as websites, Youtube, Instagram, Facebook and Twitter to attract their consumers. Several news television stations in the country have also been actively using online live streaming technology to broadcast their programmes on the official YouTube website and account. In this research, researchers will analyze the trend of using online live streaming technology on websites and YouTube channel accounts by a news television station in West Java using trend analysis from the concept of technological forecasting.

In general, technological forecasting applies to all systematic efforts aimed at anticipating and understanding the direction, pace, characteristics and potential effects of technological change, especially discovery, innovation, adoption and use. One possible analogy for technological forecasting is forecasting. A good forecast can help maximize profits and minimize losses from future conditions. Every individual, organization, or country that can be affected by technological change must be involved in technological forecasting with every decision that allocates resources for a specific purpose. MIT and MIST started a collaborative research project called “Technological Forecasting using Data Mining and Semantics” (Technological Forecasting using Data Mining and Semantics).

Analysis of emerging technologies and their implications for technological forecasting informs critical choices to begin with from the multinational level, for example, the European Union, to individual organizations, for example, companies. Large companies need technological forecasting to prioritize research and development, plan new product development, make strategic decisions about technology licensing, and joint ventures. Technological forecasting methods are used to predict the adoption or diffusion of innovations where parameters such as the rate of imitation by other adopters or the rate of response to advertisements can be measured. The study of technological forecasting in companies is often called competitive technological intelligence (CTI or IT) (Firat, et al., 2008, p. 1).

In addition to business efforts to chart commercially viable paths for technological development, technological forecasting also includes social measurements. For example, governments use national review studies to assess the direction and impact of technological change for the purpose of influencing future public policy. This includes technology assessment or social impact analysis which examines the possible long-term effects of technological developments when their impact spreads throughout society (Firat, et al., 2008, p. 2).

There are many forms of forecasting overlapping technological developments and their impacts, including technology intelligence, forecasting, roadmapping, assessment, and foresight. Technological forecasting usually focuses on a particular technology, but sometimes the scope is wider. Of the many analytical methods of technological forecasting, trend analysis is the method most widely used by experts to conduct research (Firat, et al., 2008, p. 2-3).

Trend analysis (trend analysis) is a term that is used widely, related to models and forecasting techniques for the growth of certain things, including those related to online live streaming technology. In general, a technology has a life cycle consisting of several distinct stages. These stages include the initial adoption stage, the growth stage, the maturity stage and the final decline stage of a particular technology. Parameter curve estimates are based on estimating the life cycle of a technology, by estimating the development phase at each stage of the life cycle. This trend analysis method also helps in predicting when technology will reach a certain life cycle stage (Firat, et al., 2008, p. 7).

2. METHOD

Metaanalysis

This research was conducted through a qualitative approach using a meta-analytic design as a reference in data collection and analysis. Meta-analysis is the result of several independent research studies regarding certain statistical studies on the findings obtained (Cogaltay, Karadag, & Yalcin, 2016, p. 278). Data collection was carried out on one of the news television stations in West Java (television C) which is actively using online live streaming technology on website media and YouTube channels for the 2015-2021 period. Meta-analysis can also use all articles in journals, seminars, notifications, and reference books on the subject

under study.

This research article was compiled after reviewing all the research data obtained regarding the use of the internet, digital media, online live streaming, and consumption of online live streaming on the website and the C television Youtube channel, so that from these data, researchers can code data. Coding data is a data extraction process in which data that is clear and suitable for research is then extracted into information that is incorporated in the study.

In meta-analytic research, especially qualitative research, research credibility can be measured through the reliability and validity criteria of the data used. The following are several steps that can be used to ensure the reliability and validity of a meta-analysis study (Cogaltay, et al., 2016, p. 279-285): (1) the studies included in the meta-analysis are identical or similar to the needs of the online live streaming concept. Being researched. Study selection criteria were determined by the researcher and presented in detail; (2) in this study, the field of study (analysis of online live streaming trends on websites and Youtube channels) is evaluated by considering the various features and data used; (3) analysis of primary data on the use of online live streaming on websites and Youtube channels processed in this study was obtained

directly from an internal source from one of the national-scale private news television stations; (4) the secondary data used by researchers in this study were obtained from official documents published by the West Java Central Bureau of Statistics as supporting material; (5) to maintain privacy and to bias the publication of data in this study, the identity of private news television as the data owner and research object was disguised as C television.

Trend Analysis

Experts classify nearly hundreds of technological forecasting techniques into nine main categories, including expert opinion, trend analysis, monitoring & intelligence, modeling & simulation, Scenarios, statistics, descriptive, creativity, and economics/decision/assessment methods (scenarios, statistical, descriptive, creativity, and valuing/ decision/economics methods) (Firat, et al., 2008, p. 5-6).

This study uses trend analysis techniques as one of the technological forecasting methods with growth curves. In addition to projecting the level of market adoption of technically superior new technologies, the growth curve is also analyzed to project how fast old technologies will disappear from the market.

The adoption pattern parameter from trend analysis is determined by when and where adoption will occur. This parameter will then produce a pattern from the initial adoption data that can be used to project the time when market dominance will reach a certain level (Firat, et al., 2008, p. 7).

This technique is used to make predictions about how online live streaming technology

on digital media such as websites and Youtube will change over time, how fast the digital media process in developing new online live streaming technology will be adopted by the community as a source of information search, and the rate at which Online live streaming will replace news media devices such as television, newspapers and radio.

3. RESULTS

Statistical Data on Internet Usage in West Java

The number of internet access increases in West Java is very significant every year. Male and female internet users over the age of five years have increased by 24.96 percent in 2021 over the last six years, so it can be ascertained that the development of internet consumption by the people of West Java has increased by 4.16 percent annually (Table 1).

Table 1 Percentage of West Java Population Accessing the Internet

	2017	2018	2019	2020	2021	2022
Boys & Girls in	14.94%	17.14%	21.98%	25.37%	32.34 %	39.90%

Over the age of 5 years

Source: Secondary Data Official Publication of the West Java Central Bureau of Statistics (2021-2021)

AccessInternet consumption in West Java is carried out using the help of desktop computer technology, laptops/notebooks/tablets, and cellular phones/mobile phones. However, among the three, the use of internet access via cell phones increases every year with a high percentage when compared to desktop and laptop computers which have decreased (Table 2), so it can be said that most of the population of West Java access the internet with the dominance of telephone devices. Cellular. According to West Java BPS, the increase in internet consumption in West Java is influenced by the development of increasingly sophisticated mobile phone technology (BPS, 2022a, pp. 115-127).

Referring to the data in Table 3, the internet access carried out by the people of West Java can be done anywhere by using mobile phones and laptops with flexible mobility. Although the development of internet access figures in several locations has decreased, but the development of internet access increased significantly in 2015-2021 compared to 2021-2014. This shows that internet distribution in West Java is starting to spread and increase well in various locations as the need for internet access increases.

In 2021-2014, access activityinternet in public places and vehicles or mobile activities are not yet significant. However, entering 2015-2021, the number of internet access activities in public places and vehicles/mobile can even surpass schools and workplaces, so that it is certain that more people use mobile devices to access the internet in a mobile and flexible manner in public places and vehicles than another location. In addition, entering 2022, the disappearance of internet cafe market segmentation in 2015 also shows that internet access has been easily consumed by the public personally (Table 3).

Table2 Percentage of Internet Access in West Java Based on Tools Used

	2019	2020	2021	2022
Desktop Computers	35.63%	29.84%	18.01 %	19.24 %
Laptops/Notebooks/Tablets	42.56%	38.62%	28.10 %	32.15 %
Cell Phone (Mobile)	85.46%	90.91%	91.45 %	91.84 %
Other	3.54%	3.14%	0.52 %	0.56 %

Source: Secondary Data Official Publication of the West Java Central Bureau of Statistics (2015-2021)

Table3 Percentage of Internet Access in West Java Based on Accessing Locations

	2017	2018	2019	2020	2021	2022
House	17.61%	5.76%	86.67%	90.83%	91.02 %	91.02 %
Office/Workplace	19.59%	6.71%	30.65%	32.50%	29.43 %	29.43 %
School/College	17.66%	6.40%	26.19%	24.45%	18.30 %	18.30 %
Public places	-	-	38.70%	45.13%	36.33 %	36.33 %
Vehicles/Mobile	-	-	8.26%	10.48%	17.39 %	17.39 %
Cafe	39.41%	12.11%	-	-	-	-
Other	14.17%	5.49%	30.04%	-	2.81 %	2.81 %

Source: Secondary Data Official Publication of the West Java Central Bureau of Statistics (2021-2021)

Judging from the purpose of use, residents of West Java access the internet mostly to obtain information and access social media (Table 4). Even though there was a shift in numbers across all categories of internet access destinations, the change in numbers was not too significant. In these data it is clear that the desire to access news information is one of the dominating motivations for people to access the internet. Meanwhile, with the increasing popularity of e-commerce in West Java, the percentage of internet usage for buying and selling goods/services online is also quite a higher figure than the fintech function.

After obtaining data regarding the development of internet use in West Java, one of which is dominated motivated to get news information, the researcher collected primary data related to user activity in adopting online live streaming technology on the television website C. In Table 5 it can be seen that along with the increase in active website users each year, the adoption of the use of live streaming by users to watch has also increased. C television broadcasts online through the website.

The increasing popularity of Youtube has made users start actively subscribing to accounts that provide entertainment and news information. In Table 6, which we can observe below, there has been an increase in subscribers to Television C's YouTube account in the last 4 years. The increase in this curve is in a matter of very significant numbers every year.

Table 4 Percentage of Internet Access in West Java by Destination

	2019	2020	2021	202
Get Information / News	73.50%	77.56%	77.42 %	77.42 %
Carry out a task	35.08%	31.20%	25.87 %	25.87 %
<i>E-mail</i>	27.80%	27.75%	21.10 %	21.10 %
Social media	82.05%	85.84%	79.13 %	79.13 %
Sale and Purchase of Goods / Services	11.33%	13.22%	12.94 %	12.94 %
Entertainment	45.10%	49.02%	45.07 %	45.07 %
Financial Facilities	8.38%	9.32%	5.08 %	5.08 %
Other	3.89%	3.92%	2.01 %	2.01 %

Source: Secondary Data Official Publication of the West Java Central Bureau of Statistics (2015-2021)

Table 5 Number of Viewers of Live Streaming Television C Online News Shows Through the Website

	2021							2022				
	May	Jun	Jul	Agus	Sept	Oct	Nov	dec	Jan	Feb	Mar	Apr
<i>Website Active User</i>	14,23 Million	13.48 Million	14.86 Million	15.56 Million	13.81 Million	15.57 Million	14.07 Million	13.75 Million	14,33 Million	15.79 Million	16,36 Million	19.93 Million
<i>Total Playsof Live Stream</i>	5,369	3,982	1285	14,458	6,912	12,943	8,860	9,256	5,155	6,856	7,751	16,160

Table6 Number of Subscribers Youtube Television Accounts C

	2015	2016	2022	2021
Boys & Girls in over the age of 13 years	1,144	70,513	321,987	1.533040

Source: Primary Data (2015-2021)

Table7 Number of Live Streaming Online Viewers on Television Youtube Accounts C

	2015	2016	2022	2021
Boys & Girls in Over the age of 13 years	1	1 108 388	4 447 437	17 875 161

Source: Primary Data (2015-2021)

Along with the increasing number of subscribers to Television C's Youtube account, the consumption of news shows presented on Television C's Youtube channel has also increased. It was noted that since the first year this Youtube account was created at the end of 2015, the consumption of live streaming news shows online has experienced a very significant increase in viewers until the end of 2021 (Table 7).

4. DISCUSSION

Adoption Trend Analysis Internet in West Java

When viewed from BPS statistical data related to the development of internet use in West Java, it can be said that currently West Java is still at the initial stage or phase of adopting internet technology. People still continuously use and adopt the internet every year.

If we look at this graph of increasing internet usage in West Java (Figure 1), it can be said that currently West Java is still in the early phase of internet adoption. The trend of internet use has continued to increase over the last six years with an average increase of 4.16 percent each year. The projected peak or even decline in internet access in West Java is still far from forecast because currently internet adoption in West Java is still in a developing pattern.

We can do a trend analysis of the pattern of adoption of the internet in West Java by looking more closely at the development curve

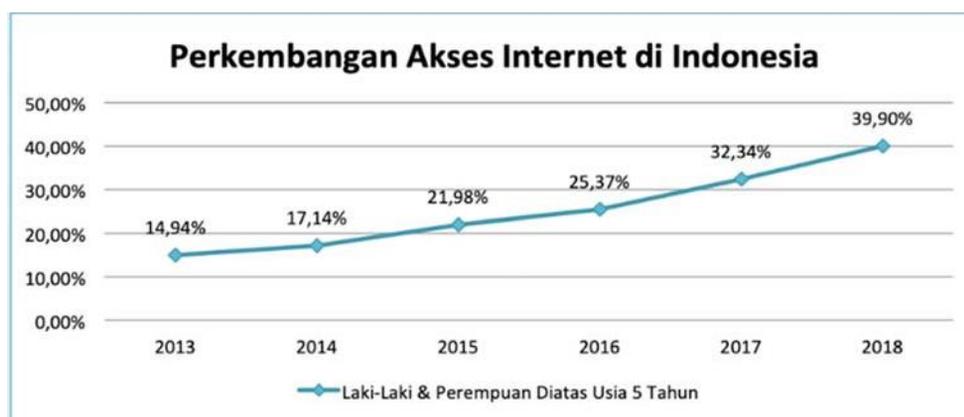


Figure 1. Development of Internet Access in West Java

Source: Processed Secondary Data Official Publication of the West Java Central Bureau of Statistics (2021-2021)

Internet access in Figure 1. There is an increase in the number of internet users every two years. The first period was seen in 2014-2016 where every year there was an increase in internet access by users of approximately 4 percent from the previous year. The second period of increase in internet access by users occurred in 2016-2021 where every year there has been an increase of approximately 7 percent from the previous year. So it can be estimated that there will be a third period of surge in internet consumption that will occur in 2021-2022,

approximately 10 percent from the previous year.

The parameters on the development curve of internet consumption will then produce a pattern from the initial adoption data which can be used to project the time when market dominance will reach a certain level. This is like predicting when internet consumption in West Java will reach its peak. If seen from the pattern parameters analysis of the trend of internet consumption in West Java, which has increased by 3 percent every period in two years, it is estimated that reaching the peak point of 100 percent internet adoption will occur in 2023 with an increase in internet consumption of 16 percent from the previous year's period.

Being at a peak does not mean that internet consumption will continue to decline and then disappear. However, after experiencing a peak phase, there will be a decline or ups and downs in internet consumption patterns in West Java. It also depends on how fast the development and innovation of information and communication technology occurs, as we can see in Figure 2. In this figure, we can see that the level of internet access in several locations will naturally decrease after being in the peak phase. Even though internet cafes disappeared from the market, that doesn't mean that after a decline, they can't go up again for other categories.

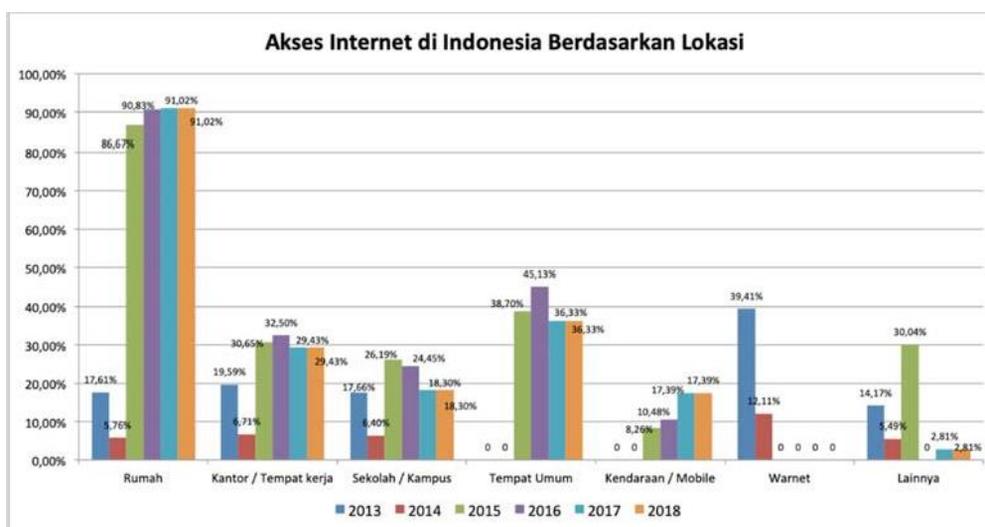


Figure 2. Internet Access Activity in West Java by Location
 Source: Processed Secondary Data Official Publication of the West Java Central Bureau of Statistics (2021-2021)

The development of internet adoption also depends on how fast the level of development of communication technology and mobile device innovation can be adopted by users in everyday life. Previously, in 2021 and 2014, there was not much internet access or even could not be done freely in public places and vehicles. However, entering 2015, with all the ease of internet access that is happening in West Java, users can easily and freely access the internet in public places, such as places to eat/restaurants and even while driving or in a mobile state.

The growth curve of users in public places has succeeded in surpassing internet consumption

in the workplace and study. Likewise with the development curve of internet access in a mobile state which is starting to compete with the curve of internet access in the workplace and study. Based on these data, we can analyze that the longer, the internet consumption trend starting to be done a lot in places or locations where users access the internet in a mobile or mobile state. This also shows the trend of developing increasingly sophisticated internet access so that it can be accessed anywhere and anytime easily and flexibly following user activities. In addition, this analysis also shows that currently users always consume the internet anywhere, anytime, and in any activity.

Internet consumption which can be done easily anywhere has the goals and needs of each user. Based on the development of the curve in Figure 3, we can see the goals or needs of users in accessing the internet. The graph shows that the domination of user needs in accessing the internet is for social media, searching for news information, and entertainment, and all three have been in their peak phase in 2016.

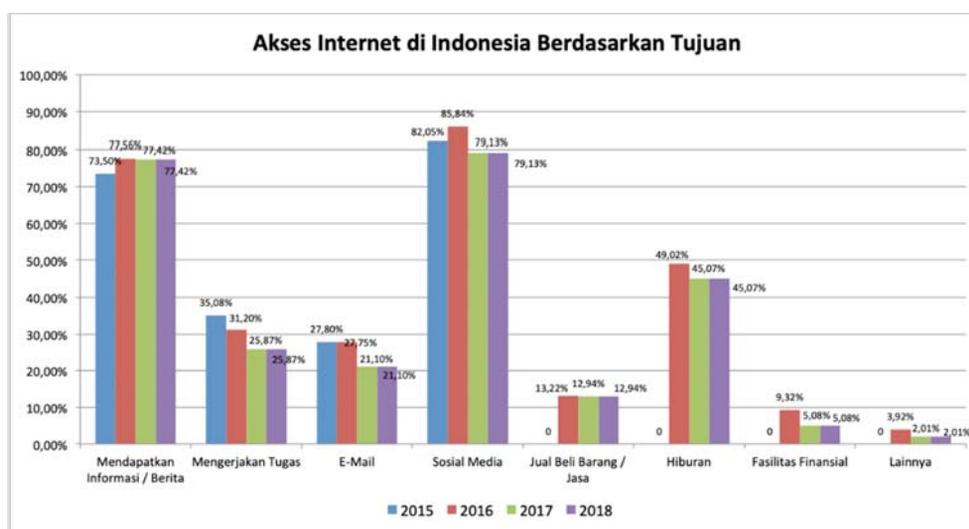


Figure 3. Based on Internet Access Activity in West Java Objective

Source: Processed Secondary Data Official Publication of the West Java Central Bureau of Statistics (2015-2021)

Analysis of Online Trends Live Streaming Television News

The analysis of internet consumption trends that has been described previously shows that the internet has invaded various patterns of community adoption in obtaining news information anywhere, anytime, and under any circumstances through the internet and digital media. Therefore, it is only natural that various broadcast media such as news television in West Java will begin to adopt internet technology through digital media in conveying news information.

Various internet technologies have developed in the market and online live streaming on the website has become the choice of several news television stations in West Java to synchronize news shows that are being broadcast live. Television C as a national-scale private news television also utilizes live streaming technology for broadcasting news programs which

can be accessed 24 hours a day on their official website.

Data on the development of active users of the C television website show that, despite experiencing ups and downs, the trend of website consumption by users tends to increase every month on period 2021-2022 (Figure 3). Even though the increase shown is not very significant, user activity can be said to be stable every month.

Along with increasing users The more active the website, the higher the consumption of live streaming news shows available on the website. Even though the movement of the live streaming consumption development curve on the C television website is unstable, graphic analysis shows an increasing trend every month from 2021-2022. Consumption of live streaming on television C's website experienced a significant increase when broadcasting important news such as breaking news on a national scale.

However, when viewed on an annual basis, the live streaming figures for television website C from May 2021-April 2022 show an increase in news consumption of approximately 300 percent. Therefore, it can be predicted that there will still be a surge in live streaming consumption on the C television website after 2022, although it cannot be predicted that the percentage increase in the trend will be experienced in the following years. Thus, it can be said that the development curve.

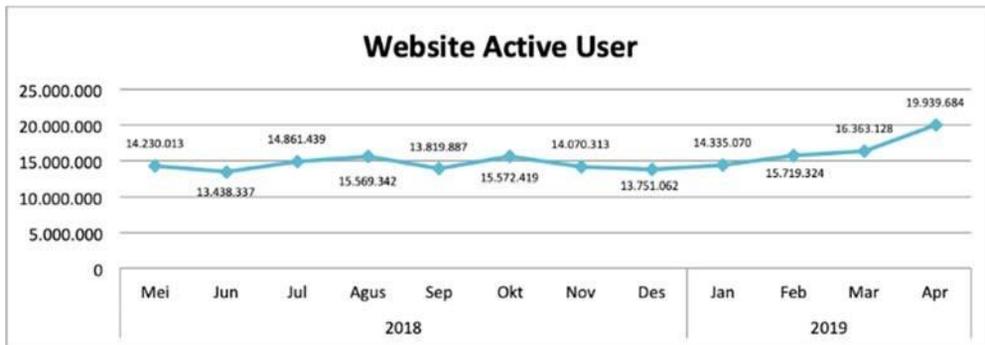


Figure 4. Development of Active Television Website Users C
 Source: Processed Primary Data
 (2021-2022)

Consumption of live streaming news on television C's website produces an initial adoption pattern that can be used to project certain time in which market dominance will reach a certain point or even decline.

The development curve of online live streaming adoption on C television Youtube channel shows the same thing. The data in Figure 6 shows a very significant increase in the number of Youtube C television subscribers every year. The curve has experienced a spike in subscribers increasing by more than 300 percent annually. The increase in user users can also be said to be still in progress the initial phase for television C to continue to be able to improve its business patterns in Youtube media.

When the trend of subscribers on the C television Youtube account increases, then in

line with this, the consumption of C television news content on Youtube will also increase. When viewed from the beginning of the year the Youtube account was created at the end of 2015, the adoption of online live streaming for Youtube TV C is still in an early phase where user consumption is at a developing stage (Figure 7). There is an increase in the number of live streaming news consumption on Youtube television C every year, which occurs every year



Figure 5. Development of Adoption of Online Live Streaming on Television Websites C

Source: Processed Primary Data (2021-2022)

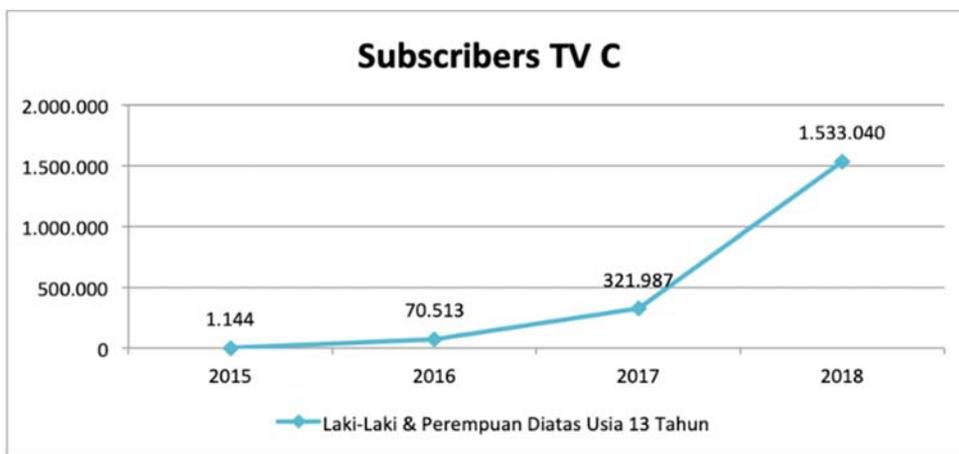


Figure 6. GraphSubscribers Television Youtube Account C

a steady increase in user consumption by approximately 300 percent.

The development of the adoption pattern curve for online live streaming on the C television Youtube channel also shows that the use of digital media YouTube is more popular than the website. This analysis of online live streaming trends on Youtube will continue to increase in the next few years, although not as much as 300 percent like the 2016-2021 period. The parameters on the consumption development curve for Live Streaming Youtube Television C will then produce a pattern from the initial adoption data that can be used to project the time

when market dominance will reach a certain level and it is still uncertain when it will reach the peak of the curve or even experience a decline.

The jump in live streaming consumption for Television C's Youtube can be said to be quite significant considering that a new Television C Youtube account was created and active in 2015. Consumption of this live streaming

It can also be said to be stable, seeing that graphic trends continue to increase quite a lot every year, especially when compared to the live streaming consumption of television website C which is quite different.

Analysis the increasing trend of online live streaming adoption can also bring about changes, not only for user consumption patterns, but also for news television business patterns in developing industry profits going forward (Boehm, et al., 2021, h. 4-24). The increase in user needs and consumption of news content through online live streaming has caused users to prefer to adopt online broadcasts rather than conventional ones. This will trigger a shift in business models and media convergence in West Java.

5. CONCLUSION

Technology trends are growing along with increasing internet consumption in West Java starting in 2021. The younger generation who are more active than their predecessor generations has caused a surge in internet consumption while on the move (mobile). Development trend this increasingly sophisticated internet access has also made media technology services more developed so that they can be accessed anywhere and anytime easily and flexibly following user activities.

This condition of internet consumption has also changed various patterns of adoption of their online news consumption. They adapt their news intake to an active condition that must always be able to consume information anywhere, anytime, and under any circumstances, so it is only natural that various broadcasting media such as news television in West Java begin to adopt internet technology through digital media in conveying news information. . This is done not only through news articles, but they are starting to make it easy for the public to be able to watch television news online through gadgets.

Adaptation of online live streaming technology on the website and Youtube as onenews information media is on the rise in West Java. Youtube has become one of the popular digital media for private news television in West Java in synchronizing live broadcasts of their news information through online live streaming. This can be seen from the increasing consumption of news content live streaming television C by users every year on the website and Youtube. Apart from that, active website users and subscribers on the C television Youtube account are also steadily increasing every year. The increase in live streaming consumption on the website and YouTube, television C can help prove that the trend of live streaming consumption is

expected to continue. The live streaming consumption trend curve is still in an upward (rising) phase and has not yet reached a peak indicating a downward trend. This analysis of online live streaming trends on YouTube is predicted to continue to increase over the next few years (after 2021).

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