3G

3G Mobile multimedia services (MMS) utilization in Indonesia

An exploratory research

3G Mobile Multimedia Services (MMS) Utilization in Indonesia: an Exploratory Research

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Abstract

The number of subscribers to 3G mobile networks in Indonesia is around 8.2% of total mobile phone subscribers, which shows a very low number compared with other countries. There exists a huge potential market which is yet to be exploited. To capitalize on this market, however, it is important to know the potential use of the 3G mobile networks in Indonesia as a developing country. One of the potential uses of the 3G mobile networks is 3G mobile multimedia services. To understand the current status and potential of 3G mobile multimedia services use among Indonesians, it is important to explore the reason why some Indonesians have, and others haven't yet, embraced 3G mobile multimedia services, and perceiving these services. In this article, we present key findings of our research that addresses these objectives.

Our study reveals that although many respondents aware of the 3G technology, only 47% of respondents use 3G mobile multimedia services. Even those who use 3G mobile multimedia services have perceived only a limited use of 3G mobile multimedia services. The service that they mostly use is the internet access followed by video call and mobile TV. The services such as video email, mobile video, movie preview, and video surveillance are not much used. 53% of respondents do not use 3G mobile multimedia services though some of them have 3G services support mobile phone. The main reasons they cited for non using 3G services are high cost of the services, no compatible hand devices, family and friends do not use 3G mobile multimedia services, and 3G applications and services are not easy to use.

1. Introduction

To provide a background to this study, first we will present an overview of 3G mobile network and services, and 3G mobile multimedia services--global perspectives. Then we briefly describe 3G mobile multimedia services offered nowadays in Indonesia and outline current status of adoption and potential uses of 3G mobile multimedia services (MMS) in Indonesia.

1.1 Overview of 3G Mobile Network & Services

The services and features that can be delivered based on mobile communication network depend on the ability of technology itself in supporting data rate. It is differentiating services and features from one generation of technology communication to others. The mobile communication network began to emerge in the 1940s with first generation (1G). 1G is an analog technology. The ability of 1G in supporting data rate was less than 10 kbps, the service that could be created only voice communication [15]**.** It could not support transferring data or image. That was why AMPS (advanced mobile phone service) in America and TACS (total access communication system) in Europe could only be used for voice communication.

In 2G, the second generation of mobile communication network, the ability to provide the data rate was higher than 1G, namely between 10 and 20 kbps.

2G was commercially launched in the 1990s. 2G is the beginning of a digital technology network. Time division multiple access (TDMA), code division multiple access (CDMA), and global system for mobile-communications (GSM) are included in 2G. TDMA and CDMA were deployed in various parts of the US, while GSM was deployed as the common standard in Europe. In Indonesia, 2G system is known as GSM. 2G could serve not only voice communication but also short message service (SMS) which perform higher data rate. Higher speed data were more readily supported over the digital 2G systems. The 2G systems also supported larger numbers of subscribers and so helped alleviate the capacity problems faced by 1G such as AMPS or TACS systems. However, 2G could not able to transfer image due to the ability of 2G systems in supporting data rate were still quite limited. While to transfer image just like video phone will need higher data rate. 2G was developed to General Packet Radio Service (GPRS). GPRS was one of 2.5G technologies provided an always-on connection to the Internet that allows users to toggle between surfing the web, a phone call, or text messaging without losing the connection. Birchler, Smyth, Martinez, and Baker wrote that GPRS usually offered transfer speed of 40 kbps while Sonera wrote that GPRS could offer data speed to 55 kbps [14].

3G is the third generation of mobile communication networks. The 3G is expected to meet the world standardization in order to provide global access for the same services. This standardization will integrate worlds of mobile and fixed telecommunications services in a digital data environment to serve the user as a comprehensive personal tool for unlimited communications. This means that 3G users can conduct any and all communication activities from a mobile platform, receiving similar services regardless of location or environment. There are two 3G standards competing; the WCDMA (Wideband Code Division Multiple Access) which become the UMTS (Universal Mobile Telecommunications System) and the CDMA2000 (Code Division Multiple Access). WCDMA and the CDMA2000 are regarded as the two main standards in the world even though there are still other variants of 3G such as NTT DoCoMo's Freedom of Mobile Multimedia Access (FOMA) and the Chinese TD-SCDMA (Time Division-Synchronous Code Division Multiple Access), which are also competing for market share. The International Telecommunication Union (ITU) is working on 3G international standardization through its project IMT-2000 (International Mobile Telecommunications) that aims at setting the global standard for 3G. This will create a truly single, worldwide standard, which will make it easy for users traveling to utilize their phones worldwide [14].

Based on ITU vision of IMT-2000 world, 3G requirements is defined that include: Small, low-cost pocket terminals; Worldwide roaming; A single system for residential, office, cellular, and satellite environments; High-speed data determined by cell site deployment-- Picocell (3G can offer data rate of 2 Mbps from fixed locations in-building), Microcell (3G can offer data rate of 384 Kbps for slower moving pedestrian users or outdoor to indoor/neighborhood), and Macrocell (3G can offer data rates of 144 Kbps for fast-moving mobile users in vehicles [29]

Grayson wrote that 3G devices manufacturers claim that 3G can offer data rate up to 40 times faster than the earlier 2G technology and proponents speak of it as equivalent to upgrading from a bicycle to racing car [27].

Due to its ability in offering high data rate, 3G can be designed to carry voice, video, and data simultaneously. To support this service, mobile operators maintain a network of interconnected and overlapping mobile base stations that hand-off calls as those customers move among adjacent cells. Each mobile base station may support users up to several kilometers away. The cell towers are connected to each other by a backhaul network that also provides interconnection to the wire line public switched telecommunications network (PSTN) and other services. The mobile system operator owns the end-to-end network from the base stations to the backhaul network to the point of interconnection to the PSTN. 3G is also known as Universal Mobile Telecommunication System (UMTS) which is developed to become High Speed Downlink Packet Access (HSDPA) and Long Term Evolution (LTE) [2] and [15].

1.2. 3G Mobile Multimedia Services-- Global Perspective

Japan's NTT DoCoMo started offering 3G services in October 2001 in the Tokyo area. Since May 2001, 5,000 residents in the Tokyo area had been using new 3G phones that offer improved i-mode service and real-time video conferencing. The initial video offering used a 64 Kbps circuit that carried video and audio combined [2]. Until Middle of 2008, Japan had the highest percentage of 3G users anywhere in the world, and at the end of August almost four-fifths of the total customer base had either W-CDMA or CDMA2000 1x EV-DO handsets. On an annual basis, the 3G base grew by 25.6% to just below 83.40 million, which represents 79.9% of the total. DoCoMo dominates the 3G sector with 55.1% market share at the end of August, while KDDI has 24.8% and Softbank 19.1% [11].

By the end of 2007, operators in Europe, which had invested more than $100 billion to buy 3G radio spectrum

licenses and would need to invest another $100 billion for the build-out of the 3G networks, had achieved 81.5 million customers [10].

In the end of 2007, South Korean Telecom, the Korean telecommunication market leader, had 21.97 million customers and a market share of 50.5% [12]. South Korean Telecom has June and Nate as browser application for its subscribers. SK Telecom creates uniqueness of language and letter. This uniqueness becomes the material for their local content.

Taiwan's 3G services started its operation in 2003. Taiwan's Institute for Information Industry had issued a report on the telecoms market and states that 3G subscriptions reached 6.91 million at the end of 2007. The Institute anticipated that 3G subscriptions would top 10 million. Just over 55% of mobile internet access was carried out via a 3G handset, compared to 32% being carried out over a GPRS network [13].

The Mobile World reported that Malaysia in the end of 2007 had some 23.3 million mobile phone subscribers, representing a population penetration level of 93%. Of the subscriber base, just under 1.6 million are using 3G services [16].

1.3. 3G Mobile Multimedia Services (MMS) in Indonesia

Three main operators had been actively delivering 3G services in Indonesia since late 2006, namely Telkomsel, Indosat, and Excelcomindo. They offer many different kinds of services that are based on 3G network or 3G mobile multimedia services, as highlighted in Table 1.

Table 1. 3G Mobile Multimedia Services (MMS) Currently Offered in Indonesia

Telecom Operators		
Telkomsel	**Indosat**	**Excelcomindo**
- Video Call	- Video Call	- Video Call
- Mobile TV	- Mobile TV	
- Video Call Conference	- Video mail	- Down-load content from WAP
- Mobile Video	- Video streaming	
- Mobile Movie	- High speed internet	-Mobile TV
- Wireless broadband	- Video Chat	
- Video Surveillance	- Video Blog	
- Video SMS	- Video Dating	
	- Video Announcer	

1.4. Adoption and Potential Use of 3G Mobile Multimedia Services (MMS) in Indonesia

Among the three main 3G operators in Indonesia, Telkomsel is the leader. Telkomsel can achieve the highest number of customers, as you can see from the table 2. Although, Telkomsel can achieve the highest number of customers, but it is still fail to achieve its target.

The percentage of 3G Mobile Multimedia Services subscriber to total mobile subscriber in Indonesia is still low. It is only 8.2%. If it is compared to the percentage of 3G to total mobile subscriber in other countries, as shown in Table 3, Indonesia has still huge opportunity to catch up. In Japan 3G subscribers as percentage of mobile subscriber is 80%, in Taiwan is 28.5%, and South Korean is 14%.

Table 2. Target and Achievement of 3G Mobile Multimedia Services Operators in Indonesia (million)

Operator	Target Customer (million)	Current Number of Customer (million)	Gap (million)
Telkomsel	15	5	10
Indosat	5.2	1.5	3.7
Excelcomindo	3.1	1	2

Sources: [20, 21, 22, 23, 24, and 25]

Moreover, if the total 3G Mobile Multimedia Services subscribers (7.5 million) compared to total number Indonesia population of 238 millions people (http://www.unapcict.org/member-countries/indonesia), it shows that there is still huge potential market to be approached. As stated by Ruthledge & Sachet, Indonesia is future giant which is characterized by large population and huge growth potential [28].

Table 3. 3G Mobile Multimedia Services Subscribers in Each Country as a Percentage of Total Mobile Subscribers for that Country Respectively

Country	Time	Total Mobile Sub- scribers (million)	3G Mobile Multi- media Services Subscriber (million)	3G Mobile Multimedia Services Subscribers as Percentage of Mobile Subscriber
Japan	Middle 2008	104	83	80%
Taiwan	End 2007	24	7	28.5%.
South Korean	End 2007	44	6	14%
Europe	End 2007	728	82	11%.
Indonesia	**Early 2008**	**91.5**	**7.5**	**8.2%**

Sources: [10, 11, 12, 13, 20, 21, 22, 23, 24, and 25]

Considering the fact that Indonesia has huge potential market, it is important to increase the utility of the 3G mobile network. Operators should attract the right customers—the high-value customer and work towards improving adoption and usage of services based on the 3G mobile network. More over 3G operators in Indonesia – Telkomsel, Indosat, and Excelcomindo-- had invested huge amount of money in 3G networks and services. They had built network and bought 3G radio spectrum licenses. To build 3G networks, Telkomsel, which has the biggest cellular phone market share in Indonesia, had spent about USD 300 million. Indosat had spent USD 200–300 million, while XL had spent about USD 50–100 million [16]. In addition, towards 3G spectrum licenses, these 3G operators must pay around USD 123 million each year to the Indonesian government (starting from 2006) and the licensing fee is increasing by 20% each year [20]. The 3G business planner must understand and consider the reasons of use and disuse of 3G mobile multimedia services or adoption factors of service based on technology in order to maintain the customers and attract the prospective customers, starting in late 2009 there are companies in Indonesia which are going to implement Worldwide Interoperability for Microwave Access (Wimax, a 4G mobile network) which needs less investment than 3G, but it can support data rate faster than 3G [19].

2. Literature Review

There are a lot of studies to point out the adoption factors of service based on technology. Theory of Reasoned Action (TRA) founded by Fishbein in 1967 and supported by Fishbein and Ajzen in 1975 [7]. Technology Acceptance Model (TAM) is firstly introduced by Davis, F.D. 1986 [4 and 5], The theory of planned behavior (TPB), Motivational Model, Combined TAM and TPB (C-TAM-TPB), Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT), Social Cognitive theory have been commonly used to analyze and deal with technology adoption [30]. Over time, many constructs have been added to the original theories to improve the predicted value. One of the studies was done by Venkatesh et al. (2003) who integrated the eight previous adoption models, addressing the new framework of adoption and usage model which is called a Unified Theory of Acceptance and Use of Technology (UTAUT) see figure 1.

Figure 1: UTAUT Model from Venkatesh et. al. (2003)
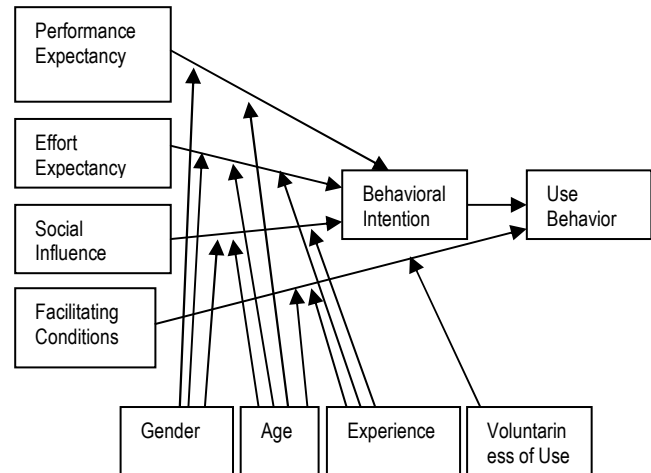
Source: [30]

From the test result, Venkatesh et al. found that the explanatory power of this UTAUT model is up to 70% with regard to technology using behavior. This explanatory power is the highest score among the eight previous adoption models in the study of Venkatesh et al. [30]. These findings make UTAUT model is more effective than the eight of adoption models. The UTAUT model has been used extensively; it is used in predicting course management software [18], wireless LAN technology [1], students' acceptance of table PCs [6], mobile commerce [3], mobile technologies [26], and 3G mobile telecommunication users [31].

Many researches, namely Tellefsen & Takada in 1999; Takada & Jain in 1991; Helsen et al. in 1993; Gatignon, Eliashberg, and Robertson in 1989 had recognized that consumers in different nations respond differently to a new innovative product [8]. Lindberg in 1982 wrote that the differences in products adoption across countries results from diverse macro-level economic indicators and socio-economic factors [8]. Considering these literatures, it is important to review studies which take into consideration Indonesian situation in building or modifying adoption model in order to fit with the nation.

Indrawati, Murugesan,S., and Raman, M. have founded that Indonesia has customers' characteristics and economic affordability that are vastly different from other countries [9]. These findings motivate them to propose modified UTAUT (Unified Theory of Acceptance and Use of Technology) model from Venkatesh et al. [30]. Modified UTAUT from Indrawati, Murugesan, S., and Raman, M. [9], as in Figure 2, integrates the influences of several adoption factors and takes into consideration Indonesian situation. They add one new factor namely price to the four factors in existing model from Venkatesh et al. [30], and two new control variables, namely hobby and affordability of customers to the two existing control variable.

Figure 2: The New Conceptual Model for MMS Adoption in Indonesia
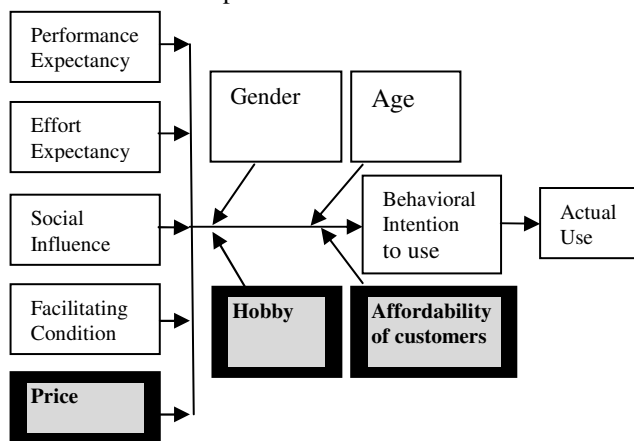
Source: [9]

The study of Indrawati, Murugesan, S., and Raman, M. [9] was doing by reviewing and critically analyze varying perceptions about the 3G mobile network, 3G mobile network adoption and adoption models, and the success story of 3G operators in several countries from published literature and publically available information, as well as doing in depth interview with people in 3G business. It is important to compare this finding with the perception of customers and prospective customers. If the model was just build base on 3G business players, experts, and literatures, it might be different from what customers' point of view. This will create gap perception between 3G business players and customers. This gap perception usually leads to creating service which is not desirable by customers and prospective customers. When this happened customers and prospective customers will be dissatisfied. It will make them refuse or reject the service. In order to make the model fit with the customers' opinion

and perception, knowing the reason of use and disuse of 3G MMS is important.

3. Methodology

The objectives of the study are: a. to investigate the reasons of using 3G MMS, b. to investigate the reasons of disusing 3G MMS, and c. to investigate the differences between the reasons of use and disuse with the modified UTAUT model from Indrawati, Murugesan, S., and Raman, M. [9].

In order to achieve research objectives, this study was conducted between October and November 2009, using in-depth interviews and on line survey through email and mailing list by using snowballing and convenience sample through the researcher's workplace to 3G users and non 3G users. The interview and questionnaire distributed to 3G users explore current MMS, investigate why respondent is using some MMS and not others, explore what factors influence the adoption for MMS. The interviews and questionnaire distributed to non 3G users are held to understand their perspective on factors which cause them 3G disuse. Those interviews apply to identify critical factors applicable to Indonesian situation, which may not be cited in literature.

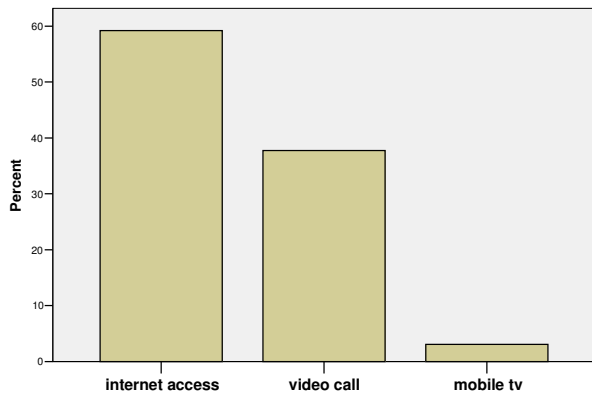## 4. 3G Mobile Multimedia Services Indonesia- Empirical Results

Total of 297 respondents participated in this research. 7 respondents are found not answer the questionnaire properly. Just 290 questionnaires are valid and used in this study. 47% of the respondents are 3G users and 53% of the respondents are not 3G users. 61% of respondents have devices (hand phone) to access 3G and 39% do not have devices to access 3G, so there are 14% respondents have facility to use 3G but they do not use it.

Since this research is conducted in researcher's work place, most of the respondents are students (65%) and second are employees (29%). The educations of the respondents are 75% undergraduate, 12% master/PhD, 7% diploma, and 6% high school. The ages of respondents are 52% in the range of 20 to 35 and 36% in the range of 11 to 19. The budget for telecommunication are less than Rp. 125,000 (60% of respondents) and between Rp. 125,000 until Rp.250.000 (37% of respondents). In term of gender, there are 43% male and 57% female.

4.1. Detailed Findings from Users' Point of View

The respondents who use 3G mobile multimedia services say that their periods of using are more than 12 month (55% of the respondents) and 7 to 12 month (18%). In their spare time, 67% of them say that they sometimes use 3G and 21% of them say always use 3G. The respondents say that their purpose of using 3G mobile multimedia services is first for internet access, including in internet access are web browsing, check email, and face book, second is for video call, and third is for mobile TV, as seen in figure3.

Figure3: The Purpose of 3G Ownership

The reason of using internet through 3G mobile multimedia services are mostly related to the ability to find information (content) faster, practice, flexible, and saving the time, as well as for community contact. The reasons of using video call is the ability of the users to communicate face to face with parents, suppose, and close friends especially whom live far away with the respondents. The reason of using mobile TV is for enjoyment especially in long trips.

The respondents say that the frequency of using 3G mobile multimedia services for internet access is every day (54% of the respondents), several times a week (31%), and several times a month (7%), as can be seen in figure 4.

The reasons of using 3G for internet access mostly are faster, simple, practice, and flexible, especially for accessing immediate and important information, as well as for community contact.

Figure 4: Internet Access Usage
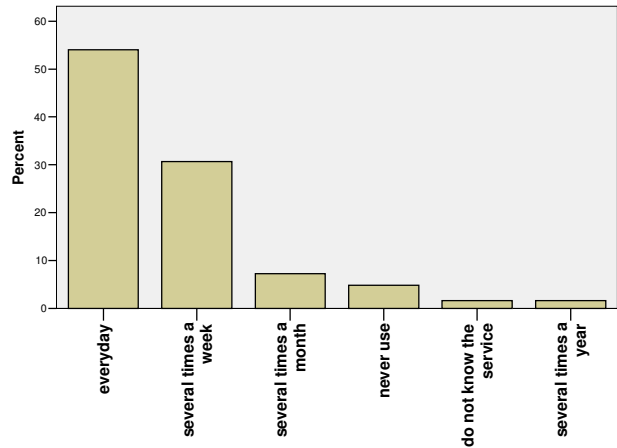
In term of video call, respondents say that frequency of using 3G mobile multimedia services is every day (2% of the respondents), several times a week (11%), several times a month (34%), several times a year (26%), and say never use (27%), as can be seen in figure 5.

Figure 5: Video Call Usage
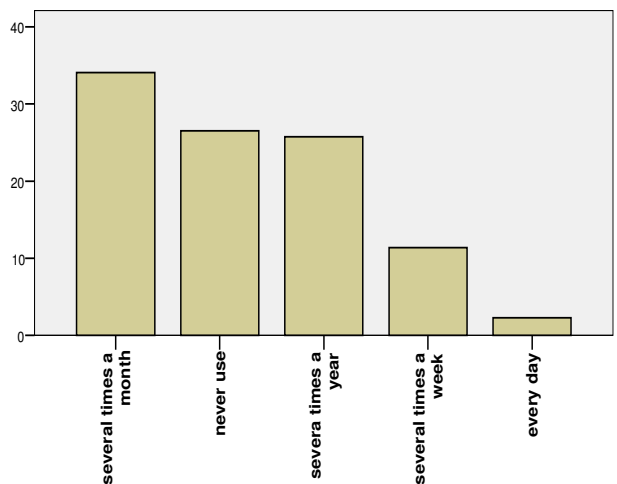
The reasons of using 3G for video call mostly are to communicate face to face with parents, suppose, and close friends especially whom live far away with the respondents. The reason video call disuse are mostly related to price which is consider to be expensive, friends and family do not use 3G hand phone, and video call is not popular yet in respondents community.

In mobile TV, most of the respondents (77%) say that they never use mobile TV. The rest of respondents (23%)

say that their mobile TV usage is varied. The detail description can be seen in figure 6.

Figure 6: Mobile TV Usage
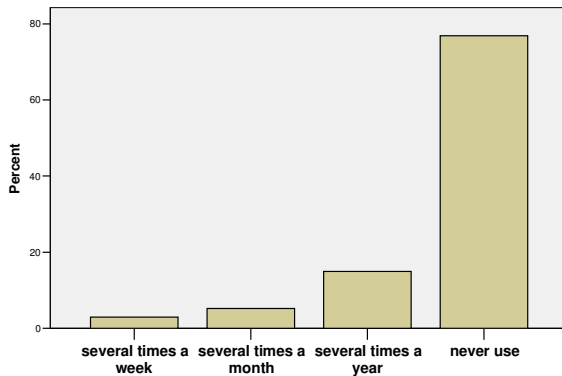
The reasons of not using mobile TV are mostly inconvenience due to small screen, lack of understanding in using application, no application available, long time loading, and expensive. They prefer to use free TV tuner. The reason of using mobile TV are to check if a TV program has started, to know emergency news, and to spend the time in a long trip.

In mobile video, 78% of the respondents say that they never use mobile video. 16% of the respondents use mobile video several times in a year and 8% use mobile video several times in a month. The detail description can be seen in figure 7.

The reasons of not using mobile video are not only expensive but also bad quality of service, no application in their hand phone, and lack of understanding in accessing. The reason of using mobile video is to spend the time in a long trip.
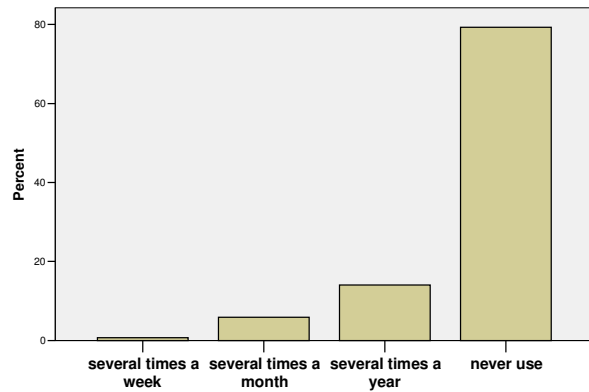
Figure 7: Mobile Video Usage
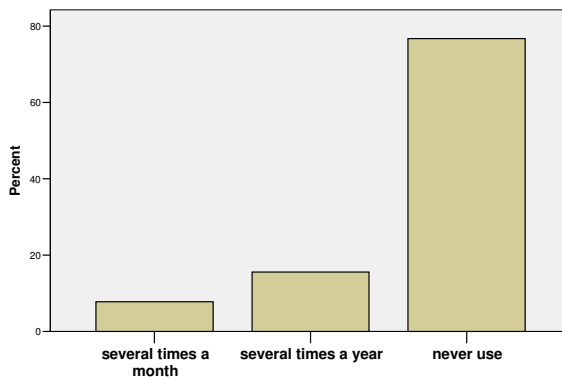
In video call conference, 78% of the respondents say that they never use mobile video. 14% of the respondents use video call conference several times in a year, and 6%

use video call conference several times in a month. The detail description can be seen in figure 8.

Figure 8: Video Call Conference Usage.

The reason of not using video call conference are almost similar with mobile video, namely expensive but the service is not so good, no application in their hand phone, and do not know how to access. The reason of using video call conference is more practice and save the time because it makes respondents able to communicate face to face with several people in the same time.

In video surveillance, 60% of the respondents say that they never use video surveillance. 27% of the respondents use video surveillance several times in a year, 7% use video surveillance several times in a month, and 5% use video surveillance several times in a week. The detail description can be seen in figure 9.

The reasons of not using video surveillance are unnecessity because the respondents think that they are not too mobile, and do not know to access. The reasons of using video surveillance are to find traffic, train, hotel, and restaurant information.
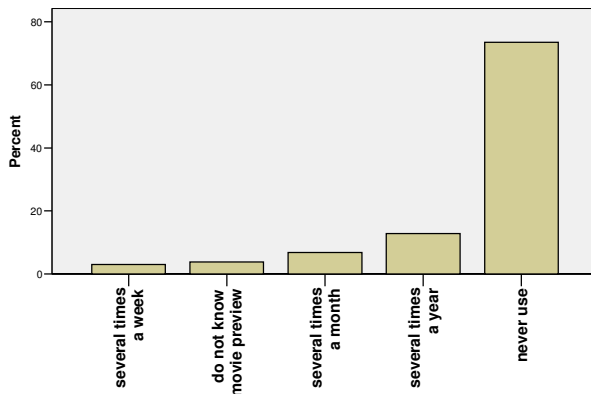
Figure 9: Video Surveillance Usage.

Figure 11: Video SMS Usage.
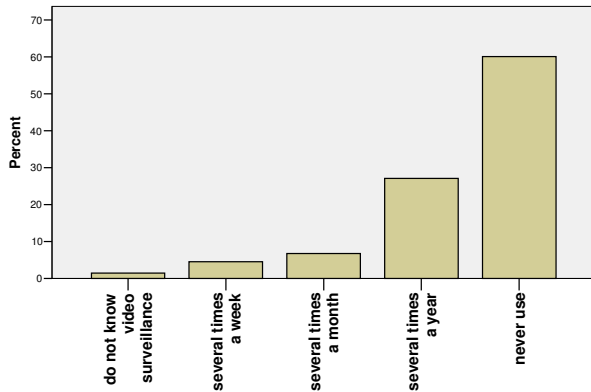
In movie preview, 74% of the respondents say that they never use movie preview. 12% of the respondents use movie preview several times in a year, 9% use movie preview several times in a month, and 4% use movie preview several times in a week. The detail description can be seen in figure 10.
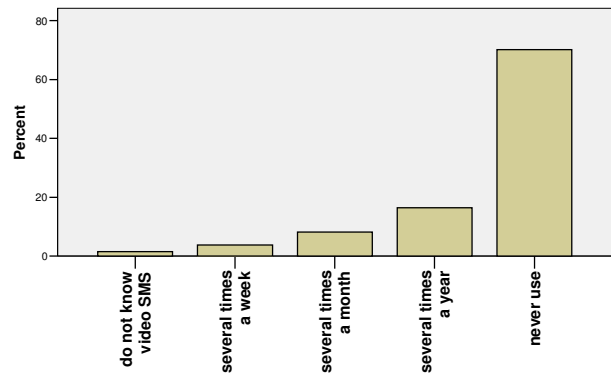
The reasons of not using movie preview are expensive, small screen and bad quality of services so the speed of loading is slow. Respondents prefer to use computer rather than hand phone. The reasons of using movie preview are to check now playing movie or upcoming movie before going to the cinema.

Figure 10: Movie Preview Usage.

In video SMS, 71% of the respondents say that they never use video SMS. 16% of the respondents use video SMS several times in a year, 8% use video SMS several times in a month, and 4% use video SMS several times in a week. The detail description can be seen in figure 11.

The reasons of not using video SMS are expensive and bad network quality so they need long time to send video SMS. Respondents prefer to use computer rather than hand phone. The reasons of using video SMS are to show their own video to friends and family and to show the places that they have visited.

Summarizing from the data explored previously, in term of usage, 3G mobile multimedia services can be ranged from mostly use is internet access including web browsing and email access, followed by video call, video surveillance, video SMS, movie preview, mobile TV, video call conference, and last is mobile video. Though respondents says that the third purpose of 3G ownership is mobile TV but in the usage mobile TV is in the fifth order.

## 4.2. Detailed Findings from Non Users' Point of View

The respondents who do not use 3G mobile multimedia services say that the reason of not using 3G mobile multimedia services are first expensive costs, second is no device, third is unnecessary, fourth is family and friends do not use 3G mobile multimedia services, the fifth is bad quality service, the sixth reasons is difficult to use, the seventh is using substitute product, and the eight reason is uninteresting features, and the last is do not know the benefit of using 3G mobile multimedia services, as can be seen in figure 12.

Most of the respondents who do not use 3G know 3G mobile multimedia services. In video call, 89% of respondents know the service and 11% do not know video call. For video call conference, 70% of the respondents know it and 30% do not know video call conference. For video surveillance, 51% respondents know it but 49% do not know the service. For movie preview, 40% of the respondents know it and 60% do not know video

surveillance. For web browsing, 90% of respondents know it and 10% do not know web browsing. For video SMS 64% of the respondents know it and 36% do not know it.

In term of importance of 3G mobile multimedia services, the respondents say that the first important is internet access including web browsing and email access, second is video call, third is on line news, fourth is video call conference, fifth is video surveillance, the sixth is mobile TV, the seventh is mobile video, the eight is video email, and the ninth is video movie preview.

Figure 12: The Reason of not Using 3G Mobile Multimedia Services
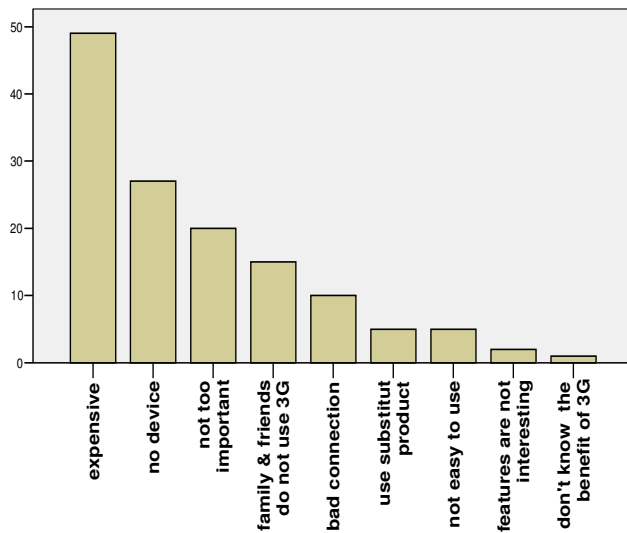
5. Discussion and Future Research

Both 3G user and non 3G user have the same point of view regarding the importance of 3G mobile multimedia services, namely the first important is internet access including web browsing and email access and second is video call. The reason of not using 3G mobile multimedia services according to 3G users and non 3G users are the same, mostly related to price which is consider to be expensive, friends and family do not use 3G hand phone, no devices, bad network or still has blank spots, not convenience due to small screen, do not know how to access the service, and the availability of substitute products. This findings support the modified UTAUT model from Indrawati, Murugesan, S., and Raman, M. [9] that adds price as one of key important factors to adoption of 3G MMS in Indonesia. In other hand, this study does not support the adding of hobby and affordability of

customers in their modified UTAUT model, since there is no significant different among the respondents in term of these control variables.

In order to increase the usage of 3G mobile multimedia services, it is important for the 3G business players to pay attention to the reason why the customers use the service and why they do not use the service and make marketing program based on that reason. Since this research result reveal that the first reason of using 3G mobile multimedia services is the ability to find information (content) faster, practice, flexible, and saving the time, the marketing program must be heavily concentrate in communicating the easy to use, speed, and flexibility in using 3G mobile multimedia services. The information (content) that is mostly needed from customer must be available as it is needed by the customers. The availability of good network and wide coverage is important in order to make the customer always available wherever they are to access the information (content). Dealing with the second reason-- the ability of the users to communicate face to face with parents, spouse, and close friends especially whom live far away with the respondents, as well as for community contact—it is suggested for the 3G business player to build customers community and give good facilities to that community in order to be easier for them to communicate each others.

Dealing with the first reason of not using 3G mobile multimedia services-- expensive services and devices-- it is suggested for the 3G business players to be more efficient and look for resources that will make the service cheaper, for example using local content devices may be possible to make the services cheaper. Bundling program with vendors of 3G devices is suggested in order to make devices such as hand phone support 3G and services appears cheaper. Starting to build collaboration with government and industries to make local devices is recommended, since no Indonesian local manufacturer produces 3G devices. If the devices and services have been considered cheap, the marketing people must communicate it effectively. This will motivate peoples to use 3G mobile multimedia services. A lot of people will use 3G mobile multimedia services, no more reason not to use 3G mobile multimedia services because of family and friends do not use 3G. The marketing communications also have to inform the customers about the benefit of using 3G mobile multimedia services. If the customers know the benefit of using 3G mobile multimedia services, they will be motivated to use it. The 3G business players must inform 3G heavily on benefit what customers can get when they use 3G mobile multimedia services rather than on what is 3G technology. Customers education in using 3G devices and services is still considered important, since the other reason of not using 3G mobile multimedia services is because the customers do not know how to

access the service and use the device. Building the 3G network especially in the area where there are many customers do their activities is suggested in order to solve the blank spot problem or no connection.

This research is exploratory research, the respondents are taken with non probability sampling technique, so it is important for future research to take respondents with probability sampling in order to generalize the research result in the population. When the research result can be generalized, it is more useful to make decision making. In this research it is not known what kind of information or content is really needed by the customers. In the future research, it is suggested to explore what kind of information or content that the customers really need.

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