

## **NEXT GENERATION OF TELEVISION: UHDTV SERVICES AND THEIR ACCEPTANCE AMONG MALAYSIANS**

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### **Abstract**

The potential introduction of Ultra High Definition Television (UHDTV) to Malaysian audience has been met with mixed views. The UHDTV service is arriving at a highly competitive broadcasting industry strewn with disagreement among audience-electronics companies, telecommunication carriers, terrestrial broadcasting companies and Pay-Tv companies. This study explores the state of readiness for the adoption of UHDTV by the Malaysian Television Industry and its audience through the economic model of audience's rights perspective. The study primarily analysed the Korean UHDTV audience's reception because they are the forerunners in the sector of TV broadcast. Next, the Malaysian TV industry is analysed as a comparatively late adopter of the technology. This empirical study conducted a market survey on the penetration of UHDTV in Malaysia and conducted interviews with technology manufacturers, electronic companies and broadcast vendors from Kuala Lumpur. The study concludes that, while some success in UHDTV penetration was achieved, the audience were not consulted on the crucial principles of universal accessibility. Apart from that, inefficient broadcasting practices were being adopted as high definition broadcasting gets underway. Finally, the study proposes strategies that would respect audiences' rights and their ability to navigate their cultural conflicts from the inevitable technological disruptions.

Keywords: Audience rights, Broadcasting, Ultra-high definition TV (UHDTV).

## 1. Introduction

The mass communication industry has transformed at an alarming rate; it is witnessing the development and implementation stages of HDTV (High Definition Television) and 3DTV (3-Dimensional Television) followed by UHD TV (Ultra High Dimensional Television) and other standards. In addition, as for mobile-TV use, it was observed that show-off and self-expression have implications for motivation. Similarly, a study on the adoption of UHD TV found that a user's interest and rights in the latest innovations in television broadcasts, social status and the desire to show-off are directly connected to the high cost of UHD TV. This means the users' characteristics in terms of their choices are critical when distinguishing between adopters and non-adopters. Furthermore, the pattern of adoption is inconsistent in Korea and Malaysia.

## 2. Issues and Challenges

The fourth industrial revolution, internet of things and the growth of personal media has liberated the audience's choices about how they wished to consume media products. The convergence of broadcasting technologies is also accelerating changes to audience's choices of TV screens. The proliferation of broadcast formats and the evolution of screens have further spoiled the audience's choices. Engineers and manufacturer are continuously racing to commercialise their inventions. The problem with this scenario is, on the one hand, the 'in the pockets' of consumers whose standards of living may not commensurate with the economic development and cost of living. The affordability factor of the masses would result in a slow take-up of any new innovation to TV screens, which would then gradually contribute to a failed implementation of innovation. Next, the audience is not consulted. Audiences are treated as a homogeneous commodity whose individual rights are not respected. Their individual choices and collective rights turn out to be different from what is desired. Strategic interventions by The Malaysian Communication and Multimedia Commission (MCMC) are also slow and opaque in their consultancy actions.

### 2.1. Research Objectives

The research process of this study is guided by the following research questions:

- i. What is the state of readiness for the adoption of UHD TV services in Malaysia?
- ii. What are the issues affecting the audiences' rights in the implementation of UHD TV services?
- iii. What interventions can defray audiences' concerns on the implementation of UHTV services?

### 2.2. Economic model as guiding factor

The origins of the public interest standards of Radio and TV can be traced from as early as, "*The 1928 Statement*" [1] to the landmark *Red Lion Broadcasting v FCC* decision in 1969 which upheld the "right of the viewers ...". Therefore, the rights of audiences have long been clear. Sunstein [2] supported the audiences' rights and cited an economic model, as "a well-functioning television market would promote

the ideals of consumer sovereignty” (2000, p 156), in the three guiding factors given pertaining to audiences’ rights:

- i. Broadcasters tend to treat the audience to advertisers as a commodity for sale in terms of audience numbers, programmes’ ratings, and popularity;
- ii. Broadcasters tend to treat the audience as being homogeneous in their taste for choices; in that, the audience will almost surely consume products made for them;
- iii. Audience’s Collective Action Problems. When information is a public good, the problem is not that the audience chooses unwisely as individuals, but the collective consequences of their choices often turn out to be very different from what they desire or anticipate.

### 3. Method

This empirical study conducted a market survey on the penetration of UHDTV services in Malaysia. First, three interviews were conducted with business owners of retail sales outlets in the affluent suburbs in the Klang Valley, that is Kuala Lumpur, Petaling Jaya, and Shah Alam. Next, three more interviews were conducted with business owners of retail sales outlets in the rural areas near Rawang, Semenyih, and Banting. Then interviews were conducted with technology manufacturers, electronic companies and broadcast vendors, who were mostly from Korea, Japan, Taiwan, and Malaysia, who participated in the 2014 and 2018 ABU Digital Broadcasting Symposiums in Kuala Lumpur. Finally, the study had conversations with audiences who walked into the retail outlets prospecting purchase of UHDTV for their homes.

This study initially analysed literature of audiences’ reception of the Korean UHDTV, being the forerunners in this sector of TV broadcast as well as the Malaysian TV industry who are comparatively late adopters of the technology.

### 4. Results and Discussion

Interview results of business owners, audiences and sales are described here in Table 1. In addition, interest in 4K Ultra HDTV has significantly increased in Korea after the Moscow 2018 World Cup when they spearheaded the use of the new media and the first to broadcast UHDTV in the world.

**Table 1. Summary of data from interviews conducted in 2017.**

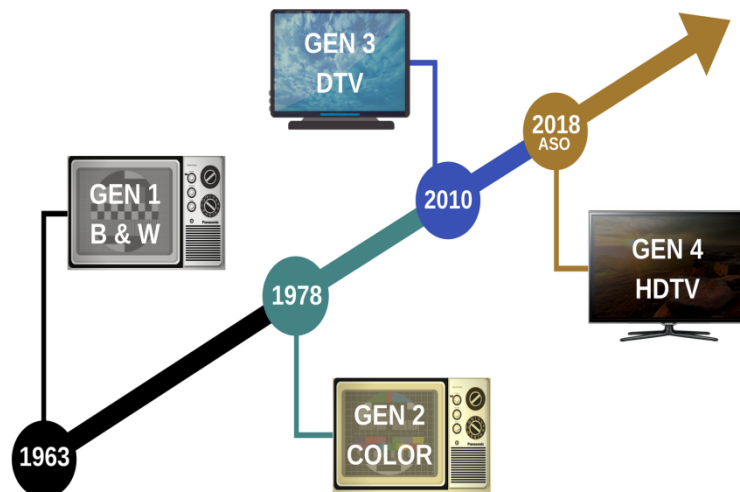
	Urban	Suburban
Average sales per outlet	3 units × 4 weeks × 12 months= 144 units	1 unit × 4 weeks × 12 months = 48 units
Business owners’ views	“Business is slow”, Buyers know about UHDTV, but they are careful.	“Business not picking up”, Buyers do not know. They buy because the pictures are beautiful.
Audiences views	“Sooner or later, I will buy it. I watch a lot of OTT and VOD programs”	“Nice to have a big flat screen in the hall when relatives visit us”.

#### 4.1. 4K Ultra HDTV

UHDTV provide image clarity, greater texture and an almost photographic emulsion of smoothness. The study finds that 4K Ultra HD TVs (UHD TVs) provide eight million pixels and delivers four times the details of 1080p Full HD. UHDTV has established itself as the new paradigm in audience TV broadcast reception. Media experts believe that UHD TVs will be adopted extensively for the rest of the decade and possibly beyond, similar to the experiences of the standard definition era.

UHDTV has revolutionised not only the big screen TV market and the Internet movie streaming services but gaming experiences as well. Knight [3] claimed that consumer demands for 4K TV are on the rise. According to the Korean Broadcasting System, UHDTV sales increased from under 150 000 units to 1.1 million between March 2012 and March 2014 [4]. Kraus and Sappington [5] predicted that 4K TV prices will reach the mass-market levels within three years and top 80% of the households in approximately 10-12 years, unlike HDTV, which reached similar levels in 15 years.

Comparatively, the TV industry in Malaysia has had a slower evolution (Fig. 1). While most technologies and critical talents are still being imported, so is the latest in UHDTV.

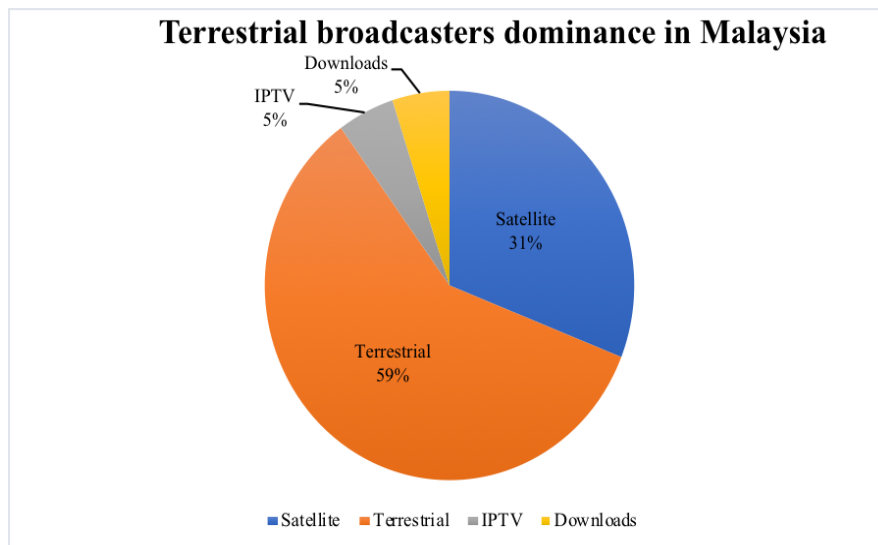


**Fig. 1. Evolution of broadcasting technology in Malaysia.**

Malaysians, who did not fully grasp the need for the conversion to the color TV in 1978, asked why was it necessary for them to change when the Black & White version it worked fine. Their issue was the hidden cost: four times more for a household to convert then. Audiences or consumers of TV technologies are now grappling with the development of multiple platforms of broadcasting such as cable networks, terrestrial networks and a combination of IPTV networks and terrestrial networks (2010). Television content is currently received in 4:3; 16:9; postcard and scope formats. In the near future, the audience will receive HDTV and UHDTV quality transmission. Meanwhile, broadcasters and manufacturers are not at all

relenting on their promotions of newer technologies such as Over-The-Top (OTT) and Integrated Broadcast Broadband (IBB) as emerging delivery technologies [6, 7].

It is essential to note that even with the presence of multiple broadcast offerings, terrestrial broadcasting is very much dominant in Malaysia (Fig. 2) [8]. While the monopoly of broadcasting has been democratised, there were emerging issues with compliance and governance for broadcasters on the one end and the escalating cost for accessibility of information for audiences at the other end. At the same time, the support from the local manufacturers is almost nil because all TV-related products and services are imported as can be observed from annual exhibitions [9] leaving the local audience with little choice than to adopt changes cascading down from the industry to the audience one way or the other. Retail prices for new HD and UHDTV sets in the Klang Valley are four times the cost of standard definition sets. This is not affordable for the average wage earner in a developing country like Malaysia with RM38, 887 national average 2016, per capita income [10].



**Fig. 2. Audience share among content providers in Malaysia 2016.**  
Source: Annualized FTA-TV revenue, MCMC 2016

#### 4.2. UHDTV in Korea

Four major Korean broadcasters, KBS, SBS, MBC, and EBS had successfully terminated the analogue shut off (ASO) and conducted on-the-field tests for UHDTV transmission by DVB-T2. The Ministry of Sciences, ICT and Future Planning, and the Korea Communications Commission supported the project.

Currently, 4K-ready TV sets are being marketed around the world. Breznick [11] explained that for instance, the consumer electronics manufacturers had shipped 17.6 million 4K TVs to North America in 2017. South Korea, Japan, and Hong Kong are prepared to roll out UHD ahead of the rest of the world. In terms of broadband speed, South Korea led the way with 60% of its households being 4K-ready, followed by Japan with 32% and Hong Kong with 26% [11].

### **4.3. The diffusion of innovation**

Based on the diffusion of innovations model, there is a significant influence of demographic characteristics on technology adoption [12]. Rogers [12] insisted that there is a great potential for consumers to accept technological innovation as users have strong desires for new products in pursuit of new information. With regard to multimedia technology adoption, people's support for innovation has played a crucial role in intending the use of new information technology [13].

The analysis on the tendency of earlier adopters also revealed that those with high innovative dispositions would replace their old product with a new product quickly for user perceived video quality [14]. The higher the individual's income, the higher the intention of adopting high definition or ultra-high definition TV sets [15]. Previous research also informed the study that there is a negative correlation between age and acceptance attitude towards new technologies [16].

### **4.4. Challenges in the adoption of innovation and change**

Despite the indications of positive and early adoption of UHDTV services, the programming for new channels was not clear, so is the consumer-purchasing trend of UHDTV sets an indication of readiness for the adoption of the technology. What is clear is the service still has many challenges.

#### **4.4.1. Low UHD TV penetration rate**

Few bought the UHD TV, which was four times the price of the existing TV in 2014. It is expected that the prices of UHDTV will drop below the current price in two years. In addition, 4K resolution on a screen size of 70 inches provides almost no visible benefits at normal seating distances. Viewers need to be at least 6 feet away and further.

UHDTV penetration in South Korea households is currently estimated to be at 1.1% although it is predicted to rise to 17% by 2018, with leading manufacturers such as Samsung and LG driving strong demands in their domestic market [17]. For now, the take up in Malaysia is still limited to Klang Valley, and its numbers are negligible. Korea Electronics and Telecommunications Research Institute (ETRI) expect that terrestrial broadcasters will start UHD broadcasting only by 2020.

#### **4.4.2. Lack of 4K content and the fear of obsolescence**

The creation of UHD content is becoming popular in the film industry. However, readily available 4K broadcasts and 4K disc format such as Blu-ray is rare. The gap between 4K/UHD TV availability and content availability is that content provider is not convinced by the incentives to make the content available in HD format. According to Vice President Netflix, Todd Yellin, [18], even Netflix suffers from scarcity of 4K movies because the studios are looking into the financial viability of 4K masters. Based on studies by Archer [18], film studios are seriously concerned by the impact that the original 4K quality may have on video piracy.

The huge costs of 4K production, including the new cameras, improved data storage capacity, high-powered mastering systems, extra broadcasting capacity, and infrastructure appeared to be a barrier for broadcasters. They are also aware

that the standard definition and HD channels can be carried in the same broadcast space as a single 4K [18].

#### **4.5. Strategic economic goals**

It is inevitable that UHDTV broadcast will become mainstream in the future. However, in Malaysia, the TV industry is expected to experience some challenges before its full commercialization. The primary concern of broadcasters is the scarcity of the UHD content. Broadcasters must create a large pool of UHD content for economically viable broadcast operations. Broadcasters' media technologies and a media assets management workflow should be in place. Finally, the audience must be made aware of the changes to the broadcast reception technology.

Next, the Malaysian Communication and Multimedia Commission (MCMC) needs to develop diverse policies to support related broadcast industries. In this regard, a "public interest standard in television broadcasting" alone is inadequate to protect the interest of audiences, nor are the statutes in MCMC (1998). The Commission has the discretion to formulate and revise the meaning of public interest obligation as circumstances changed.

It is vital to set up a system that allows the cooperation between the government, industry, and broadcasters for related policies and support, foundation technique procurement, and to enable diffusion of UHDTV. The proposition for the protection of audiences' rights is being adapted for this study:

- i. Media education support is essential to create awareness and action by the audiences in their choices in decision making about broadcasting content and technology. The audience is not homogeneous in their taste in as far as choices are concerned. They should be affordable choices in the way they consume products made for them.
- ii. It is essential to secure audiences' mandate before implementation of any innovations and that public interest in broadcasting is to be respected. The move would save much cost and despair among broadcasters and the audience.
- iii. That public should be able to afford access to all quality broadcast from time to time with so many innovations constantly pouring into the living rooms of the audience. At least one broadcaster, My FREEVIEW, is giving away free trial set-top boxes to the 'interior folks' in the east coast of West Malaysia. For such gestures to be readily accepted there should be in place sufficient provisions built in by MCMC offer packages.

#### **5. Conclusions**

The study concludes that, while some success in UHDTV penetration in Malaysia is achieved even before the official broadcast is commissioned, the social and cultural concerns have been cited for the delay and poor take-up of the innovations to broadcasting. It also means that the critical principles of universal accessibility are not being followed. It is now important than ever before that universal access to quality media products and their affordability by majority audience are guaranteed.

Audience reception rules and conditions are not merely the prerogative of broadcasters. They no longer remain within an institutional domain and instead, they are evolving into a negotiated space for the audience by the audience. In

response to such trends, The MCMC could promote and protect the audience's rights through the provision of media education before the introduction of innovative products.

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