

Influence of Video Piracy Websites on Vietnamese Users' Behavior of Using Subscription Video-on-Demand Services

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Abstract

This study aimed to explore the impact of Vietnamese users' perceptions of video piracy websites (VPW) on their behavior of using subscription video-on-demand (SVOD) services. Combining the protection motivation theory (PMT) and theory of planned behavior (TPB), a theoretical model was developed and empirically tested using questionnaire data from 397 Vietnamese users. After analyzing data by the structural equation modeling (SEM) in SmartPLS 4.1, it is revealed that self-efficacy, attitude, and subjective norms positively and significantly predicted behavioral intention to use SVOD services. Moreover, perceived severity and vulnerability associated with VPW also positively influenced this intention. Meanwhile, the impact of response cost and response efficacy on behavioral intention was found to be statistically negligible. Finally, the study discovered that there is a strongly positive relationship between behavioral intention and behavior of using SVOD services among Vietnamese users. In general, this is the first study to investigate Vietnamese users' behavior of SVOD services with the influence of VPW and apply the PMT and TPB to research on over-the-top media consumption.

Key Words: Protection Motivation Theory, Subscription Video-on-Demand, Theory of Planned Behavior, Video Piracy.

I. INTRODUCTION

The widespread availability of internet access has fueled the rapid growth of over-the-top (OTT) media platforms. Especially, during the social distancing period due to the Covid-19 pandemic, online video streaming services have flourished as a popular form of entertainment globally [1]. According to a report by Media Partners Asia, Vietnam's online video industry was projected to generate a revenue of USD 249 million in 2022. This was anticipated to be composed of 15% from subscription-based services and 85% from advertising-based services [2]. In Vietnam, 93% of the population watched online video content in 2024 [3].

However, this growth has been accompanied by a significant rise in unauthorized video streaming services in certain regions, including Vietnam. The proliferation of unlicensed websites offering copyrighted content has reached concerning levels. In 2022, the number of unauthorized users reached 15.5 million, resulting in an estimated loss of USD 348 million, which represents 18% of the total revenue of the legitimate video industry [4]. Without effective control measures, the number of infringing users could potentially escalate to 19.5 million

by 2027, leading to a projected revenue loss of USD 456 million [4]. Speaking at the Connecting Multi-channel Management Networks conference on May 27, 2023, in Ho Chi Minh City, the Deputy Minister of Information and Communications affirmed that Vietnam ranks highest globally in the misuse of cyberspace for fraudulent activities and copyright infringement. He further elaborated, stating that: "For every 100 coins earned from fraudulent activities on YouTube, 55 coins originate from Vietnamese users. We currently top the list for copyright infringement" [5]. Besides, the Asia coalition against piracy (CAP) reported a 19% copyright infringement rate via streaming in Vietnam, with a staggering 61% of users engaging with pirated platforms in Vietnam [6]. This surge in piracy significantly impacts users' decisions on legitimate streaming services, particularly subscription video-on-demand (SVOD) services.

It is suggested that the perceived risk of legal penalties, even without actual enforcement, may deter individuals from engaging in piracy [7]. In fact, under the Law No. 50/2005/QH11 on Intellectual Property and other relevant laws in Vietnam, there are no specific regulations considering watching pirated videos as a violation of the law.

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This means Vietnamese law only penalizes the distribution and creation of pirated content, not its consumption. Therefore, there are still many Vietnamese users preferring to use non-copyrighted content. A persistently high rate of digital copyright infringement on various platforms has been noted by the Vietnam Digital Content Copyright Centre [8].

While the affordability of streaming services like Netflix has been associated with a decrease in online piracy rates in recent years (Nhan et al., 2020), existing research highlights a concurrent rise in piracy attributed to various service-related shortcomings within streaming platforms and other content distribution channels [9-10]. Nevertheless, Vietnamese consumers are price-sensitive, as they could have easy access to free alternatives, such as illegal streaming websites and advertising video-on-demand (AVOD) platforms like YouTube, substantially impacting their willingness to pay for subscriptions [11]. Especially, experiencing region-locked content strongly predicted future piracy intentions [9,12]. Muzaddi (2020) found that individuals in Asia thought that there was a lack of regional content access, which resulted in a subsequent likelihood of engaging in piracy under these circumstances. Moreover, the ease of accessing, cracking, and using unlicensed digital products in Vietnam further explains the high rates of digital piracy among Vietnamese users, as demonstrated in a study by Pham (2017) [13].

Whereas, consumers' adoption of SVOD services is proved to be driven by a complex interplay of factors. Tefertiller and Sheehan's recent research on OTT platforms identified "relaxing entertainment", a combination of relaxation and entertainment seeking, as a key motivator for OTT viewing [14]. Meanwhile, Menon (2022) identified eight general OTT viewing motivations (convenience, voyeurism, binge-watching, information-seeking, relaxation, entertainment, companionship, social interaction), based on the U&G theory and tested using SEM [15]. Variety-seeking, household finances, ethical considerations, and social norms are also suggested to influence the number of subscriptions consumers maintain [16].

In Vietnam, prior studies relating Vietnamese people's intention and behavior towards SVOD by Le and Dinh et. al. highlighted price-value, hedonic motivations, and social influences as key determinants of SVOD subscription intention [11,17]. Le (2020) used the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) to emphasize the significant role of "original content" offered by platforms such as Netflix, Apple TV+, Disney+, and local Vietnamese providers in attracting subscribers [11]. Within Vietnam's collectivist culture, social recommendations from people around have considerable impacts on subscription decision, underscoring the effectiveness of word-of-mouth marketing there [11]. Besides, Nguyen analyzed the impact

of confirmation on gen Z consumers' repurchase intention of online video streaming services [18]. In terms of digital piracy activities, Ballano's (2016) explained the persistence of CD/DVD traders by their social context then urged policymakers and the public to consider flawed copyright policies and enforcement, and technological advancements, rather than solely blaming traders, for piracy in developing nations [19]. Additionally, Pham et. al. (2020) and Chan (2023) respectively discovered the factors related to digital piracy behavior through quantitative and qualitative methods. Especially, the main existing disadvantages of accessing video piracy websites for individual users, namely information security, moral judgement and inferior watching experiences, have been found to be widely acknowledged [20-21].

Despite numerous studies investigating SVOD-related factors contributing to piracy engagement, the inverse relationship, which is the influence of perceived threats from piracy content on SVOD adoption, is unresearched. Therefore, this study aims to fill this critical gap.

Protection Motivation Theory (PMT) is recently applied in many information and digital security research. Concurrently, video piracy websites (VPW) are recognized as potential sources of security threats and attacks [22-23].

Regarding the theory of planned behavior (TPB), previous research, such as studies by Nuriska & Azizah (2021), Leowarin & Thanasuta (2021), Tu (2021), and Jitpaisarnwattana (2022), has extensively utilized this model to explore motivations and determinants of SVOD service purchase intention. However, these TPB-based approaches have largely omitted factors related to digital risks, particularly in the context of widespread VPW usage.

Therefore, this paper proposes an integrated model that combines PMT with TPB. This integration aims to enhance our understanding of SVOD service adoption, acknowledging it as a behavior influenced by a complex interplay of factors, including those related to perceived threats from VPW. Moreover, to the best of knowledge, no prior studies in Vietnam have integrated the PMT and the TPB, and there has been no research that adapted these two theories into researching over-the-top usage. Therefore, this study will become the first to address these gaps by using the PMT and the TPB to examine the relationship between the threats of video piracy websites and Vietnamese consumers' subscription decisions regarding SVOD services. Analyzing Vietnamese users' behavior of SVOD services, in the context of the widespread availability of VPW, will reflect the intricate dynamics of the contemporary media landscape. This study offers significant insights to for researchers and media industry stakeholders to comprehensively understand the challenges and opportunities in fostering the consumption of legally acquired digital content.

This study will examine the following research questions:

RQ1: Do Vietnamese users' perceptions of threats from video piracy websites correlate with their behavior regarding SVOD services?

RQ2: Which factors influence Vietnamese users' behavioral intention towards SVOD services the most and the least?

RQ3: To what extent does Vietnamese users' behavioral intention affect their behavior of using SVOD services?

The subsequent sections of this paper is structured as follows: Section II describes the study's theoretical background and hypotheses. Section III details the methodology, including measures and data analysis techniques. Section IV reports the findings of the research. Section V includes a discussion of the main findings, their implications, limitations, and recommendations for future research. Lastly, the conclusion is offered in Section VI.

II. LITERATURE REVIEW & RESEARCH HYPOTHESES

2.1. Subscription Video-on-Demand (SVOD) Services and Video Piracy Websites (VPW) in Vietnam

Subscription video-on-demand (SVOD), as defined by Wayne (2018), offers users on-demand access to a diverse range of digital media content for a recurring subscription fee, typically monthly [24]. These services encompass both the creation and distribution of content, providing readily available access across multiple technological platforms (Palomba, 2021). The rise of SVOD services, enabled by over-the-top technology, has significantly altered consumer media consumption habits, fostering behaviors such as binge-watching and viewing on a variety of smart devices [25]. Furthermore, SVOD platforms leverage AI and big data to power sophisticated recommendation systems, enhancing user discoverability and content selection (Xavier, 2013) [26]. According to Murti (2024), customer satisfaction with SVOD services is determined by several key indicators, namely fast service, presenting fast/latest shows, and adequate transaction costs [27].

In early 2016, the arrival of Netflix spurred a wave of domestic platforms like MyTV, VieOn, DANET, TV360 and VTV Go to enter the market, creating a dynamic and diverse landscape of the video-on-demand (VOD) businesses in Vietnam. Vietnam's VOD streaming market also features other players such as Apple TV+, Clip TV (Mega Media), WeTV, iQIYI, and VNPT's MyTV. While Netflix and Apple TV+ operate solely on an SVOD model, Vietnamese homegrown platforms offer multi-platform options (web, mobile, smart TV apps) and incorporate many types of services, encompassing SVOD, advertising-based video-on-demand (AVOD) or transactional video-on-demand

(TVOD). Especially, the digitization of content has normalized the exchange of advertising for free access, leading to a widespread user tolerance for advertisements and the increasing adoption of AVOD services [28]. A recent report shows that FPT Play, a Vietnamese platform, has surpassed Netflix in terms of popularity among movie streaming services (Decision Lab, 2024). That FPT Play has outstripped global giants like Netflix to secure the second position underscores the robust competitiveness of Vietnamese SVOD. Regarding satisfaction with Vietnamese streaming services, including FPT Play, VTV Go, MyTV Net, Galaxy Play, VieON and others, a combined 33% favorability rating is recorded [29].

Digital piracy is the act of downloading, duplicating or distributing copyrighted digital content without consent of the copyright owner (Gunter, 2009) [30]. Despite evidence from Mallick et al. (2024) demonstrating the synergistic effect of media campaigns and positive peer influence in enhancing piracy awareness and reduction, the prevalence of piracy content access remains substantial [31]. To further explain that situation, prior research in 2025 indicates that the COVID-19 pandemic significantly impacted the illegal acquisition of digital content, including music, films, series, books, and games, especially among individuals who transitioned to remote work or learning environments and those who experienced income reduction [32]. These days, digital piracy occurs mainly through using peer-to-peer (P2P) sites, torrents and illegal streaming services [33]. While peer-to-peer (P2P) networks and torrenting facilitate the illegal downloading of copyrighted files, a distinct form of infringement involves illegal streaming websites, referred to as video piracy websites (VPW) in this paper. These platforms embed copyrighted content, often sourced from external servers, without authorization from the copyright holder, thereby avoiding direct file downloads. In Vietnam, Fmovies, Motchill, Phimmoi, Subnhanh, ThapcamTV, Xoillac... and others are widely accessed VPW.

2.2. Protection Motivation Theory (PMT)

Protection Motivation Theory, which was originally proposed by Rogers in 1975 [34], aims to explain the initiation of protective behaviors. It has been widely recognized as a powerful predictor of protective action intentions [35], and initially found application in health psychology and related social sciences [36-37]. Its scope of usage has since expanded to studies of various behaviors, including technology adoption, information security, environmental decision-making, or consumer purchasing, when they are put into diverse behavioral contexts involving different possible threats.

The PMT model revised by Rogers (1983) posits two key appraisal processes: threat appraisal and coping appraisal [38]. Threat appraisal encompasses perceived vulnerability,

perceived severity and rewards, while coping appraisal involves response efficacy, response costs and self-efficacy. The interplay between threat and coping appraisals determines the intention of an individual to adopt a more protective decision.

2.3. Theory of Planned Behavior (TPB)

The TPB, developed by Ajzen (1991), provides a framework for understanding technology adoption, consisting of both individual motivations and social influences [39]. It was built upon the Theory of Reasoned Action (TRA), which identified two key predictors of behavioral intention: attitude and subjective norms [40]. The former represents an individual's overall evaluation of the behavior, reflecting their personal motivation. Meanwhile, the latter reflects how individuals feel pressured by the expectations of people important to them. The TPB adds another crucial element of perceived behavioral control, relating personal confidence in their ability to successfully adopt protective measures. Therefore, the TPB integrates internal factors (attitudes, self-efficacy) and external factors (subjective norms) to comprehensively explain behavioral intentions. The multifaceted nature of SVOD usage, influenced by both personal and social factors, makes the TPB considerably applicable to SVOD research.

2.4. Research Hypotheses

This study combines the PMT and the TPB to examine how perceived threats of VPW influence Vietnamese users' intentions and behaviors regarding SVOD services. Although the PMT initially included rewards (benefits users can receive when accepting the threats) in threat appraisals, this construct is often omitted due to the difficulty in separating it from response costs (Norman, Boer and Seydel, 2005) [41].

In the TPB, Ajzen explicitly linked perceived behavioral control to Albert Bandura's concept of self-efficacy, which "is concerned with judgments of how well one can execute courses of action required to deal with prospective situation" [42]. He further elaborated on this strong conceptual overlap, noting that the core of perceived behavioral control often revolves around the perceived ability to perform the behavior, similar to self-efficacy [43]. Given this conceptual convergence, self-efficacy can effectively be merged with perceived behavioral control. Consequently, self-efficacy is adopted as a shared variable bridging the two studies in this paper. Based on this integration, this study proposes the following hypotheses.

Perceived severity refers to an individual's assessment of the potential negative consequences associated with VPW. This may include legal repercussions, risks of malware or data breaches, inferior watching experience and the ethical implications of copyright infringement. According to this

definition, this study hypothesizes the below:

H1: Perceived severity of VPW will positively influence the behavioral intention to use SVOD.

Perceived vulnerability reflects an individual's assessment of how probable it is that they will experience negative consequences from VPW. High perceived vulnerability indicates a belief that the risks are minimal or unknown, while low perceived vulnerability stems from past negative experiences or the awareness of the legal and ethical ramifications. Based on that literature, the following hypothesis is suggested:

H2: Perceived vulnerability to VPW will positively influence the behavioral intention to use SVOD.

Response efficacy represents their confidence in the effectiveness of those protective choices. It is the confidence in the capability of using SVOD services as a protective action against threats from VPW.

H3: Response efficacy will positively influence the behavioral intention to use SVOD.

Response cost encompasses the perceived costs associated with adopting SVOD services. It extends beyond mere financial expenditure to include time investment, technological proficiency required, and potential inconvenience [44]. As this is a context-dependent construct, its impact on behavioral intention may vary significantly. Based on the foregoing explanation, the hypothesis below is formulated:

H4: Response cost will negatively influence the behavioral intention to use SVOD.

Self-efficacy represents the users' belief in their ability to successfully utilize SVOD services. This involves perceptions technological accessibility, affordability and time allocation. Behavioral control, or self-efficacy, can be understood as the ability to predict the ease or difficulty of actions based on prior experience and anticipated obstacles [45]. All influencing their perceived behavioral control and, consequently, their intention to use SVOD. Therefore, this study integrates self-efficacy and perceived behavioral control into one component of the PMT and TPB with the following hypothesis:

H5: Self-efficacy will positively influence the behavioral intention to use SVOD.

Attitude represents the users' overall evaluation of using SVOD services as a protective behavior against VPW. It includes personal feelings (experiential attitude) and motivations (instrumental attitude) regarding this decision. To ascertain if attitude has a substantial role in Vietnamese users; behavioral intention, we propose the below hypothesis:

H6: Subjective norms will positively influence the behavioral intention to use SVOD.

Subjective norm reflects the extent to which individuals feel social pressure to opt for SVOD over continued access

to VPV. This pressure stems from the beliefs and expectations of significant others, including family, friends, colleagues, and societal norms. Given this background, the following hypothesis is proposed to consider the link between subjective norms and the behavioral intentions of Vietnamese individuals:

H7: Attitude will positively influence the behavioral intention to use SVOD.

Existing research on SVOD predominantly utilizes intention-based models. However, empirical evidence suggests a strong correlation between behavioral intentions and actual consumer behavior. This aligns with the foundational premises of the PMT and TPB. Consumer purchase intention, as noted by Shibin and Zhou (2020) [46], reflects a consumer’s attitude toward a specific purchase and signifies their willingness to pay. To investigate the predictive validity of behavioral intention regarding Vietnamese users’ SVOD service adoption, this study proposed the hypothesis below:

H8: Behavioral intention will positively influence the behavior of using SVOD.

III. METHODOLOGY

3.1. Research Model

In accordance with the discussion in section II, the research model is illustrated in Fig. 1. The model is the integration of PMT and TPB with self-efficacy as a the mutual construct and behavior as the outcome variable.

3.2. Measures

To investigate the foregoing hypotheses, a three-part questionnaire was conducted to collect data from the participants. The first section provided a concise overview of SVOD and VPW, including definitions, examples of the

two, and potential risks associated with VPW in order to ensure participant comprehension.

The second part of the survey collected demographic information, encompassing gender, age, occupational status, monthly income, video-watching frequency, mostly accessed platforms and awareness of SVOD services and VPW.

The third section consisted of 25 items which were assessed by a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). These items measured nine constructs, including seven independent variables, one mediating variable, and the dependent variable. The scales measuring perceived severity, perceived vulnerability, and response efficacy were adapted from Hirvinen [20]. Measures for response cost and self-efficacy were adapted from Ajzen [47] and Neuwirth et al. [45], while the questions measuring attitude were based on Riekkinen [48] and Barbera & Ajzen [49]. Subjective norms were measured using scales adapted from Taylor & Todd [50] and George [51]. Finally, behavioral intentions were measured using a scale adapted from Lee & Kim [52], and behavior was measured based on the appendix on questionnaire construction for the TPB detailed in Fishbein & Ajzen [40].

Table 1 presents the specific questions used to assess each construct, and it also cites the original sources from which these questions were modified. The complete questionnaire and answer data can be obtained by contacting the author of this study.

3.3. Data Collection and Statistical Procedure

3.3.1. Data Collection

This study used a quantitative research approach. Data collection was conducted via an online survey and distributed through the most used social networks platforms in Vietnam, including Facebook, Instagram, TikTok and [53]. The questionnaire consisted of three sections: (1) an overview of SVOD and VPW, (2) demographic information; and (3) scale questions. An attention check question was also incorporated to ensure data quality.

To ensure targeted and applicable research, participant selection was delimited to Vietnamese people aged 15–54 who regularly consume online video content. This age range aligns with the legal age for independent financial transactions in Vietnam and captures the majority of the active OTT viewing population. Those over 55 are less likely to engage with OTT platforms (Statista, 2025) [54].

A total of 443 questionnaires were collected. After rigorous quality control procedures, 397 complete and valid responses were retained for analysis.

3.3.2. Statistical Procedure

Data were entered and coded using IBM SPSS Statistics version 30.0. Considering the model’s complexity, PLS-

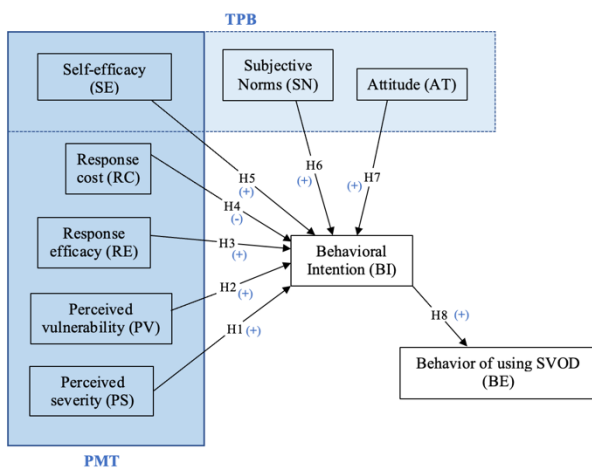


Fig. 1. Research Model. (+) positive; (-) negative.

Table 1. Construct items.

| Construct | Items | Question | Source |
|------------------------------|-------|---|---------|
| Perceived severity (PS) | PS1 | I believe watching on VPW would cause security threats. | [19] |
| | PS2 | I believe watching on VPW would contribute to serious copyright infringement. | |
| | PS3 | I believe watching on VPW brings bad watching experience. | |
| Perceived vulnerability (PV) | PV1 | I am at risk for security threats from VPW. | [19] |
| | PV2 | Watching on VPW violates my moral obligation of protecting copyrights. | |
| | PV3 | My watching experience would be worsened on VPW. | |
| Response efficacy (RE) | RE1 | Using SVOD helps me prevent security threats. | [19] |
| | RE2 | Using SVOD is a way to protect and respect the copyright. | |
| | RE3 | Using SVOD brings me much better watching experience. | |
| Response cost (RC) | RC1 | Using SVOD would be expensive for me. | [37] |
| | RC2 | Using SVOD would be time-wasting for me. | |
| | RC3 | Using SVOD would require me much effort. | |
| Self-efficacy (SE) | SE1 | I can afford to use SVOD services regularly. | [37,39] |
| | SE2 | I have time to spend on watching films and videos on SVOD. | |
| | SE3 | I have compatible devices and payment methods to use SVOD services. | |
| Attitude (AT) | AT1 | Using SVOD services instead of watching VPW is pleasant for me. | [40-41] |
| | AT2 | Using SVOD services instead of watching on VPW is the right thing to do for me, for the society and copyright owners. | |
| Subjective norms (SN) | SN1 | Vietnamese society encourages people to use SVOD instead of accessing VPW. | [42] |
| | SN2 | People who are important to me or able to influence my behavior use SVOD. | |
| | SN3 | People who are important to me or able to influence my behavior would think that I should use SVOD. | |
| Behavioral intention (BI) | BI1 | I intend to start to subscribe SVOD services in the future. | [44] |
| | BI2 | I will try to use SVOD services for watching videos to avoid accessing VPW. | |
| | BI3 | I plan to frequently use SVOD services instead of watching on VPW. | |
| Behavior (BE) | BE1 | I have been using SVOD services very frequently. | [33] |
| | BE2 | I will definitely use SVOD services in the next months. | |

SEM was employed using SmartPLS 4.1. The PLS-SEM analysis involved two stages: evaluating the measurement model and assessing the structural model.

To ensure the validity and reliability of the model, a thorough evaluation of its measurement properties was conducted. Item reliability was tested through outer loadings, and construct reliability was evaluated using composite reliability (CR) [55]. In PLS-SEM, CR is considered to be more appropriate than Cronbach's Alpha [56]. Validity was established by evaluating both convergent and discriminant validity. Convergent validity was assessed via average variance extracted (AVE), whereas discriminant validity was evaluated using the Fornell-Larcker criterion [57]. Considering the situation of the single-item construct, face validity and nomological validity was used for the validity assessment.

3.4. Data Analysis Techniques

The preliminary analysis of reliability indicated satisfactory performance across all seven constructs, exceeding

recommended thresholds for composite reliability ($CR > 0.70$). When assessing the reliability of individual items, those with outer loadings < 0.7 indicating insufficient correlation with the corresponding latent variable would be flagged for potential removal [55]. Based on this threshold, one item from self-efficacy (SE3) and one from subjective norms (SN1) were removed from the model.

Regarding validity examination, all constructs meet the threshold of average variance extracted ($AVE > 0.50$) [55]. For the evaluation of discriminant validity, Fornell-Larcker criterion was used to ensure that the measures assessing each construct in the research model were sufficiently distinct from each other. Following that, discriminant validity can be confirmed when the square root of the AVE of a construct in the research model is higher than its correlation with other constructs in the model.

To optimize the model for enhanced explanatory strength, the study assessed each item's contribution using f-squared values. Following Cohen (1988), items with f-squared values < 0.02 were considered for removal [58]. The low

contribution was likely due to respondents' confusion caused by a lack of clear conceptual distinction between these items (PS1, PS3) and questions within the PV interpreted in the questionnaire. Consequently, two items of perceived severity (PS1, PS3) were excluded, leading to PS being operationalized as a single-item construct.

When further assessing this single-item construct, traditional construct validity measures, such as Average Variance Extracted (AVE) and Composite Reliability (CR) cannot be computed. The selection of PS2 as the sole indicator for perceived severity was based on its strong face validity and direct conceptual alignment with copyright infringement, which is the core threat of video piracy.

To ensure the validity of this single-item construct within the theoretical model, nomological validity was assessed. According to a testing analysis conducted beforehand, the 95 % bias-corrected confidence interval for this relationship ([0.022, 0.174]) does not cross zero, indicating the robustness of this effect. Additionally, despite being a single-item measure, the pre-tested PS still expectedly demonstrates a statistically significant relationship with BI. This significant path coefficient aligns with the theoretical expectation that increased perceived severity regarding VPW would affect the higher likelihood of adopting SVOD services. In summary, although directly assessing con-vergent validity is impossible for PS as a single-item construct, the nomological validity as explained support the use of this single-item construct within the overall model in this study.

Table 2 presents the characteristics of the final set of items included in the structural model analysis. This includes the number of items per construct, their means and standard deviations (SDs), the range of item loadings, composite reliability (CR), AVE, inter-construct correlation coefficients and the square root of AVE.

IV. RESULTS

4.1. Participants

Table 3 demonstrated the demographic characteristics of 397 participants. The gender distribution of the survey participants indicated a predominance of females (61.7%), compared to males (38.3%). The age profile of the samples witnessed a significant portion (41.6%) of participants aged 15–24. This can reflect the fact that younger individuals in Vietnam tend to watch VOD. In terms of occupational status, the majority were categorized as either employed (54.9%) or students (35.0%). Regarding monthly income, the distribution showed a relatively even spread across different income ranges. When it comes to VOD watching frequency, most participants reported to watch VOD “sometimes”, which could be considered as “a few times per month”. This was closely followed by “frequently” or “a few times per week” (30.7%). Furthermore, usage of streaming platforms showed a preference for SVOD services (77.3%), besides AVOD (60.5%) and VPW (53.4%) also significantly utilized. Specifically, Netflix and FPT Play were the most accessed SVOD platforms, while Motchill, Phimmoi and ThapcamTV were the popular VPW in Vietnam. Notably, awareness of VPW threats was high, reported by 76.3% of participants. Overall, the collected samples' demographic distribution was relatively balanced, suggesting a reasonable representation of the target population's characteristics

4.2. Hypothesis Testing

This research sought to explore the determinants related to VPW that influence Vietnamese users' adoption and use of SVOD services, thereby proposing strategies to reduce VPW access and increase legitimate SVOD usage. Fig. 2 presents the standardized path coefficients (β), the coefficient of determination (R^2), and the significance levels ($p < 0.05$) for the analyzed relationships.

Table 2. Measurement model statistics – composite reliability, AVE, mean, loading range and discriminant validity of reflective constructs.

| Constructs (final # of items) | CR ^a | AVE ^a | M (SD) | Loading range ^a | Discriminant validity (Fornell-Larcker criterion) ^a | | | | | | | | |
|----------------------------------|-----------------|------------------|-------------|-------------------------------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|
| | | | | | AT | BI | PS | PV | RC | RE | SE | SN | |
| AT (2) | 0.806 | 0.675 | 4.21 (0.75) | 0.82–0.83 | 0.822 | | | | | | | | |
| BI (2) | 0.880 | 0.710 | 4.15 (0.84) | 0.82–0.86 | 0.586 | 0.843 | | | | | | | |
| PS (1) | - | - | 4.38 (0.89) | - | 0.267 | 0.294 | 1.000 | | | | | | |
| PV (3) | 0.797 | 0.567 | 3.82 (0.86) | 0.72–0.80 | 0.416 | 0.503 | 0.324 | 0.753 | | | | | |
| RC (3) | 0.896 | 0.742 | 2.47 (1.09) | 0.85–0.87 | -0.192 | -0.274 | -0.067 | -0.225 | 0.861 | | | | |
| RE (3) | 0.791 | 0.558 | 4.27 (0.68) | 0.73–0.76 | 0.586 | 0.391 | 0.212 | 0.405 | -0.181 | 0.747 | | | |
| SE (2) | 0.801 | 0.668 | 3.80 (0.93) | 0.80–0.83 | 0.356 | 0.465 | 0.121 | 0.337 | -0.297 | 0.322 | 0.817 | | |
| SN (2) | 0.835 | 0.717 | 3.86 (0.93) | 0.84–0.85 | 0.392 | 0.540 | 0.152 | 0.466 | -0.259 | 0.350 | 0.428 | 0.847 | |

^a Acceptable values: Item loading >0.7, CR>0.7, AVE>0.5. To assess discriminant validity, the square root of each construct's AVE is compared to its correlations with other constructs.

Table 3. Demographic results.

| | Characteristics | Value | Percentage |
|--------------------------|----------------------------------|-------|------------|
| Gender | Male | 152 | 38.3 |
| | Female | 245 | 61.7 |
| Age | 15–24 | 165 | 41.6 |
| | 25–34 | 93 | 23.4 |
| | 35–44 | 61 | 15.4 |
| | 45–54 | 78 | 19.6 |
| Occupational status | Student | 139 | 35.0 |
| | Unemployed | 28 | 7.1 |
| | Employed | 218 | 54.9 |
| Monthly income | Retired | 12 | 3.0 |
| | <1 million VND | 65 | 16.4 |
| | 1 to <3 million VND | 55 | 13.9 |
| | 3 to <5 million VND | 42 | 10.6 |
| | 5 to <10 million VND | 69 | 17.4 |
| | 10 to <15 million VND | 70 | 17.6 |
| | 15 to <20 million VND | 45 | 11.3 |
| VOD watching frequency | 20 million VND or higher | 51 | 12.8 |
| | Rarely (a few time per year) | 61 | 15.4 |
| | Sometimes (a few time per month) | 146 | 36.8 |
| | Frequently (a few time per week) | 122 | 30.7 |
| Platforms | Everyday | 68 | 17.1 |
| | SVOD | 307 | 77.3 |
| | AVOD | 240 | 60.5 |
| Awareness of VPW threats | VPW | 212 | 53.4 |
| | Unaware | 94 | 23.7 |
| | Aware | 303 | 76.3 |

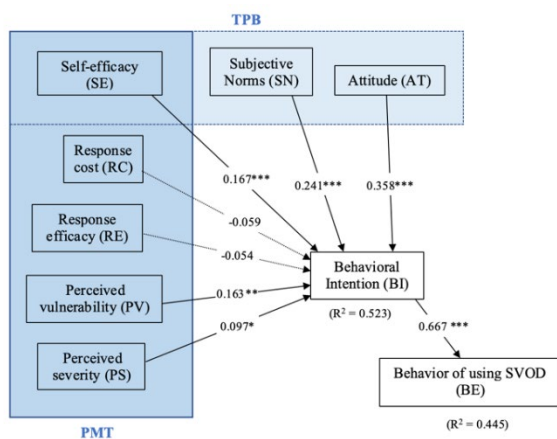


Fig. 2. Structural model results. This shows path coefficients (β), determination coefficients (R^2); * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Significant relationships ($p < 0.05$) are indicated by solid arrows; insignificant relationships ($p > 0.05$) are shown with dotted arrows.

provide a detailed analysis of the measurement model for each construct. The findings relating PMT constructs and TPB constructs are respectively presented. Finally, the relationship between users' behavioral intention and their SVOD usage behavior are considered.

4.2.1. PMT constructs

Within the PMT, threat appraisal encompasses two constructs, which are perceived severity and perceived vulnerability. Fig. 2 indicates a marginally significant positive relationship between perceived severity to VPW threats and behavioral intention to use SVOD services, supporting H1 ($\beta = 0.097$, * $p < 0.05$). Perceived vulnerability also demonstrated a significant positive effect on behavioral intention, so H2 is proved to be true ($\beta = 0.163$, ** $p < 0.01$).

PMT coping appraisal comprises response efficacy, response cost and self-efficacy. Among these three constructs, self-efficacy was the only to exhibit a significant positive correlation with behavioral intention ($\beta = 0.167$, *** $p < 0.001$). Meanwhile, both of response efficacy ($\beta = -0.054$, $p > 0.05$)

The subsequent result sections along with Table 4

Table 4. Path coefficient, *t*-value, *p*-value and results of hypothesis testing.

| | Hypothesis path | Path coefficient | <i>t</i> -value | <i>p</i> -value | Result |
|----|-----------------|------------------|-----------------|-----------------|---------------|
| H1 | PS – BI | 0.097 | 2.439 | 0.015* | Supported |
| H2 | PV – BI | 0.163 | 3.064 | 0.002** | Supported |
| H3 | RE – BI | -0.054 | 1.093 | 0.274 | Not supported |
| H4 | RC – BI | -0.059 | 1.656 | 0.098 | Not supported |
| H5 | SE – BI | 0.167 | 3.895 | 0.000*** | Supported |
| H6 | SN – BI | 0.241 | 4.692 | 0.000*** | Supported |
| H7 | AT – BI | 0.358 | 6.048 | 0.000*** | Supported |
| H8 | BI – BE | 0.667 | 19.456 | 0.000*** | Supported |

p*<0.05, *p*<0.01, ****p*< 0.001.

and response cost ($\beta=-0.059, p>0.05$) showed an insignificant connection with behavioral intention. Therefore, the data supported H5 but did not support hypothesis H3 and H4.

4.2.2. TPB Constructs

TPB model incorporates self-efficacy, attitude, and subjective norms as three determinants of behavioral intention. The relationship between self-efficacy and behavioral intention has been previously discussed. It is revealed that subjective norms ($\beta=0.241, ***p<0.001$) and attitudes toward SVOD services ($\beta=0.358, ***p<0.001$) significantly influence behavioral intention, thus supporting hypotheses H6 and H7.

4.2.3. Behavioral Intention and Behavior

Finally, H10 hypothesizing significant relationship between behavioral intention and the use of SVOD services was found to be supported ($\beta=0.667, ***p<0.001$).

V. DISCUSSION

5.1. Key Findings

With a view to understanding Vietnamese users' perceptions of VPW-related risks and their engagement with the adoption of SVOD services, this research adapted the model integrating PMT and TPB, originally proposed by A. Farooq and J. R. A. Ndiege to study security behavior, to investigate the factors affecting their behavioral intention and behavior using SVODs. The subsequent analysis of the collected responses yielded several significant findings, in which some differences from those reported in prior research employing a similar theoretical framework or focusing on comparable domains were found.

A notable characteristic of our survey sample is the overrepresentation of female respondents (61.7%) and younger individuals aged 15–24 (41.6%). This demographic result may be attributable to the convenience sampling method and the online distribution of the survey,

which typically attract higher response rates from digitally engaged individuals, especially women and youngsters.

The overrepresentation aligns with broader trends in digital content consumption, particularly in Southeast Asia and Vietnam. According to a study by TheTradeDesk, Millennials and Gen Zers constitute 44% of OTT viewers across Southeast Asia [59]. In Vietnam specifically, young adults account for an even larger portion, accounting for 55 % of this consumption segment [60]. This highlights a clear preference among younger generations for personalized, on-demand digital content, which is readily available through both legitimate SVOD services and, often, video piracy platforms. Furthermore, the significant presence of female users in our dataset is compatible with other findings on the growing engagement of female users in Vietnam's digital entertainment. A survey by Rakuten Insight in 2024 on SVOD subscriptions in Vietnam found that 54% of female respondents subscribed to such services, slightly surpassing the 53% of male respondents [61]. This suggests that female consumers are a driving force in the adoption of streaming services within the country.

The results indicate strongly positive relationships between behavioral intention to use SVOD services among Vietnamese users and all three TPB constructs, consisting of attitude, subjective norm, and perceived behavioral control (self-efficacy). This aligns with the tenets of TPB and prior research within the domain of SVOD or OTT platform adoption and continuation [39,62-64]. The statistically significant positive correlation observed between users' attitude and their behavioral intention underscores the critical role of maintaining a positive disposition towards SVOD services in enhancing the propensity for their utilization among Vietnamese people. Additionally, self-efficacy, conceptually considered as perceived behavioral control, showed a positive correlation with behavioral intention, suggesting that Vietnamese users' perception of factors such as price, technological compatibility, and the perceived video-watching experience on SVOD platforms significantly impact their intention to use these services. Furthermore, the construct of subjective

norms was found to exert a substantial impact on behavioral intention, indicating that Vietnamese user' decisions regarding SVOD usage are significantly shaped by perceived social pressure from important and influential people around them. This is consistent with previous research on factors affecting Vietnamese audiences' intention to use SVOD services by Tu Bao Lam in 2022 [65]. Consequently, these findings support the applicability of the TPB model to understand SVOD adoption in the Vietnamese context, emphasizing the importance of both individual perceptions and the perceived opinions of their social environment.

Constructs within PMT threat appraisal also exhibited a positive effect on behavioral intention to use SVOD services, in line with the original study of PMT [38], and health-related research papers [66-67], despite less pronounced effects than the TPB constructs. Specifically, perceived severity of VPW showed the weakest positive relationship with intention. Thus, an individual's belief that viewing videos on VPW could lead to negative consequences may positively, though weakly, drive their intention to use SVOD services. Besides, perceived vulnerability to VPW threats emerged as another significant predictor of Vietnamese users' intention to use SVOD services, displaying a slightly stronger effect than perceived severity. This indicates that while Vietnamese users may acknowledge the threats associated with VPW, their perceived susceptibility to these threats is a more potent driving factor for using SVOD services as a protective behavior.

Meanwhile, within the PMT coping appraisal, self-efficacy was the only significant indicator for Vietnamese users' behavioral intention toward SVOD adoption, aligning with findings from prior research in organizational [68-69] and home-user contexts [70-71]. In contrast, response efficacy and response cost demonstrated statistically insignificant relationships with behavioral intention. The non-significant correlation between Vietnamese people's response efficacy and their behavioral intention is noticeable, as it contrasts with findings from studies in other domains that have demonstrated a significant positive correlation. This suggests that while Vietnamese users may perceive SVOD services as an effective protective action against VPW threats, this perception does not directly lead to a stronger intention to use SVOD services. Considerably, the perceived response cost, encompassing users' time, effort, and financial expenditure, was not found to negatively influence Vietnamese users' behavioral intention, although a previous survey in Vietnam cited that 59.2% of participants indicated high costs as a major deterrent to utilizing VOD services [72]. The finding in this study differs from the original research on PMT [39], and prior studies regarding OTT services [64,73-74].

Ultimately, the behavior of SVOD usage by Vietnamese users was strongly and directly predicted by their behavioral intention, which was influenced by the interplay of TPB and PMT constructs as established previously. Specifically, all constructs that showed meaningful relationships with behavioral intention in this study, including those related to perceived VPW threats and perception of SVOD as a coping measure, exhibited significant positive or negative indirect effects on the behavior.

5.2. Theoretical and Practical Applications

Theoretically, this study provides the first empirical investigation into the impact of VPW on the use of SVOD services. Furthermore, it introduces a new model combining PMT and TPB to analyze online video consumption and SVOD adoption.

Practically, the study offers key insights for SVOD providers, video producers and relevant governments. For SVOD providers, the research highlights the importance of appropriate pricing strategies, content acquisition, platform improvements, and marketing efforts to encourage adoption of SVOD services, particularly within the Vietnamese market. Regarding the PMT, the study's findings suggest that emphasizing the negative consequences of viewing pirated content and enhancing users' perceived self-efficacy in using legal alternatives could be effective strategies for promoting SVOD adoption.

For video producers and copyright holders, the findings provide valuable information about Vietnamese audience viewing habits and preferences. Therefore, it is suggested that they actively collaborate with SVOD providers and governments to protect official copyrights and explore diverse distribution platform partnerships to engage audiences in Vietnam.

Finally, for the Vietnamese government, the research can provide empirical evidence on the scale and impact of video piracy on the local digital economy and cultural industries. This can inform the development and implementation of public awareness campaigns and policy interventions with a view to discouraging piracy and promoting the value of legal streaming services, ultimately contributing to a healthier digital content ecosystem.

5.3. Limitation and Future Research Recommendation

Although this study offers preliminary insights into the relationship between VPW usage and SVOD service adoption among Vietnamese individuals, several methodological limitations should be considered to suggest avenues for future research.

Firstly, the convenience sampling method may compromise the generalizability of the findings. The observed mean values may not representatively reflect the broader

Vietnamese population due to the high proportion of female users and younger individuals from 15 to 24 years old. Future research should implement more robust probability sampling techniques, such as stratified random sampling, to ensure a demographically representative sample across age groups and balanced gender distribution. Furthermore, incorporating demographic investigation pertaining to specific video content preferences would enable richer multi-group analyses, providing a more granular understanding of consumption patterns and their underlying motivations across diverse demographic segments.

A potential limitation lies in the conceptual clarity and interpretation of the items measuring Perceived Severity, particularly due to possible overlap with items intended for the Perceived Vulnerability construct. This may have contributed to the weak observed relationship between Perceived Severity and Behavioral Intention. Future research should emphasize rigorous scale development, especially for constructs with conceptual proximity. This includes cognitive interviewing to assess how respondents interpret items and identify ambiguities or overlaps, as well as pilot testing to evaluate item performance and conduct preliminary psychometric analyses. Additionally, employing a larger sample size is recommended to improve statistical power and enhance the generalizability of the results.

Regarding the current research scope, the current model primarily investigated factors driving SVOD adoption. It did not explore the antecedents of discontinuing VPW usage. Future studies could extend this by investigating the motivations and psychological processes (e.g., deterrence, perceived inconvenience, moral obligation) that lead users to cease engaging with VPW. Such research would offer crucial insights for developing effective anti-piracy strategies and facilitating user migration towards legitimate content consumption.

Besides, this study primarily examined general SVOD platforms and VPWs. However, specific types of streaming content or platforms are highly susceptible to piracy and may exhibit unique user behaviors. Future research should focus on these nuanced contexts, such as live sports streaming, music streaming, or newly emerging interactive entertainment platforms. Investigating these specific domains could reveal distinct piracy challenges and adoption determinants requiring tailored theoretical approaches and empirical investigation.

Finally, expanding the theoretical framework by combining with other models like the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), Information Systems Continuance Model (ISCM) to include additional antecedents of SVOD adoption is also recommended for future research. Incorporating constructs such as satis-

faction, perceived enjoyment, trialability, personalization, and content variety could provide a more comprehensive understanding of the factors influencing behavioral intention to adopt SVOD services. Future research should consider alternative theoretical models that integrate these specific antecedents to capture the complexity of media consumption in Vietnam.

VI. CONCLUSION

While existing research extensively examines SVOD-related factors influencing piracy content access, the converse relationship remains underexplored. This study addresses this gap by investigating the impact of perceived VPW threats on users' adoption of SVOD. Furthermore, this research pioneers the integration of PMT and TPB in Vietnam, and their application to the domain of video-on-demand consumption.

The study examined the perceptions of Vietnamese users regarding the threats posed by VPW and their adoption of SVOD services. A theoretical model was developed from the PMT and TPB, and empirically tested using questionnaire data to identify the determinants of their behavioral intention and behavior concerning the utilization of SVOD platforms. An online survey data was collected from a sample of 397 Vietnamese users, aged 15 to 54. Following data collection, structural equation modeling (SEM) was employed for analysis using SmartPLS 4.1.

Results revealed that self-efficacy, attitude, and subjective norms significantly and positively influenced Vietnamese users' behavioral intentions towards SVOD services. Importantly, a heightened perception of VPW threats, specifically perceived severity and vulnerability, also positively impacted behavioral intention. This suggests that awareness of piracy risks can drive users towards legitimate alternatives. Conversely, response efficacy and response cost had a statistically negligible effect on behavioral intention, which contrasts with prior studies. This implies that for Vietnamese users, while SVOD may be recognized as an effective protective action against VPW threats, this perception does not directly or substantially translate into a stronger intention to adopt SVOD. Furthermore, the decision to use SVOD is not significantly hindered by the perceived costs of switching. Ultimately, behavioral intention was confirmed to significantly predict the actual behavior of using SVOD services.

These findings offer significant contributions to the literature by empirically validating a combined PMT and TPB framework within the unique digital media consumption context of Vietnam. The study specifically highlights the salience of perceived threats from VPW as a driver for le-

gitimate service adoption, thus extending the traditional application of PMT. The robust influence of attitude, self-efficacy, and subjective norms further reinforces the core tenets of TPB in this research field.

The findings derived from this study can inform the development of enhanced VOD platforms and services, ultimately contributing to an improved overall video-watching experience for users. Furthermore, by considering the identified determinants, copyright owners and relevant governmental bodies can formulate appropriate strategies to protect legitimate copyrights and improve the landscape of media consumption.

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