Antecedent Factors Behavioral Intentions to Use Traffic Accident Claim System

Aristianto Budi Sutrisno , Ian Firstian Aldhi , Fendy Suhariadi * , Suparto Wijoyo , Teofilus Teofilus , Eri Cahyadi , Ikhsan Ikhsan , Dwi Hardaningtyas , Ansar Abbas

Posted Date: 10 January 2024

doi: 10.20944/preprints202401.0814.v1

Keywords: Behavior Intention; Police; Smart Policing; IT for Road Safety; Predictive Policing

Article

Antecedent Factors Behavioral Intentions to Use Traffic Accident Claim System

Aristianto Budi Sutrisno [1], Ian Firstian Aldhi [1], Fendy Suhariadi [1]*, Suparto Wijoyo [1], Teofilus Teofilus [2], Eri Cahyadi [1], Ikhsan Ikhsan [3], Dwi Hardaningtyas [4] and Ansar Abbas [5]

[1] Doctoral Program Human Resource Development, Postgraduate School, Universitas Airlangga, Surabaya 60115, East Java, Indonesia; aristianto.budi.sutrisno-2020@pasca.unair.ac.id (ABS); ian.firstian.aldhi-2021@pasca.unair.ac.id (IFA); fendy.suhariadi@psikologi.unair.ac.id (FEN); supartowijoyo@fh.unair.ac.id (SWJ); eri.cahyadi-2021@pasca.unair.ac.id (ECD);
[2] International Business Management, Faculty of Management and Business, Ciputra University, Surabaya 60219, East Java, Indonesia; teofilus@ciputra.ac.id (TEO)
[3] Surabaya City Government, Surabaya City Secretary, Surabaya 60272, East Java, Indonesia; ikhsan@surabaya.go.id (IKH)
[4] State Administration Science, Faculty of Social Science and Political Science, Wijaya Putra University, Surabaya 60197, East Java, Indonesia; dwihardaningtyas@uwp.ac.id (DWH)
[5] Faculty of Social Sciences (Management Sciences), Hamdard University, Karachi City, Sindh, Pakistan; ansar.abbas@live.com (ANA)
* Correspondence: fendy.suhariadi@psikologi.unair.ac.id

Abstract: This research article aims to examine the factors that influence behavioral intentions using the traffic accident claim system in Indonesia. This research uses the Theory of Planned Behavior, the Model of Technology Acceptance, and the Integrated Theory of Technology Acceptance and Use, as well as using the Structural Equation Modeling-Partial Least Squares. The questionnaire was distributed to 580 respondents from three institutions – police, hospitals, and state-owned insurance companies – using quota sampling techniques. The results showed that TPB, TAM, and UTAUT had a significant influence in encouraging behavioral intentions using the traffic accident claim system. Further, the study found that 21st-century digital skills have a moderate role in the impact of acceptance models, planned behavior, and technology use on behavioral intent. Although the study was conducted in Indonesia and is limited to three institutions, it provides strategic guidance for policymakers to improve the use of traffic accident claim systems and reduce Road Traffic Accidents. Further research is recommended to explore from different angles and focus on service providers/operators of traffic accident claim systems to refine the findings of this study. This study contributes to the literature by investigating the factors that influence behavioral intentions using traffic accident claim systems and has a high degree of accuracy of answers from the point of view of traffic safety officers.

Keywords: behavior intention; police; smart policing; it for road safety; predictive policing

1. Introduction

Over the past few years, the frequency of vehicles on the road, road safety levels, and safety standards and technology in vehicles have contributed to a continual increase in road traffic accidents (RTAs) and traffic violations. In addition, activities unrelated to the primary task of driving, such as cell phone distractions, roadside commercial advertisements, and the like, have been said to frequently impede the necessary vigilance of drivers, thereby increasing the risk of accidents and injuries [1,2]. A study conducted by Dingus in 2016 showed that in recent naturalistic studies carried out in the United States, interacting with a mobile phone manually, such as sending messages, can increase the likelihood of traffic accidents by 6.1% and receiving phone calls by 12.2% [3]. Furthermore, this statement is supported by a systematic survey review indicating an increase in driver distractions, such as cell phone usage, occurring worldwide [4,5].

2. Literature Review and Conceptualization

 doi:10.20944/preprints202401.0814.v1

2.1 Techonology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is a development of the Theory of Reasoned Action (TRA) proposed by Fishbein and Ajzen in 1975, and refers to the exploration of public acceptance of new technology [6]. Furthermore, David in 1989 explained that TAM consists of four constructs, namely (1) perceived usefulness referring to the extent to which the public believes that overall driver performance can be improved with a specific system or technology; (2) perceived ease of use referring to the extent to which the public believes that by using a specific system or technology, drivers can be freed from physical and mental effort; (3) attitude defined as an individual's preference when using a specific system or technology, and (4) intention to use defined as the level of cognitive and psychological state of mind and overall of an individual in using a specific system or technology [7].

Several previous studies have used TAM to analyze public acceptance of new technology or systems used in vehicles, particularly those focusing on traffic accident claim systems. Christian Brandstatter in his research used TAM to understand public acceptance of the environmental potential benefits of Autonomous Electric Vehicles (AEVs), which is a development of Electric Vehicles (EVs) and Autonomous Vehicles (AVs) [8]. Furthermore, TAM in another study was also used to develop two concepts of fully automated driving, namely private use and shared use [9]. The results showed that user attention is focused on safety, usefulness, compatibility, trust, and ease of use. Park et al in 2022 used TAM to explain drivers' acceptance of a mobile navigation system by integrating other constructs as a form of behavioral intention to avoid traffic accidents [10]. This is supported by the statement in the research that applied the TAM framework to assess the navigation system and its ability to analyze the background and structure of user acceptance [11]. Other advanced technologies such as the cooperative vehicle infrastructure system (CVIS) in the field of intelligent transportation have also shown that TAM is used to study subjective driver acceptance and its influencing factors [12]. Therefore, the first hypothesis in this study is proposed as follows:

H1. *The acceptance model has a positive effect on behavioral intentions to use Traffic Accident Claim System.*

2.2 Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) has been widely applied in several previous studies to assess acceptance in the context of road safety. Ajzen in 1991 states that the TPB predicts attitude, subjective norm, and perceived behavioral control in influencing intentions, which in turn influence actual behavior [1]. Furthermore, it is said that in the TPB, the stronger an individual's intention to perform a particular behavior, the more likely they are to engage in that behavior. The fundamental beliefs that influence each standard construct consist of behavioral beliefs, normative beliefs, and control beliefs. Behavioral beliefs refer to the positive or negative evaluation of a behavior, where the more positive a person's attitude, the more likely they are to perform that behavior. Normative beliefs refer to the perceived approval or disapproval of the social group to perform a behavior, as well as the involvement of important referents related to performing a behavior. Control beliefs refer to the perceived ease or difficulty of performing a task influenced by control beliefs based on past experiences related to behavior [3].

The impact of TPB on behavior intention using the traffic accident claim system has been proven in several studies. This study uses three indicators to measure the TPB, namely behavioral beliefs, normative beliefs, and control beliefs. Zheng Xu in 2022 reveals that each construct of attitude, subjective norm, and behavioral control standard of TPB is a significant predictor of behavioral intention to respond to social interactive technology on smartphones while driving [14]. This study has compared low behavior intention to engage in smartphone use while driving with high behavior intention [13,15]. Furthermore, in the context of compliance with the Daytime Running Headlights (DRH) law for motorcycle riders, TPB constructions have also been significantly predicted [16]. This is because TPB factors can relate to demographic characteristics and driver experience history, thereby showing high accuracy in predicting driver compliance with DRH laws. In a different perspective, research on the application of TPB constructs in influencing the behavioral intentions of information technology governance practitioners in public organizations can be demonstrated

 doi:10.20944/preprints202401.0814.v1

through subjective norm and behavioral control [17]. The attitude construct in this case has not been proven to have a significant relationship in predicting behavioral intention well. However, Darmansyah et al in 2021 by their research re-affirms that high or low attitude levels can indicate a lack of motivation to perform behavior and vice versa [18]. Therefore, the second hypothesis of this study is proposed:

H2. *Planned behavior has a positive effect on behavioral intentions to use the Traffic Accident Claim System.*

2.3 Use of Technology

Several studies have mentioned the Technology Acceptance Model (TAM) as the basis for the Unified Theory of Acceptance and Use of Technology (UTAUT) [12]. Nordhoff in 2021 highlights that TAM is conceptualized as a function of UTAUT, which can enhance performance, show effort expectations, and exert social influence [19]. UTAUT consists of four components that can influence an individual's behavioral intention to use technology: performance expectancy, effort expectancy, social influence, and facilitating conditions [20]. Performance expectancy is defined as the degree to which using technology will benefit consumers in performing certain activities; effort expectancy refers to the ease of use of consumer technology; social influence refers to the extent to which consumers perceive that important others trust them to use a particular technology, and facilitating conditions refer to consumers' perceptions of the resources and support available to perform the behavior [21,22].

Traditionally, UTAUT has been applied to study behavioral intention in using information systems, such as health information technology [22], educational and communication technology [23], and e-government services. Zhang et al in 2022 utilized UTAUT to evaluate the SASPENCE driver support system, which aims to assist drivers in maintaining a safe distance and speed from the vehicle in front [12]. This is similar to Adell's investigation in 2010 of drivers' acceptance of the "Safe Speed and Safe Distance" function as part of a field trial of driver support systems in transportation contexts [24]. The study in 2016 demonstrated that using the UTAUT framework can improve readers' comprehension of how public acceptance of automated vehicles in Greece can be maximized [24]. Therefore, the third hypothesis of this study posits:

H3. *The use of technology has a positive effect on the behavioral intention to use the Traffic Accident Claim System.*

2.4 21st Century Digital Skill

The 21st Century Digital Skill, as stated by Van-Laar et al. in 2017 quoted by Martinez-Bravo et al [25], identifies 12 skills divided into core (technical, information management, communication, collaboration, creativity, critical thinking, and problem-solving) and contextual (ethical awareness, cultural awareness, flexibility, self-direction, and lifelong learning) skills in the relationship between 21st century competencies and digital skills. The study in 2020 state that the partnership of 21st century skills (P21, 2007) is a joint organization with the government or registered companies, consisting of three types of skills: (1) learning skills (creativity and innovation; critical thinking and problem-solving; communication and collaboration), (2) literacy skills (information literacy; media literacy; ICT literacy), and (3) life skills (flexibility and adaptability; initiative and self-direction; social and cross-cultural skills; productivity and accountability; leadership and responsibility) [26].Furthermore, that research explained that 21st century digital skill is the skill required by individuals in using software or operating digital devices, involving continuous efforts to follow new technologies and practices. The digital components include digital communication skill, digital collaboration skill, digital critical thinking skill, digital creative skill, and digital problem-solving skills [26].

Several previous studies have used 21st century digital skills to measure the public's digital skills in using new technology. Xu et al in 2019 demonstrated the reliability of 21st century digital skills in measuring students' digital skills and digital citizenship [27]. Similarly, it was stated that the nature

 doi:10.20944/preprints202401.0814.v1

and level of 21st century digital skills are useful for exploring the role of individual workers and organizations in skill development [28]. Laar asserted that with the naturally high technical skills of workers in using technology intensively, content-related aspects are more likely to be considered [26]. Other studies have shown that applying 21st century digital skills in collaborative student learning activities can support a good learning environment [29]. This is because learning alone is not enough, but learners also need tools such as field trips supported by learning and digital literacy skills. Therefore, the fourth hypothesis of this study is proposed as follows:

H4a. *21st Century Digital Skill increases the acceptance model's effect on behavioral intentions to use the Traffic Accident Claim System.*
H4b. *21st Century Digital Skill increases planned behavior's effect on behavioral intentions to use the Traffic Accident Claim System.*
H4c. *21st Century Digital Skill increases the use of technology's effect on behavioral intentions to use the Traffic Accident Claim System.*

3. Research Methodology

3.1 Research Design

The present study utilized an online survey to investigate the determinants of individuals' intention to use the traffic accident claim system in Indonesia. Specifically, this study examined the influence of social interactive technology, concealed smartphone use, and responding behavior towards the Traffic Accident Claim System (TACS) operator on users' behavioral intention. To achieve this objective, the researchers adopted a theoretical framework integrating the Theory of Planned Behavior (TPB), the Technology Acceptance Model (TAM), and the Use of Technology. The survey questionnaire, written in Bahasa Indonesia, consisted of a 5-point Likert scale ranging from "strongly disagree" to "strongly agree."

Regarding the measurement of TAM, the researchers utilized the instrument developed in the form of by Darmansyah et al in 2021, comprising eleven indicators (see Table 1) to assess images (IM), job relevance (JR), output quality (OQ), result demonstrability (RD), perceptions of external control (PEC), computer anxiety (CA), computer playfulness (CP), perceived enjoyment, and objective usability (OU). In addition, the study employed the instrument developed by Darmansyah et al. (2021) to measure the Planned Behavior construct, consisting of three dimensions (attitude towards the behavior (ATB), subjective norm (SN), and perceived behavioral control (PBC)) and a total of five items [18].

Table 1. Respondent Profile

Demographic Respondent	Category	Frequency (N)	Percentage (%)
Gender	Male	282	48.6
	Female	298	51.4
Education	High School	68	11.7
	Diploma	82	14.1
	Bachelor	338	58.3
	Master/Doctoral	92	15.9
Occupation	Police	221	38.1
	Hospital	186	32.1
	State Insurance Company	173	29.8
System Usage Time	< 6 months	125	21.6
	6 months – 1 year	125	21.6
	> 1 year	330	56.9

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 10 January 2024 doi:10.20944/preprints202401.0814.v1

Furthermore, the study assessed the Use of Technology construct using an instrument developed by Darmansyah et al in 2021 comprising three dimensions: social influence (SI), price value (PV), and habit (Hb), each represented by a single item [18]. Additionally, the study utilized an instrument developed by Rubach and Lazarides in 2021 to measure the 21st Century Digital Skill construct, which comprises six dimensions, namely information and data literacy, communication and collaboration, digital content creation, safety and security, problem-solving, and analyzing and reflecting [30]. The instrument comprised 32 items in total. Finally, the study employed an instrument developed by Masrizal et al in 2021 to measure behavioral intention, which consisted of three unidimensional items [31] (see Table 2).

Table 2. Validity Testing Based on Loading Factor.

Variable	Code	FL	AVE	CR	α
Acceptance Model			**0.621**	**0.891**	**0.848**
Image	IM1	0.790			
Job Relevant	JR1	0.834			
Output Quality	OQ1	0.830			
Result	RD1	0.819			
Demonstrability	RD2	0.830			
Perception of external control	PEC1	0.809			
Computer anxiety	CA1	0.816			
Computer Playfulness	CP1	0.794			
Perceived enjoyment	PE1	0.824			
Objective usability	OU1	0.813			
Planned Behavior			**0.654**	**0.950**	**0.941**
Attitude Toward the Behavior	ATB1	0.788			
Perceived Behavioral Control	PBC1	0.770			
	PBC2	0.783			
The Subjective Norm	SN1	0.791			
	SN2	0.809			
Use of Technology			**0.710**	**0.880**	**0.808**
Social Influence	SI1	0.761			
Price Value	PV2	0.907			
Habit	Hb1	0.854			
21st Century Digital Skill			**0.763**	**0.990**	**0.990**
Information and Data Literacy	INF1	0.888			
	INF2	0.878			
	INF3	0.876			
	INF4	0,881			
	INF5	0,869			
	INF6	0.884			
Communication and Collaboration	COM1	0.887			
	COM2	0.870			
	COM3	0.858			
	COM4	0.874			
	COM5	0.887			
	COM6	0.874			
Digital Content Creation	DIG1	0.882			

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 10 January 2024 doi:10.20944/preprints202401.0814.v1

Variable	Code	FL	AVE	CR	α
	DIG2	0.874			
	DIG3	0.873			
	DIG4	0.881			
Safety and Security	SAF1	0.858			
	SAF2	0.891			
	SAF3	0.865			
	SAF4	0.882			
Problem Solving	PRB1	0.888			
	PRB2	0.867			
	PRB3	0.868			
	PRB4	0.894			
	PRB5	0.781			
	PRB6	0.891			
	PRB7	0.883			
Analyzing and Reflecting	ANR1	0.867			
	ANR2	0.871			
	ANR3	0.878			
	ANR4	0.861			
	ANR5	0.878			
Behavioral Intention			**0.815**	**0.946**	**0.925**
Behavioral Intention	B1	0.900			
	B2	0.919			
	B3	0.901			
	B4	0.892			
Source: Authors calculation, 2022					

3.2 Data Collection Procedure

The respondents in this study were selected using a multisource scheme, which involved 39 police jurisdiction areas of POLDA JATIM distributed across East Java. The sample size of this study was 580 respondents, divided into three institutions: police (221), hospitals (186), and state insurance companies (173), using quota sampling technique. According to Moser (1952), quota sampling differs from random sampling in several small ways, but the fundamental difference is that, after the general sample breakdown is decided (e.g., how many males and females, how many people in each age group to be included), and the quota task is allocated to each interviewer, the actual sample unit selection to fit into this framework is left to the interviewer's discretion.

3.3 Data Analysis

In this study, the data analysis method used was structural equation modeling-partial least squares (SEM-PLS) using SmartPLS software. For many researchers, SEM is equivalent to performing covariance-based SEM (CB-SEM) analysis using software such as Amos, EQS, LISREL, MPlus, and others [32]. However, SEM should also be considered to include another unique and highly useful approach, namely partial least square SEM (PLS-SEM). PLS-SEM is a causal modeling approach aimed at maximizing the explained variance of dependent latent constructs. This contrasts with the goal of CB-SEM to reproduce the theoretical covariance matrix, without focusing on the explained variances.

Although far less popular than CB-SEM explained by Henseler, Ringle, and Sinkovics, PLS-SEM is increasingly being applied in the field of marketing and other business disciplines [32], with more than 100 studies published featuring PLS-SEM in 20 top marketing journals. Furthermore, that source also explained that compared to CB-SEM results, which can be highly inaccurate when assumptions

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 10 January 2024 doi:10.20944/preprints202401.0814.v1

are violated, PLS-SEM often provides stronger estimates of the structural model [32]. Based on this, SEM-PLS was used in this study to avoid inaccurate results in case assumptions are not met.

In addition, the model in this study refers to the moderation model proposed by Hayes [33], namely Model 1 Simple moderation model. The researcher chose this model because Hayes' Model 1 is consistent with the research model to be carried out. This is supported by Hayes' explanation that this diagram depicts a process in which the influence of several focal antecedent variables X on Y is influenced by or dependent on W, as reflected by the arrow pointing from W to the line from X to Y.

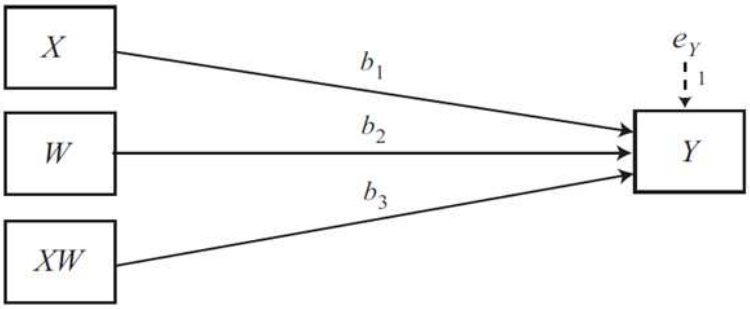

Figure 1. Simple Model Moderation (Hayes, 2018) [68].

4. Result

4.1 Respondent Characteristics

The total number of respondents collected in this study was 580 (Table 1). It can be concluded that the majority of respondents were female, amounting to 298 (51.4%), and male, amounting to 130 (28.6%). As for the respondents' educational level in this study, it was dominated by those with a bachelor's degree, with 338 (58.3%) respondents, followed by 92 (15.9%) with a graduate degree, 82 (14.1%) with a diploma, and 68 (11.7%) with a high school education. Table 2 also indicates that the majority of respondents' occupations were police officers, specifically those within the jurisdiction of the East Java Regional Police, with 221 (38.1%) respondents, followed by those working in hospitals with 186 (32.1%) respondents, and those with a background in state insurance companies with 173 (29.8%) respondents. The category of system usage duration was divided into three, with < 6 months having 125 (21.6%) respondents, 6 months - 1 year having 125 (21.6%) respondents, and > 1 year having 330 (56.9%) respondents.

4.2. Measurement Model Evaluation

In this study, measurement model and structural model analyses were conducted. To test the measurement and structural models, Smart PLS software was used as the analytical tool. Convergent validity is the extent to which a construct converges to explain its indicator variance. The metric used to evaluate the convergent validity of a construct is the average variance extracted (AVE) for all indicators of each construct. AVE is defined as the average of the squared loadings of the indicators related to a construct (i.e., sum of squared loadings divided by the number of indicators). Therefore, AVE is equivalent to the communality of a construct. The minimum acceptable AVE is 0.50 – an AVE of 0.50 or higher indicates that the construct explains 50 percent or more of the variance of the indicators that form the construct [34].

However, for indicators with loadings between 0.40 and 0.70, it is recommended to analyze the impact of removing these indicators on AVE and composite reliability. Indicators with loadings between 0.40 and 0.70 can be removed if they can increase AVE and composite reliability above their thresholds. The threshold for composite reliability is 0.7. Another consideration in removing indicators is their impact on the content validity of the construct. Indicators with low loadings are sometimes retained because they contribute to the content validity of the construct. Table 2 presents

 doi:10.20944/preprints202401.0814.v1

the results of the validity testing based on the loading factor and AVE, as well as the Cronbach's Alpha and composite reliability results.

Based on the table above, it can be seen that all loading values are > 0.7, which means they have met the validity requirements based on loading values. Furthermore, in the validity testing based on average variance extracted (AVE), it is known that all AVE values are > 0.5, which means they have met the validity requirements based on AVE. In the reliability testing, two methods were used: Cronbach's Alpha reliability test and composite reliability test. In the Cronbach's Alpha reliability test, it is known that all CA values are > 0.7, which means they have met the reliability requirements based on Cronbach's alpha. Furthermore, in the composite reliability test, it is known that all CR values are > 0.7, which means they have met the reliability requirements based on CR.

4.3 Structural Model Evaluation

In the subsequent stage following the acquisition of a valid and reliable assessment of the outer model, the next step is to evaluate the significance of the inner path structure model. According to Hair in 2011, the structural model elucidates the relationship between latent constructs in the study [32]. The hypothesized structural relationships include the acceptance model, planned behaviour, use of technology, 21st century digital skill, and behavioural intention, as shown in Figure 2. Significance testing of the path coefficients in this study was conducted by using the path coefficients of the structural model and performing bootstrap analysis, as shown in Table 4.

Table 3. The Direct Relationships of The Structural Model

Hypothesis Path	Estimate	t-statistic	*p-value*	Result
H1. *Acceptance model → behavioral intention*	0.132	2.535	0.006	Accepted
H2. *Planned behavior → behavioral intention*	0.252	5.648	0.000	Accepted
H3. *Use of technology → behavioral intention*	0.348	5.594	0.000	Accepted
H4. *Acceptance model * 21st century digital skill → behavioral intention*	0.087	2.046	0.021	Accepted
H5. *Planned behavior * 21st century digital → behavioral intention*	-0.153	3.980	0.000	Accepted
H6. *Use of technology * 21st century digital skill → behavioral intention*	0.117	2.338	0.010	Accepted

The research findings reveal that the acceptance model has a positive and significant effect on behavioral intention, with a coefficient value of 0.132 and a p-value of 0.006<0.05. Therefore, hypothesis 1 is accepted. The subsequent finding indicates that planned behavior has a positive and significant effect on behavioral intention, with a coefficient value of 0.252 and a p-value of 0.000<0.05, thus hypothesis 2 is accepted. Moreover, the variable use of technology is found to have a positive and significant effect on behavioral intention, with a coefficient value of 0.348 and a p-value of 0.000<0.05. This result suggests that hypothesis 3 is accepted. Additionally, the subsequent research finding reveals that 21st century digital skill significantly moderates the effect of acceptance model on behavioral intention, with a p-value of 0.021<0.05, and thus hypothesis 4 is accepted. Furthermore, it is found that 21st century digital skill significantly moderates the effect of planned behavior on behavioral intention, with a p-value of 0.000<0.05, and therefore hypothesis 5 is accepted. Finally, the research finding shows that 21st century digital skill significantly moderates the effect of use of technology on behavioral intention, with a p-value of 0.010<0.05, and hence hypothesis 6 is accepted.

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 10 January 2024 doi:10.20944/preprints202401.0814.v1

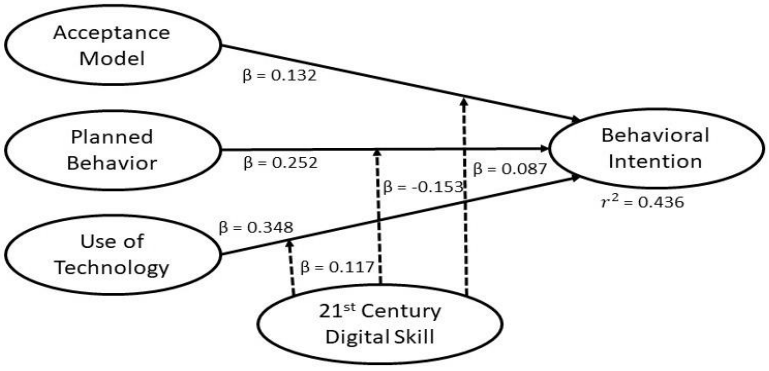

Figure 2. The SEM PLS inner model.

5. Discussion

Research by Nurabadi et al in 2022 found in their research that the utilization of information technology can determine the success of development and enhance the intelligence of a nation, as well as expedite the process of renewal [35]. The aim of this investigation is to bridge the gap in technology utilization, particularly in the traffic accident claim system, by analyzing the factors that affect the behavioral intention of its users in Indonesia, including social interactive technology, concealed smartphone use, and response behavior towards drivers. The research findings revealed that the acceptance model has a positive and significant impact on behavioral intention, which is consistent with earlier empirical studies by Masrizal et al in 2021 [31], Darmasyah et al in 2021 [18], and Park [47], which confirm the TAM's effectiveness as a theoretical model in comprehending and describing behavioral intention towards technology-based systems.

Moreover, the study findings indicated that planned behavior has a positive and significant effect on behavioral intention, which is in line with the previous research conducted by Luarn and Lin in 2004 [36], Darmasyah et al in 2021 [18], and Masrizal et al in 2021 [31], which also revealed that planned behavior's dimensions predict the individual's intention to use an information and communication technology system. These studies have also emphasized that attitude towards the behavior (ATB), the subjective norm (SN), and perceived behavioral control (PBC) are critical determinants of an individual's behavioral intention to use technology [37]. The research findings further revealed that the use of technology has a positive and significant effect on behavioral intention, which is supported by prior studies conducted by Baptista and Oliveira in 2015 [38], Glavee-Geo et al in 2017 [39], Zhang et al in 2018 [40], and Darmasyah et al in 2021 [18], indicating that the technology used in these studies is mobile banking.

Although the moderating variable 21st century digital skill's role has not been previously explored, Rahimi and Tafazoli in 2022 discovered that the 21st century digital skill's dimensions have a positive influence on behavioral intention and actual behavior to use information and communication technology, referring to the theory of planned behavior (TPB) [41]. These findings also support this study's results, which discovered that 21st century digital skill has a moderation effect on the impact of the acceptance model, planned behavior, and use of technology on behavioral intention.

6. Conclusion

The purpose of this study is to fill the gap by analyzing the factors that influence behavioral intention in using the traffic accident claim system, including social interactive technology, concealed smartphone use, and responding behavior. Four hypotheses were tested using the SEM-PLS approach. Based on the results, all hypotheses were supported. This indicates that technology acceptance, planned behavior, and technology use have a positive and significant relationship with individual behavioral intention in using the traffic accident claim system. Furthermore, it was also found that 21st-century digital skills moderate the influence of technology acceptance, planned

 doi:10.20944/preprints202401.0814.v1

behavior, and technology use on individual behavioral intention in using the traffic accident claim system. This finding is supported by previous studies conducted by Darmasyah et al in 2021 [18] and Masrizal et al in 2021 [42] which also show that technology acceptance, planned behavior, and technology use affect individual behavioral intention in using technology.

Furthermore, research conducted by Suhariadi, Mardiyanta, Nurabadi, Triwiyanto, and Adha in 2022 explains that in the utilization of technology, maintaining good relations among stakeholders and building public trust is paramount [35]. Distributing leadership responsibilities to team members and establishing clear and regular communication channels are also essential, ensuring the smooth operation of technology utilization. Consistent with these findings, it can be concluded that the traffic accident claim system can be effectively utilized if stakeholders can establish public trust and foster good cooperation among each other.

In this study, the variable of technology use has a strong influence on individual behavioral intention in using the traffic accident claim system. This means that using the traffic accident claim system technology is part of daily activities for users of the traffic accident claim system. Asmy et al in 2019 revealed that social influence has a strong correlation with individual intention in Pakistan on the acceptance of mobile banking, indicating that in Indonesia and Pakistan, as developing countries, the social environment such as family, friendship, and community leaders plays a crucial role in influencing individual perspectives [43].

Based on previous discussions, through the results of this study, users must have good acceptance of new technology developments aimed at reducing the disturbance experienced while driving in traffic. With acceptance and understanding of the traffic accident claim system, behavioral intention in using the claim system will increase [44], thus reducing the financial losses of drivers involved in traffic accidents. The claim system also plays a role in facilitating risk transfer and promoting high safety standards in the worst situations that can result in injury, death, and soaring costs [45].

The managerial contribution of this study, from the perspective of consumers/drivers, is that drivers must understand and accept the importance of using the claim system in reducing the risk of traffic accidents [21]. Seeing the increasing mobility of society and along with rapid technological development. From the perspective of service providers, they can develop technology that refers to the traffic accident claim system as one effective solution to be dedicated to reducing the workload of traffic operators, such as visual, manual, and cognitive demands, and have the benefit of improving safety [1]. In addition, in the development process, they can also refer to the elements of the 21st Century Digital Skill, namely information and data literacy, communication and collaboration, digital content creation, safety and security, problem-solving, and analyzing and reflecting, to produce services that are suitable for user needs and increase user interest in using the claim system. Organizations that successfully adopt and implement IT processes can achieve significant performance improvements [46].

The results of this study also provide a contribution, especially to literature related to Antecedent Factors Behavioral Intentions to Use Traffic Accident Claim System. This study also contributes to literacy related to the implementation of the Theory of Planned Behavior (TPB), Theory of Acceptance Model (TAM), and Use of Technology, along with dimensions and indicators in these theories. The concepts and variables in this study have been proven to be valid and have a significant positive relationship through the structural equation modeling-partial least squares (SEM-PLS) testing method. However, with the positive results provided, this study also has limitations, namely that the focus of this study is only based on the perspective of operators and service providers or.

Author Contributions: ABS and IFA were instrumental in conceptualizing the research idea and drafting the manuscript. Supervisory guidance for the study was provided by FEN, SWJ, and DWH. The literature review was collaboratively undertaken by ECD and IKH, while FEN and TEO was responsible for developing the research methodology. The interpretation of data was carried out by IFA and ANA. Each author contributed to the critical reading and approval of the final manuscript. Furthermore, all authors have concurred with and endorsed the published version of the manuscript.

Funding: The research team conveys their profound gratitude to the Bureau of Personnel Control of the Indonesian National Police and the Eka Tjipta Foundation for providing the research funding under grant number: 027/ETF.EDU/POL/IV/2021.

Data Availability Statement: The data pertaining to this study can be made accessible upon request.

Acknowledgments: The authors extend their profound gratitude to the Kepolisian Republik Indonesia (POLRI) and Surabaya City Government for their invaluable support and cooperation, which significantly contributed to the success of this research. Additionally, sincere appreciation is also directed towards the Sekolah Pascasarjana of Universitas Airlangga and for their academic guidance and resources that were instrumental in the completion of this study.

Conflicts of Interest: The authors affirm that there are no conflicts of interest associated with this research.

References

1. Adirestuty, F. J. (2021). Determinant Factor of Cash Waqf Intentions among Indonesian Society. *In The Proceeding*, (p. 291).
2. Afsar, B., Masood, M., & Umrani, W. A. (2019). The role of job crafting and knowledge sharing on the effect of transformational leadership on innovative work behaviour. *personnel review*, 1186-1206.
3. Aghamolaei, T. G. (2022). Prediction of driving behaviors base on Theory Planned Behavior (TPB) model in truck drivers. *Life Science Journal*.
4. Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes, 50*(2), 179-221.
5. Amor, A. M., V, J. P., & Faina, J. A. (2020). Transformational leadership and work engagement: Exploring the mediating role of structural empowerment. *European Management Journal*.
6. Bantha, T., & Nayak, U. (2020). the relation of workplace, spirituality with employees innovative work behaviour: the mediating role of psychological empowerment. *journal of indian business reaseacrh*, 1755-4195.
7. Baptista, G. &. (2015). Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators. *Computers in Human Behavior*(50), 418-430.
8. Boua, M., Kouabenan, D., & Belhaj, A. (2022). Road safety behaviors: Role of control beliefs and risk perception. *Transportation Research Part F: Traffic Psychology and Behaviour*.
9. Choi, S. L., Goh, C. F., Adam, M. B., & Tan, O. K. (2016). Tranformational leadership, empowerment, and job satisfaction: the mediating role of employee empowerment. *human resources for health*.
10. Christian Brandstätter, C. S. (2019). The Traffic Safety Culture of (European) Car Drivers: Operationalizing the Concept of TSC by Re-analyzing the SARTRE 4 Study. *Traffic Safety Culture*.
11. Conner, W. I. (2009). A trust management framework for service-oriented environments. *18th international conference on World wide web.*
12. Darmansyah, Fianto, B. A., Hendratmi, A., & Aziz, P. F. (2021). Factors determining behavioral intentions to use Islamic financial technology Three competing models. *Journal of Islamic Marketing*.
13. Deng, H., Wang, C., Wu, Q., Nie, Q., Huang, W., & Zhang, S. (2021). Blockchain Technology in Automobile Insurance Claim Systems Research. *Smart Computing and Communication*.
14. Dichabeng, P. M. (2021). Factors that influence the acceptance of future shared automated vehicles – A focus group study with United Kingdom drivers. *Transportation Research Part F: Traffic Psychology and Behaviour*.
15. Dingus, T. A., Guo, F., & Antin, J. F. (2016). Driver crash risk factors and prevalence evaluation using naturalistic driving data. *Proceedings of The National Academy of Sciences*.
16. Eren, H., & Gauld, C. (2022). Smartphone use among young drivers: Applying an extended Theory of Planned Behaviour to predict young drivers' intention and engagement in concealed responding . *Accident Analysis and Prevention*.
17. Ghosh, V., Bharadwaja, M., Yadav, S., & Kabra, G. (2019). Team-member exchange and innovative work behaviour: The role of psychological empowerment and creative self-efficacy. *international journal of innovation science*, 344-361.
18. Glavee-Geo, R. S. (2017). Mobile banking services adoption in Pakistan: are there gender differences? *International Journal of bank marketing, 35*(7), 1090-1114.
19. Groselj, M., Cerne, M., Penger, S., & Grah, B. (2020). authentic and transformational leadership and innovative work behaviour: the moderating role of psychological empowerment. *european journal of innovation management* .
20. Hair, J. F. (2011). PLS-SEM: indeed a silver bullet. *Journal of Marketing Theory and Practice, 19*(2).
21. Hair, J. F. (2021). Executing and interpreting applications of PLS-SEM: Updates for family business researchers. *Journal of Family Business Strategy, 12*(3).
22. Hayes, A. F. (2018). Partial, conditional, and moderated moderated mediation: Quantification, inference, and interpretation. *Communication monographs*(85(1)), 4-40.

23. Hollenstein, L., Thurnheer, S., & Vogt, F. (2022). Problem Solving and Digital Transformation: Acquiring Skills through Pretend Play in Kindergarten. *Education Sciences*.
24. Hsu, Y.-C., Shiu, Y.-M., Chou, P.-L., & Chen, Y.-M. J. (2015). Vehicle insurance and the risk of road traffic accidents. *Transportation Research Part A*, 201-209.
25. Huemer, A. K., Schumacher, M., Mennecke, M., & Vollrath, M. (2018). Systematic review of observational studies on secondary task engagement while driving. *Accident Analysis & Prevention*.
26. Im, T., Campbell, J. W., & Jeong, J. (2013). commitment intensity in public organizations: performance, innovation, leadership, and PSM. *review of public personnel administration*.
27. Jia Li, W. X. (2019). Technology acceptance comparison between on-road dynamic message sign and on-board human machine interface for connected vehicle-based variable speed limit in fog area. *Journal of Intelligent and Connected Vehicles*.
28. Joo, y.-J., Kho, S.-Y., Kim, D.-K., & Park, H.-C. (2022). A data-driven Bayesian network for probabilistic crash risk assessment of individual driver with traffic violation and crash records. *Accident Analysis & Prevention*.
29. Kustanto, H., Hamidah, Eliyana, A., Mumpuni, J., & Gunawan., D. (2020). The Moderation Role of Psychological Empowerment on Innovative Work Behaviour. *Systematic Reviews in Pharmacy*.
30. Laar, E. V., Deursen, A. J., & Dijk, J. A. (2022). Developing policy aimed at 21st-century digital skills for the creative industries: an interview study with founders and managing directors. *Journal of Education and Work*.
31. Laar, E. V., Deursen, A. J., Dijk, J. A., & Haan, J. d. (2020). Determinants of 21st-Century Skills and 21st-Century Digital Skills for Workers: A Systematic Literature Review. *SAGE Open*, 1-14.
32. Li, Z.-L., Xing, G.-Y., Zhao, X.-H., & Zhang, J.-S. (2021). Driver's Acceptance of Cooperative Vehicle Infrastructure System Based on Extended TAM [基于扩展 TAM 的车路协同系统驾驶人接受度研究]. *China Journal of Highway and Transport*.
33. Liu, Y., Wang, & Chen, D. (2019). Linking Ambidextrous Organizational Culture to Innovative Behavior: A Moderated Mediation Model of Psychological Empowerment and Transformational Leadership. *Frontiers in Psychology* .
34. Luarn, P. &. (2005). Toward an understanding of the behavioral intention to use mobile banking. *Computers in human behavior*(21(6)), 873-891.
35. Martinez-Bravo, M. C., Chalezquer, C. S., & Serrano-Puche, J. (2022). Dimensions of Digital Literacy in the 21st Century Competency Frameworks. *Sustainability*.
36. Morrison, G. B.-P. (2020). Customer intentions towards autonomous vehicles in South Africa: An extended UTAUT model. *International Conference on Cloud Computing, Data Science and Engineering*.
37. Moser, C. A. (1952). Quota sampling. *Journal of the Royal Statistical Society. Series A (General)*(115(3)), 411-423.
38. Motamedi, S., Wang, P., Zhang, T., & Chan, C.-Y. (2019). Acceptance of Full Driving Automation: Personally Owned and Shared-Use Concepts. *The Journal of The Human Factors and Ergonomics*.
39. Nordhoff, S. M. (2021). Technology Trend of Traffic Density Prediction-A Systematic Literature Review. *A structural equation modeling approach for the acceptance of driverless automated shuttles based on constructs from the Unified Theory of Acceptance and Use of Technology and the Diffusion of Innovation Theory*.
40. Nurabadi, A. S. (2022). Digital principal instructional leadership in new normal era. *International Journal of Evaluation and Research in Education, 11(3), 1090-1098.*(3), 1090-1098.
41. Oviedo-Trespalacios, King, O., Haque, M., Washington, M. M., & Simon. (2017). Risk factors of mobile phone use while driving in Queensland: Prevalence, attitudes, crash risk perception, and task-management strategies. *PsycNet*.
42. Oviedo-Trespalacious, O., Briant, O., Kaye, S.-A., & King, M. (2020). Assessing driver acceptance of technology that reduces mobile phone use while driving: The case of mobile phone applications. *Accident Analysis & Prevention*.
43. Park, S. Y. (2009). An Analysis of the Technology Acceptance Model in Understanding University Students' Behavioral Intention to Use e-Learning. *Educational Technology & Society, 12*(3), 150-162.
44. Payani, S., & Law, T. H. (2020). An application of the theory of planned behaviour to understand compliance with daytime running headlights law among motorcycle riders. *International Journal of Injury Control and Safety Promotion*.
45. Philip, A. O., & Saravanaguru, R. (2023). Multisource traffic incident reporting and evidence management in Internet of Vehicles using machine learning and blockchain. *Engneering Applications of Artificial Intelligence*.
46. Pitchay, A. A. (2019). Determining the relative importance of quality factors for crowdfunding platforms. *International Journal of the Analytic Hierarchy Process, 11(3)*, 368-388.
47. Rahimi, A. R. (2022). The Role of University Teachers' 21st-Century Digital Competence in Their Attitudes toward ICT Integration in Higher Education: Extending the Theory of Planned Behavior. *Jalt Call Journal, 18(2)*, 238-263.
48. Rahman, M. L. (2017). Assessing the utility of TAM, TPB, and UTAUT for advanced driver assistance systems. *Accident Analysis and Prevention*.

49. Rahman, M. M., Lesch, M. F., Horrey, W. J., & Strawderman, L. (2017). Assessing the utility of TAM, TPB, and UTAUT for advanced driver assistance systems. *Accident Analysis & Prevention*, 361-373.
50. Rubach, C. &. (2021). Addressing 21st-century digital skills in schools–Development and validation of an instrument to measure teachers' basic ICT competence beliefs. *Computers in Human Behavior*(118), 106636.
51. Ryu, H.-S. (2018). What makes users willing or hesitant to use Fintech?: the moderating effect of user type. *Industrial Management & Data Systems*.
52. Singh, R., Ayyar, M. P., Pavan, T. V., Gosain, S., & Shah, R. R. (2019). AUTOMATING CAR INSURANCE CLAIMS USING DEEP LEARNING TECHNIQUES. *IEEE Fifth International Conference on Multimedia Big Data (BigMM)*.
53. Siti Haerani, R. D. (2018). Moderating effects of age on personality, driving behavior towards driving outcomes. *International Journal of Human Rights in Healthcare*.
54. Stanescu, D. F., Zbuchea, A., & Pinzaru, F. (2020). transformational leadership and innovative work behaviour: the mediating role of psychological empowerment. *leadership and innovative work behaviour*.
55. Teo, W. L., Manaf, A. A., & Choong, P. L. (2013). Information Technology Governance: Applying the Theory of Planned Behaviour . *Journal of Organizational Management Studies*.
56. Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly*.
57. Wang, Z. G. (2018). How does information publicity influence residents' behaviour intentions around e-waste recycling? *Resources, conservation and recycling, 133*, 1-9.
58. White Baker, E. A.-G. (2007). The effects of gender and age on new technology implementation in a developing country: Testing the theory of planned behavior (TPB). *nformation Technology & People*(20(4),), 352-375.
59. Wisutwattanasak, P., Jomnonkwao, S., Se, C., & Ratanavaraha, V. (2022). Influence of Psychological Perspectives and Demographics on Drivers' Valuation of Road Accidents: A Combination of Confirmatory Factor Analysis and Preference Heterogeneity Mode. *Behavioral Sciences*.
60. World Life Expectancy. (2020). *World Health Rankings Live Longer Live Better*. Retrieved from World Life Expectancy: https://www.worldlifeexpectancy.com/indonesia-road-traffic-accidents
61. Wu, J., Liao, H., Wang, J.-W., & Chen, T. (2019). The role of environmental concern in the public acceptance of autonomous electric vehicles: A survey from China. *Transportation Research Part F*, 37-46.
62. Xu, S., Yang, H. H., & Zhu, S. (2019). An Investigation of 21st-century Digital Skills on Digital Citizenship among College Students. *International Symposium on Educational Technology (ISET)*.
63. Xu, X., & Fan, C.-K. (2019). Autonomous vehicles, risk perceptions and insurance demand: An individual survey in China. *Transportation Research Part A: Policy and Practice*.
64. Yachulawetkunakorn, C., Phatthalung, R. N., Wongta, J., & Wongwatkit, C. (2017). An Investigation of Collaborative Ubiquitous Learning in Promoting Socio-Cultural Knowledge and Skills in 21st Century: Integrating History, Geography, Architecture, Science and Culture Study. *Asia-Pasific Society for Computers in Education*.
65. Yan, T., & D., R. J. (2017). Predictors of Cell Phone Use in Distracted Driving: Extending the Theory of Planned Behavior. *Health Communication*.
66. Yang, L., Bian, Y., Zhao, X., & Liu, X. (2020). Drivers' acceptance of mobile navigation applications: an extended technology acceptance model considering drivers' sense of direction, navigation application affinity and distraction perception. *International Journal of Human-Computer Studies*.
67. Yuan, Q., Zhai, X., Ji, W., Yang, T., Yu, Y., & Yu, S. (2022). Correlation Analysis on Accident Injury and Risky Behavior of Vulnerable Road Users Based on Bayesian General Ordinal Logit Model. *Sustainability*.
68. Zhang, Y., Shuo-Li, Blythe, P., Edwards, S., Guo, W., Ji, Y., . . . Hill, G. (2022). Attention Pedestrians Ahead: Evaluating User Acceptance and Perceptions of a Cooperative Intelligent Transportation System-Warning System for Pedestrians. *Sustainability*.
69. Zheng Xu, Y. F. (2022). Analyzing the inconsistency in driving patterns between manual and autonomous modes under complex driving scenarios with a VR-enabled simulation platform. *Journal of Intelligent and Connected Vehicles.*