



**NOVA**

**IMS**

Information  
Management  
School

# MGI

---

**Mestrado em Gestão de Informação**

Master Program in Information Management

## **Adoption of video consultations during the COVID-19 pandemic**

Filipe José Viana Pereira

Dissertation presented as partial requirement for obtaining  
the Master's degree in Information Management

NOVA Information Management School  
Instituto Superior de Estatística e Gestão de Informação  
Universidade Nova de Lisboa

**NOVA Information Management School**  
**Instituto Superior de Estatística e Gestão de Informação**  
Universidade Nova de Lisboa

# **ADOPTION OF VIDEO CONSULTATIONS DURING THE COVID-19 PANDEMIC**

by

Filipe José Viana Pereira

Dissertation presented as partial requirement for obtaining the Master's degree in Information Management, with a specialization in Knowledge Management and Business Intelligence

**Advisor:** Jorge Tavares

**Co Advisor:** Tiago Oliveira

November 2021

## **ACKNOWLEDGEMENTS**

It is impossible to put in words my gratitude and appreciation to my advisor, Doctor Jorge Tavares, and co-advisor, Professor Doctor Tiago Oliveira, Associate Dean at Nova IMS. The support and guidance were crucial to conduct this study. I also want to thank my family, friends, and colleagues for the motivation and assistance provided whenever needed.

## **ABSTRACT**

Video consultations have the potential to play a significant role for the future of healthcare. The objective of this dissertation is to explore and understand individual video consultation acceptance drivers. An extended technology acceptance model was created based on the diffusion of innovation theory (DOI), unified theory of acceptance and use of technology (UTAUT), health belief model (HBM), and concerns for information privacy framework (CFIP). The predictors of intention to use are performance expectancy, attitude, and COVID-19. Attitude is statistically influenced by performance expectancy, effort expectancy, and COVID-19. The statistically significant drivers on performance expectancy are results demonstrability, compatibility, effort expectancy, and perceived health risk. The statistically significant drivers on effort expectancy are results demonstrability and compatibility. The model explained 77.6% of the variance on intention to use, and 71.4% of the variance in attitude, evidencing the need to combine different theories to achieve high explanatory power. This study shows that COVID-19 pandemic, perceived health risk, compatibility, and performance expectancy have an important impact on the intention to use video consultations.

## **KEYWORDS**

Video consultations; Telemedicine; Acceptance; Structural equation modeling

# INDEX

1. Introduction.....	1
2. Literature review .....	2
2.1. Telemedicine and video consultations.....	2
2.2. Adoption models at the individual level .....	2
2.2.1. Prior research on telemedicine and eHealth.....	2
2.3. Diffusion of innovation theory (DOI) .....	3
2.4. Unified theory of acceptance and use of technology (UTAUT).....	4
2.5. Health belief model (HBM).....	6
2.6. Concerns for information privacy (CFIP) .....	6
2.7. COVID-19 pandemic construct .....	7
3. Literature review .....	8
4. Methodology .....	10
4.1. Measurement .....	10
4.2. Data collection .....	10
4.3. Data analysis .....	10
5. Results and discussion .....	12
5.1. Results .....	12
5.1.1. Sample characteristics.....	12
5.1.2. Measurement model.....	12
5.1.3. Structural model .....	14
5.2. Discussion .....	16
5.3. Theoretical implications .....	17
5.4. Managerial implications .....	19
6. Conclusions.....	21
7. Limitations and recommendations for future works .....	22
8. Bibliography.....	23
9. Appendix.....	27
9.1. Appendix A.....	27
9.2. Appendix B.....	30
9.3. Appendix C.....	32
9.4. Appendix D .....	34

## LIST OF FIGURES

Figure 3.1 - The research model.....	8
--------------------------------------	---

## LIST OF TABLES

Table 2.1 - Patient adoption models in telemedicine .....	2
Table 5.1 - Sample characteristics.....	12
Table 5.2 - Cronbach's alpha, composite reliability, average variance extracted .....	13
Table 5.3 - Fornel and Larcker criterion .....	14
Table 5.4 - Measurement evaluation for the higher-order formative constructs.....	14
Table 5.5 - Structural model results .....	16
Table 5.6 - Hypothesis results .....	19

## LIST OF ABBREVIATIONS AND ACRONYMS

<b>DOI</b>	Diffusion of Innovation Theory
<b>UTAUT</b>	Unified Theory of Acceptance and Use of Technology
<b>TAM</b>	Technology Acceptance Model
<b>HBM</b>	Health Belief Model
<b>CFIP</b>	Concerns For Information Privacy
<b>PU</b>	Perceived Usefulness
<b>PEU</b>	Perceived Ease of Use
<b>AT</b>	Attitude
<b>BI</b>	Behavioural Intention
<b>PT</b>	Perceived Threat
<b>HC</b>	Health consciousness
<b>UB</b>	Use Behaviour
<b>PE</b>	Performance Expectancy
<b>CP</b>	Compatibility
<b>HT</b>	Habit
<b>SP</b>	Self-Perception
<b>RD</b>	Results Demonstrability
<b>EE</b>	Effort Expectancy
<b>FC</b>	Facilitating Conditions
<b>SI</b>	Social Influence
<b>RWD</b>	Relationship With Doctor
<b>RTC</b>	Resistance To Change
<b>PR</b>	Perceived Reliability
<b>PV</b>	Price Value
<b>PHR</b>	Perceived Health Risk
<b>PSE</b>	Perceived Severity

<b>PSU</b>	Perceived Susceptibility
<b>CO</b>	COVID-19
<b>DC</b>	Data Collection
<b>ER</b>	Errors
<b>IU</b>	Intention to Use
<b>SU</b>	Secondary Use
<b>UA</b>	Unauthorized Access
<b>CD</b>	Chronic Disease
<b>GD</b>	Gender

## 1. INTRODUCTION

Telemedicine is heralded as the future of health care in several parts of the world. The European Commission issued an eHealth action plan for 2012-2020, highlighting telemedicine's benefits (European Commission, 2012). In the United States of America, the National Academy of Medicine published a strategic initiative titled "Vital Directions for Health and Health Care: priorities for 2021", where telemedicine's importance is also evidenced (Dzau et al., 2021). According to the World Health Organisation, telemedicine is the "delivery of healthcare services, where patients and providers are separated by distance, using information communication technologies for the exchange of information for diagnosis, treatment, and prevention of diseases and injuries, research and evaluation, and the continuing education of health professionals" (Ho et al., 2009). Telemedicine holds vast potential for delivering healthcare services by enhancing access, quality, efficiency (Christensen & Danbjørg, 2018), and productivity gains (Snoswell et al., 2020). Video consultations, a specific type of telemedicine, can be defined as a two-way audio-visual synchronous conference between a patient and a clinician (Donelan et al., 2019). Specifically developed video-conferencing tools do exist, such as the RSE Live, and general video-conferencing platforms are also used, such as Skype, Facetime (Greenhalgh et al., 2018) and Zoom (Grossman et al., 2020).

In Portugal, the National Health System (Serviço Nacional de Saúde) has provided video consultations since 2018, but their adoption rate is still low (Roche, 2020). The National Health System considers telemedicine appointments those that only have voice or voice and image transmission. In September 2020, only 9% of the population had participated in a telemedicine appointment, of which only 5% had image transmission (Roche, 2020). This factor means that less than 0.45% of the Portuguese population had had a video consultation at that point in time.

During the COVID-19 pandemic, there was an increase in the use of telemedicine for urgent and non-urgent care visits (Mann et al., 2020). According to Jiminéz Rodriguez et al.'s article "Increase in video consultations during the COVID-19 pandemic", a survey found that 96.2% of healthcare professionals considered video-conference consultations an adequate option for providing health care (Jiménez-Rodríguez et al., 2020). The mentioned increase in video consultations can be exemplified using the urology branch of medicine case. Prior to the COVID-19 pandemic, it was one of the specialities with the lowest rate of telemedicine use. During the pandemic, urologists' usage of telemedicine almost tripled (Dubin et al., 2020). An increase was also observed in the areas of orthopaedics (Rizzi et al., 2020) and diabetes (Quinn et al., 2020).

This study aims to understand what drives consumers to use video consultations and whether the COVID-19 pandemic influenced the adoption of video consultations.

## 2. LITERATURE REVIEW

### 2.1. TELEMEDICINE AND VIDEO CONSULTATIONS

Telemedicine is often used as an umbrella term referring to the delivery of remote health care services and information. Several definitions of telemedicine before 1978 focused only on medical care as the main function (Bashshur et al., 2000). To exemplify, as early as 1971, telemedicine was defined as “the practice of medicine without the usual physician-patient physical confrontation” and “the practice of medicine via interactive television or by means of any interactive audio-video communications system” (Bird, 1971). Recognizing the wide array of definitions of telemedicine, the World Health Organization decided to create their own. According to the World Health Organization, telemedicine is “The delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment, and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interest of advancing the health of individuals and their communities” (Ho et al., 2009). Video consultations are a specific telemedicine delivery method based on video-conferencing tools. The paper “Patient and clinician experiences with telehealth for patient follow-up care” defines Video Consultations as a 2-way audio-visual synchronous videoconferencing between the doctor and patient” (Donelan et al. 2019). In the present work the definition of Telemedicine by the World Health Organization and the definition of Video Consultations in the previously mentioned paper will be used.

### 2.2. ADOPTION MODELS AT THE INDIVIDUAL LEVEL

#### 2.2.1. Prior research on telemedicine and eHealth

Several studies can be found regarding telemedicine and eHealth relevant to our study. These are shown in Table 2.1. However, even with the potential of this technology to help overcome several healthcare challenges, relevant and specific studies regarding video consultations are lacking.

Theory	Dependent variable	Findings	Reference
TAM, anxiety related to COVID-19, telehealth acceptability scales	Intention to use telehealth	<ul style="list-style-type: none"><li>• Perceived usefulness (PU), and perceived ease of use (PEU), have a significant positive impact on attitude (AT) and behavioural intention (BI)</li><li>• Increased accessibility, enhanced care, and privacy and discomfort have a significant indirect impact on AT and BI through mediators</li><li>• Anxiety related to COVID-19 has no significant effect on AT</li></ul>	(An et al., 2021)

Theory	Dependent variable	Findings	Reference
TAM, HBM, TPB	Intention to use health information technology (HIT)	<ul style="list-style-type: none"> <li>• Perceived threat (PT), PU, and PEU have a significant positive impact on AT and BI</li> <li>• Health consumers' health status, health belief and concerns, subjective Norm, HIT characteristics, and HIT self-efficacy have a strong indirect impact on AT and BI through the mediators PT, PU, and PEU</li> </ul>	(Kim & Park, 2012)
TAM, HBM	Health-related internet use	<ul style="list-style-type: none"> <li>• PT and health consciousness (HC) have a positive influence on use behaviour (UB)</li> <li>• AT mediates the influence of health consciousness on UB</li> <li>• The effect of PT on UB is fully mediated by PU and AT</li> </ul>	(Ahadzadeh et al., 2015)
UTAUT2, DOI, HBM	Use of electronic health record	<ul style="list-style-type: none"> <li>• Performance expectancy (PE), compatibility (CP), and habit (HT) have a significant impact on BI</li> <li>• H, self-perception (SP), and BI have a significant impact on (UB)</li> <li>• BI has a significant impact on UB</li> <li>• Results demonstrability (RD) and C have a significant impact on effort expectancy (EE)</li> <li>• C has a statistically significant impact on PE</li> <li>• Facilitating conditions (FC) and social influence (SI) have no statistically significant impact on BI neither UB</li> </ul>	(Tavares & Oliveira, 2018)
UTAUT	Intention to use telemedicine	<ul style="list-style-type: none"> <li>• PE, EE, and SI have positive effects on BI</li> <li>• FC do not have a direct positive effect on BI</li> <li>• FC affect BI through PE and EE</li> </ul>	(Rho et al., 2015)
TAM2, HBM, dual-factor model	Use of smartphone health technology	<ul style="list-style-type: none"> <li>• Perceived threat (PT), relationship with doctors (RWD), and PEOU have a significant positive impact on PU</li> <li>• Resistance to change (RTC) negatively affect PU</li> <li>• Usage experience and self-efficacy have a significant positive impact on PEOU</li> <li>• PHT, TC, and PU, significantly impact BI positively and negatively, respectively</li> <li>• BI weakly impacted UB</li> </ul>	(Dou et al., 2017)
UTAUT2, perceived reliability	Use of mHealth	<ul style="list-style-type: none"> <li>• PE, SI, FC, and perceived reliability (PR) positively influence BI</li> <li>• EE and price value (PV) do not have a significant influence on BI</li> </ul>	(Alam et al., 2020)

Table 2.1 – Patient adoption models in telemedicine

### 2.3. DIFFUSION OF INNOVATION THEORY (DOI)

According to DOI, an innovation is an idea, process, or technology perceived as new or unfamiliar to individuals or other unit of adoption (Rogers, 1962, p. 11). Five attributes of an innovation influence

its adoption and diffusion - relative advantage, compatibility, complexity, trialability and observability (Rogers, 1962, p. 129). The construct observability was divided into results demonstrability and visibility (Moore & Benbasat, 1991). Results demonstrability, compatibility, relative advantage, and complexity are going to be used. These last two, relative advantage and complexity, have equivalents in the unified theory of acceptance and use of technology (UTAUT), namely performance expectancy and effort expectancy, respectively. Relative advantage measures the degree to which consumers perceive improvements or benefits from using or adopting the technology (Rogers, 1962, p. 129). The respective construct in UTAUT, performance expectancy, is defined as the degree to which consumers' use of a technology will provide benefits in performing associated activities (Venkatesh et al., 2012). Complexity measures the degree to which an innovation is difficult to understand or to be used (Rogers, 1962, p. 129). The respective construct in UTAUT, effort expectancy, is defined as the degree of ease associated with consumers' use of technology. As can be seen, each pair of constructs plays a similar role in the respective models, and both can positively influence intention to use (Moore & Benbasat, 1991). Trialability is defined as the degree to which an innovation may be experimented (Rogers, 1962, p. 129). As we do not have evidence that our target population has participated in a trial usage of video consultations, the construct was not used. Visibility was also not used as video consultations are personal experiences not visible to others.

Results demonstrability is the degree to which the tangible results of adopting and using an innovation can be visible and communicated (Moore & Benbasat, 1991). There is evidence in the field of telemedicine stating that results demonstrability will positively influence effort expectancy and performance expectancy (Tavares & Oliveira, 2018).

H1(a). Results demonstrability will positively influence performance expectancy.

H1(b). Results demonstrability will positively influence effort expectancy.

Compatibility measures the extent to which an innovation is perceived as aligned with the current consumer lifestyle, values, and past experiences (Rogers, 1962, p. 129). There is evidence in the field of telemedicine that compatibility will positively influence performance expectancy, effort expectancy and intention to use (Tavares & Oliveira, 2018; Zhang et al., 2015).

H2(a). Compatibility will positively influence performance expectancy.

H2(b). Compatibility will positively influence effort expectancy.

H2(c). Compatibility will positively influence intention to use.

## **2.4. UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY (UTAUT)**

UTAUT is a frequently used model in health care (Harst et al., 2019). UTAUT includes two dimensions mentioned before, performance expectancy and effort expectancy, adding facilitating conditions, social influence, intention to use and use behaviour. As video consultations have a low adoption rate (Roche, 2020), the use construct was not used. The technology acceptance model (TAM) can be thought of as a simplified version of UTAUT. It is based on the theory that perceived usefulness and perceived ease of use impact attitude towards using a certain technology, which in its turn impacts

the intention to use. Perceived usefulness is defined as the degree to which an individual believes that using a particular system would enhance performance, and perceived ease of use is defined as the degree to which an individual believes that using a particular system would be free of physical and mental effort (Davis, 1985). Perceived usefulness aligns closely with performance expectancy, and so does perceived ease of use to effort expectancy. Due to this, it is safe to incorporate the attitude towards construct from the TAM (Kim & Park, 2012; Venkatesh et al., 2003).

It was found that the correspondent construct in the UTAUT from the TAM, perceived usefulness, positively impacts attitude (Ahadzadeh et al., 2015; An et al., 2021; Kim & Park, 2012). Due to this, we can expect performance expectancy to influence attitude positively. The original UTAUT theory dictates that performance expectancy positively impacts intention to use (Venkatesh et al., 2003), and there is evidence that this effect holds in telemedicine (Alam et al., 2020; Rho et al., 2015; Tavares & Oliveira, 2018).

H3(a). Performance expectancy will positively influence attitude.

H3(b): Performance expectancy will positively influence intention to use.

Evidence states that perceived ease of use, TAM's corresponding construct in UTAUT, positively impacts attitude towards and perceived usefulness (An et al., 2021; Kim & Park, 2012). Therefore, we can expect effort expectancy to influence attitude and performance expectancy positively. The original UTAUT theory dictates that effort expectancy positively impacts intention to use (Venkatesh et al., 2003), and there is evidence that this effect holds in telemedicine (Alam et al., 2020; Rho et al., 2015; Tavares & Oliveira, 2018).

H4(a). Effort expectancy will positively influence attitude.

H4(b): effort expectancy will positively influence intention to use.

H4(c). Effort expectancy will positively influence performance expectancy.

Facilitating conditions are the degree to which an individual believes that the necessary resources are available to support the use of the system (Venkatesh et al., 2012). The original theory dictates that facilitating conditions influence intention to use positively (Venkatesh et al., 2003), as consumers with more facilitating conditions are more likely to have a higher intention to use a technology. Despite not always having a significant effect in the telemedicine field, some literature still supports that it may hold in the area (Alam et al., 2020).

H5. Facilitating conditions will positively influence intention to use.

Social influence is the degree to which an individual perceives that others important to him or her believe he or she should use the new system (Venkatesh et al., 2012). The original UTAUT theory dictates that social influence positively influences intention to use (Venkatesh et al., 2003), as users tend to be influenced by others sharing the same or similar constraints. According to the literature, this hypothesis holds in telemedicine (Alam et al., 2020; Rho et al., 2015).

H6. Social influence will positively influence intention to use.

Attitude towards is the degree of good or bad evaluative affection associated with the consequences of using a system (Davis, 1985). The original TAM theory states that attitude positively influences intention to use, and this effect has also been proven in telemedicine (Ahadzadeh et al., 2015; An et al., 2021; Kim & Park, 2012).

H7. Attitude will positively influence intention to use.

## **2.5. HEALTH BELIEF MODEL (HBM)**

The HBM has shown promising results in telemedicine when used as a complement to other information system theories (Ahadzadeh et al., 2015; Kim & Park, 2012; Tavares & Oliveira, 2018; Yi et al., 2006). The HBM states that people are more motivated to act in healthy ways given the belief that they are susceptible to adverse health consequences (Carpenter, 2010). The literature shows that health beliefs and concerns indirectly affect the intention to use health information technology (Kim & Park, 2012). Tavares and Oliveira have shown that the construct self-perception of health is essential to predict electronic health records use (Tavares & Oliveira, 2018). The construct perceived health risk comes from the HBM and was chosen as it suggests that belief in health risks predict the likelihood of engaging in health behaviour (Ahadzadeh et al., 2015). It is a second-order construct with perceived severity and susceptibility to a disease as their first order constructs. The perceived severity of a disease dimension refers to feelings about the clinical and social consequences of contracting an illness or leaving it untreated (Ahadzadeh et al., 2015). The perceived susceptibility to disease dimension refers to beliefs about the likelihood of getting a disease or condition (Ahadzadeh et al., 2015). Previous literature found that perceived health risk will have a direct positive impact on attitude towards and behavioural intention. The first findings are intuitive as the higher the perception of health risk, the more likely it is to have a positive attitude towards video consultations and to have a higher intention to use them. The literature also found that performance expectancy mediates the relationship between perceived health risk and attitude (Ahadzadeh et al., 2015).

H8(a). Perceived health risk will positively influence attitude.

H8(b). Performance expectancy mediates the relationship between perceived health risk and attitude.

H8(c). Perceived health risk will positively influence intention to use.

## **2.6. CONCERNS FOR INFORMATION PRIVACY (CFIP)**

The CFIP framework was developed because instruments measuring individuals' concerns about the use of personal information in business environments were lacking (Smith et al., 1996). This model states that collection, errors, unauthorised access, and secondary use are the four dimensions that comprise the dimensions of individuals' concerns about organisational information privacy practices (Smith et al., 1996). This framework has been used in the context of telemedicine (Angst & Agarwal, 2009), and previous literature found that privacy is an area of concern for patients regarding video consultations (Barney et al., 2020; Cooper, 2017).

Collection refers to the users' idea that companies are collecting an excessive amount of data (Angst & Agarwal, 2009). It is expected that collection will negatively influence intention to use.

H9. Collection will negatively impact intention to use.

Errors refer to the users' concerns of having incorrect data stored in databases (Angst & Agarwal, 2009). It is expected that errors will negatively influence intention to use.

H10. Errors will negatively impact intention to use.

Unauthorised Access refers to using users' personal information without permission (Angst & Agarwal, 2009). It is expected that unauthorised access will negatively influence intention to use.

H11. Unauthorised Access will negatively impact intention to use.

Secondary use of personal information refers to using users' personal information without their consent (Angst & Agarwal, 2009). It is expected that secondary use of personal information will negatively influence intention to use.

H12. Secondary Use of Personal Information will negatively impact intention to use.

## **2.7. COVID-19 PANDEMIC CONSTRUCT**

Due to the change that the COVID-19 pandemic enforced in society, a COVID-19 related construct is used. Several constructs measuring anxiety and fear related to acceptance of technology have been tested in the context of COVID-19. However, there were no consistent, coherent, or strong results in the studies (An et al., 2021; Kubb & Foran, 2020). Therefore, we included a single-item scale that evaluates if COVID-19, in a broader sense, was a driver of video consultations' acceptance.

H13(a). The COVID-19 pandemic will positively influence attitude.

H13(b). The COVID-19 pandemic will positively influence intention to use.

### 3. LITERATURE REVIEW

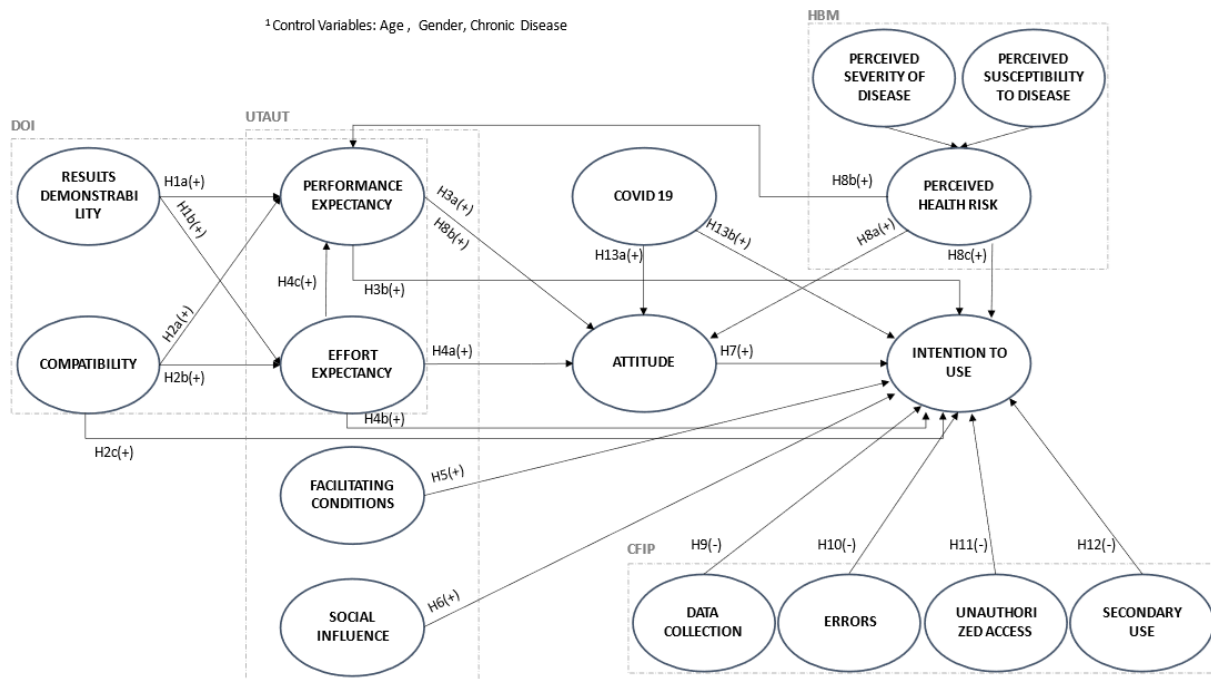


Figure 3.1 – The research model

Video consultations have been used for several years, albeit infrequently and without maximising their potential for patients and healthcare providers (Dekker et al., 2020; Drake et al., 2021). According to the most recent findings, the Covid-19 pandemic is changing this scenario, and people are more willing to use them (Dekker et al., 2020; Drake et al., 2021). Taking a different approach by using mobile apps and internet platforms, the interaction between patients and their healthcare providers is transforming (Dekker et al., 2020; Drake et al., 2021). Studying video consultations' adoption encompasses understanding the different dimensions of the technology, an information communication technology with a novel use-case, and potentially dealing with sensitive and confidential topics (Angst & Agarwal, 2009; Dekker et al., 2020; Drake et al., 2021; Rogers, 1962; Tavares & Oliveira, 2018). Therefore, to study video consultations, we need to incorporate information from different existing theories to cover the complexity of the previously mentioned dimensions.

The diffusion of innovation theory (DOI) was identified, given the novelty of the technology. The unified theory of acceptance and use of technology (UTAUT) was chosen as it is commonly used in the information systems area. The health belief model, one of the most frequently used theories in health informatics and telemedicine, was also chosen (Harst et al., 2019; King & He, 2006), as it captures the specificities of the healthcare sector well and has already shown promising results in this area (Kim & Park, 2012; Tavares & Oliveira, 2018; Zhang et al., 2015). Given the privacy concerns that arise in telehealth (Barney et al., 2020; Cooper, 2017), the concerns for information privacy framework was used. A specific construct was incorporated to reflect the importance that COVID-19 had in society (Dekker et al., 2020; Drake et al., 2021).

Besides these main components of the model, two general demographic control variables were used: Age and Gender. One health-specific control variable was used, chronic disease, as the literature supports that it has a significant impact (Kontos et al., 2014).

## **4. METHODOLOGY**

### **4.1. MEASUREMENT**

The items were adapted from Venkatesh et al. (Venkatesh et al., 2003; Venkatesh et al., 2012), Smith et al. and Angst et al. (Angst & Agarwal, 2009; Smith et al., 1996), Tavares and Oliveira (Tavares & Oliveira, 2018), and Ahadzadeh et al. (Ahadzadeh et al., 2015), with minor modifications to adapt to video consultations. The items are described in the Appendix A. The scale items were measured using a seven-point range scale from “1 – Strongly disagree” to “7- Strongly agree”. Social and demographic questions to characterise the sample were also made. Age was measured in years. Dummy variables were used for gender, 0 for female and 1 for male, and chronic diseases, 0 for not having any chronic disease and 1 for having one or more chronic diseases. The questionnaire was written in Portuguese. The items were translated from English to Portuguese, and a back-translation from Portuguese to English was made by a different translator and then compared to the original one to ensure the translation’s correctness (Wild et al., 2005).

### **4.2. DATA COLLECTION**

Previous literature showed that younger people, who are more educated and have a higher health literacy, are more likely to use eHealth tools (Kontos et al., 2014; Or & Karsh, 2009). Most recent literature concerning video consultations identified that younger people with higher education are more knowledgeable and likely to be interested in using video consultations, pointing towards a potential digital divide (Dekker et al., 2020; Drake et al., 2021; Shaw et al., 2020). Due to the model’s complexity, a minimum of 150 respondents was needed (Hair et al., 2016, p. 26). Moreover, at least 184 respondents were needed to attain a statistical power of 80% to detect  $R^2$  values of at least 0.10 with a 5% probability of error (Cohen, 1992; Hair et al., 2016, p. 26). Due to the need to have a meaningful sample size and respondents knowledgeable about the matter, the survey was distributed in two institutes of higher education in Lisbon. First, a pilot survey was conducted. It collected 11 responses, no issues were reported, and these responses were not included in the final analysis. Before the participants could answer the survey, an introduction about the research purpose was provided. Confidentiality and anonymity assurance was given to the participants. The participants had to state their consent to participate in the survey explicitly. An additional assurance was given to the participants stating if they decided not to complete the survey, the data collected would not be used and would be discarded. In total, 346 valid answers were obtained. It was possible to answer the survey through mobile phones and computers. The survey was available between the 27 April 2021 and 2 May 2021.

### **4.3. DATA ANALYSIS**

We decided to use partial least squares structural equation modelling (PLS-SEM) to test our model due to the model’s complexity, the existence of many constructs, the existence of formatively measured constructs as part of the structural model, and our goal to identify the key driver constructs. These circumstances favour the use of PLS-SEM instead of covariance-based structural

equation modelling (CB-SEM) (Hair et al., 2016, p. 23). SmartPLS 3 statistical software was used to estimate the model (Hair et al., 2016). Before evaluating the structural model, we assessed the quality of the measurement model.

## 5. RESULTS AND DISCUSSION

### 5.1. RESULTS

#### 5.1.1. Sample characteristics

	Sample (number)	Sample (percentage)
<b>Age (mean = 34.8)</b>		
[18-34]	224	64.74
[35-49]	22	6.36
[50-64]	77	22.25
>64	23	6.65
<b>Gender</b>		
Male	136	39.31
Female	210	60.69
<b>Education</b>		
High School completed	23	6.64
Bachelor's Degree (ongoing or completed)	176	50.88
Master's Degree (ongoing or completed)	145	41.90
PhD (ongoing or completed)	2	0.58
<b>Chronic Disease</b>		
Has one or more Chronic Disease	61	17.63
Does not have any Chronic Disease	285	82.37

Table 5.1 – Sample characteristics

The sample average age was approximately 35 years, and the majority of the respondents were women (60.7%). The sample characteristics' results are visible in table 5.1.

#### 5.1.2. Measurement model

As there are reflective and formative constructs, different measures to assess the quality of the model must be used. We start by evaluating the reflective constructs. The internal consistency measures how closely related the construct items are (Hair et al., 2016). To do so, we used Cronbach's alpha and composite reliability. As seen in Table 5.2, all constructs display Cronbach's alpha and composite reliability scores above 0.7, proof of the internal consistency (Hair et al., 2016, p. 112). Item UA3, with an outer loading below 0.7, had to be dropped to achieve these values as it was worsening the model's performance, leading to both Cronbach's alpha and composite reliability values below the threshold (Hair et al., 2016, p. 112). The convergent validity measures the degree to which one measure correlates positively with alternative measures of the same construct (Hair et al., 2016, p. 112). It was assessed with the average variance extracted and outer loadings (Hair et al., 2016, p. 114). Average Variance Extracted should be above 0.5. In Table 5.2, we can see that all constructs have a value above this threshold. The outer loadings should be above 0.7 (Hair et al., 2016, p. 25). This criterion was also fulfilled, as depicted in Table 5.3. Discriminant validity is the length to which one construct is truthfully different from the others (Hair et al., 2016, p. 115). It is

assessed based on the cross-loadings and the Fornell and Larcker criterion. Specifically, an indicator's outer loading on the associated construct should be greater than any of its cross-loadings (Hair et al., 2016, p. 115), as confirmed in the Appendix B. The Fornell and Larcker criterion affirms that the square root of average variance extracted in each construct should be higher than any other correlation value among other constructs (Hair et al., 2016, p. 116). This criterion holds for all constructs besides the second-order construct, PHR, as illustrated in Table 5.3. The correlation between PHR and PHR is lower than the correlation between PHR and PSE, and PHR and PSU, the first-order constructs that make up the higher-order one. This outcome happens because PHR is composed by PSE and PSU. Finally, the Heterotrait-monotrait ratio was analysed. It represents what the correlation between two constructs would be if they were measured perfectly (Hair et al., 2016, p. 118). The confidence interval cannot include the value 1 (Hair et al., 2016, p. 119), as confirmed in the Appendix C.

Constructs	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Attitude	.96	.97	.89
Compatibility	.84	.89	.68
Data Collection	.94	.96	.89
Effort expectancy	.91	.94	.8
Errors	.91	.93	.76
Facilitating conditions	.85	.90	.70
Intention to use	.94	.96	.88
Perceived Severity	.85	.90	.70
Perceived Susceptibility	.86	.90	.61
Performance expectancy	.90	.93	.77
Results Demonstrability	.80	.88	.71
Secondary Use	.85	.85	.58
Social influence	.73	.85	.67
Unauthorised Access	.81	.89	.80

Table 5.2 – Cronbach's alpha, composite reliability, and average variance extracted

Variables	AT	CO	CP	DC	EE	ER	FC	IU	PHR	PSE	PSU	PE	RD	SU	SI	UA	Age	CD	GD
AT	<b>.94</b>																		
CO	-.13	<b>1</b>																	
CP	.80	.56	<b>.82</b>																
DC	-.01	.11	.00	<b>.94</b>															
EE	.54	-.21	.49	-.07	<b>.89</b>														
ER	.16	.20	.17	.19	.14	<b>.87</b>													
FC	.39	-.22	.30	-.13	.70	.01	<b>.83</b>												
IU	.85	-.08	.75	.04	.49	.14	.38	<b>.94</b>											
PHR	.20	.02	.12	.13	.08	.20	.18	.20	<b>.68</b>										
PSE	.22	.02	.15	.07	.16	.22	.19	.21	.77	<b>.84</b>									
PSU	.13	.02	.07	.13	.00	.13	.12	.14	.89	.41	<b>.78</b>								
PE	.82	-.12	.81	.04	.49	.14	.34	.80	.20	.22	.13	<b>.88</b>							
RD	.58	.04	.57	.08	.49	.11	.34	.57	.14	.15	.09	.60	<b>.84</b>						
SU	.10	.10	.05	.09	.15	.31	.15	.13	.13	.19	.05	.08	.10	<b>.76</b>					
SI	.55	-.09	.54	.06	.34	.12	.30	.55	.22	.18	.19	.61	.49	.05	<b>.82</b>				
UA	.04	.21	.04	.17	.10	.57	.01	.08	.13	.20	.05	.03	.11	.44	.02	<b>.9</b>			
Age	-.13	-.24	-.12	.11	-.21	.20	-.22	-.08	.02	.02	.02	-.12	.04	.11	-.09	.21	<b>1</b>		
CD	-.03	.36	-.04	.05	-.02	.13	-.02	.00	.10	.17	.17	-.03	-.03	.05	.01	.14	.36	<b>1</b>	
GD	.08	-.11	.09	.06	.16	-.11	.11	.01	-.07	-.00	-.00	.02	.05	-.03	.07	-.14	-.11	-.09	<b>1</b>

AT = Attitude, CO= COVID-19, CP = Compatibility, DC = Data Collection, EE = Effort Expectancy, ER = Errors, FC = Facilitating Conditions, IU = Intention to Use, PHR = Perceived Health Risk, PSE = Perceiver Severity, PSU = Perceived Susceptibility, PE = Performance Expectancy, RD = Results Demonstrability, SI = Social Influence, SU = Secondary Use, UA = Unauthorised Access, CD = Chronic Disease, GD = Gender

Table 5.3 – Fornell and Larcker criterion

Constructs	VIF	Weight	p-value
Perceived Health Risk – Perceived Severity	1.20	0.50	<0.001
Perceived Health Risk – Perceived Susceptibility	1.20	0.69	<0.001

Table 5.4 – Measurement evaluation for the higher-order formative constructs

Perceived health risk is arranged as a reflective formative-type higher-order construct (Hair et al., 2016, p. 13). We evaluated its multicollinearity according to the variance inflation factor, which denoted no collinearity issues as VIF values are below 5, as seen in Table 5.4. The weights are positive and statistically significant, confirming the suitability of using this second-order construct (Hair et al., 2016, p. 143).

### 5.1.3. Structural model

The significance levels of the structural model path were estimated with a 5000 iterations bootstrap resampling to achieve maximum consistency in the results (Hair et al., 2016, p. 131). As stated previously, the multicollinearity of all constructs was tested based on the VIF, and all values were below 5, which indicates no multicollinearity issues among the constructs. The R<sup>2</sup> values were analysed to assess the structural model. The model explains 77.6% of the variance in intention to use, 71.4% in attitude, 70.1% in performance expectancy, and 30.2% in effort expectancy. Table 5.5 summarises the results of the structural model. In Appendix D can be seen a figure with the visualization of the structural model results.

We also evaluated the common method variance, using one of the most standard methods to assess it, namely Harman's one-factor test (Podsakoff et al., 2003). It states that if the total variance for any single factor is less than 50%, common method variance should not be an issue (Podsakoff et al., 2003). The first factor, as expected, was the one with the greatest variance (30.4%), still considerably lower than 50%, reinforcing that common method variance should not be an issue. The marker-variable technique was also used, where an unrelated theoretical construct is used (Lindell & Whitney, 2001). No significant correlation was found between the research model constructs and the marker variable. Therefore, it can be concluded that common method variance was not a problem, verified by two different and established criteria.

Dependent/ Independent variables	Beta	p-value	R <sup>2</sup>	R <sup>2</sup> adjusted
<b>IU</b>			<b>.78</b>	<b>.77</b>
CP	.089	.152		
AT	.504**	< .001		
PE	.196*	.002		
EE	-.002	.961		
FC	.036	.293		
SI	.042	.270		
CO	.151**	< .001		
PHR	-.003	.908		
DC	.043	.174		
ER	-.075	.088		
UA	.053	.221		
SU	.027	.532		
Age	.064*	.029		
GD	-.036	.192		
CD	.001	.974		
<b>AT</b>			<b>.71</b>	<b>.71</b>
PE	.643**	< .001		
EE	.138**	.001		
CO	.170**	< .001		
PHR	.029	.348		
Age	.026	.371		
GD	.046	.128		
CD	-.013	.677		
<b>PE</b>			<b>.70</b>	<b>.70</b>
PHR	.090*	.002		
RD	.159**	< .001		
CP	.672**	< .001		
EE	.081*	.032		
<b>EE</b>			<b>.30</b>	<b>.30</b>
RD	.312**	< .001		
CP	.308**	< .001		

AT = Attitude, CO= COVID-19, CP = Compatibility, DC = Data Collection, EE = Effort Expectancy, ER = Errors, FC = Facilitating Conditions, IU = Intention to Use, PHR = Perceived Health Risk, PSE = Perceiver Severity, PSU = Perceived Susceptibility, PE = Performance Expectancy, RD = Results Demonstrability, SI = Social Influence, SU = Secondary Use, UA = Unauthorised Access, CD = Chronic Disease, GD = Gender

Table 5.5 – Structural model results

## 5.2. DISCUSSION

The results of our study support the use of an integrated model to cover all the different aspects of telemedicine related technology adoption. The models, theories and dimensions used were: UTAUT, DOI, HBM, CFIP, and COVID-19. The model explained 77.6% (R<sup>2</sup>) of the variance on intention to use. A

good result was also achieved in Attitude, with an  $R^2$  of 71.4%. The DOI theory proved useful, as 4 out of 5 hypotheses exclusively connected with DOI were supported (H1a-> H2c). The COVID-19 construct also showed a relevant impact, having a statistically significant effect on both attitude and intention to use. UTAUT and HBM constructs also proved useful, notwithstanding a lower magnitude than the DOI and COVID-19 constructs. Regarding the CFIP framework, none of the constructs was found to be statistically significant. It seems that, in general, confidentiality concerns are not an issue for the adoption of video consultations.

### **5.3. THEORETICAL IMPLICATIONS**

As demonstrated in Table 5.6, the results demonstrability has a statistically significant effect on both performance expectancy and effort expectancy, supporting H1(a) and H1(b). This outcome suggests that the visibility and communicability of the results of using an innovation increase the perceived benefits and ease of use associated with video consultations. Compatibility has a statistically significant effect on performance expectancy and effort expectancy, supporting H2(a) and H2(b). However, no statistically significant effect in intention to use was found, not supporting H2(c). These findings evidence that when video consultations are perceived as aligned with the patient's lifestyle, values, and past experiences, there is a higher perceived benefit and ease of use of the mentioned technology. It is interesting to note that this perceived alignment does not directly influence the intention to use. Literature supporting H1(a), H1(b), H2(a) and H2(b) exists (Tavares & Oliveira, 2018; Zhang et al., 2015).

Performance expectancy has a statistically significant effect on attitude and intention to use, supporting H3(a) and H3(b), and confirming that perceived benefits of video consultations are an important predictor of both attitude and intention to use. Several studies in specific areas related to telemedicine support H3(a) (Ahadzadeh et al., 2015; An et al., 2021; Kim & Park, 2012) and H3(b) (Alam et al., 2020; Rho et al., 2015; Tavares & Oliveira, 2018). Attitude had a statistically significant effect on intention to use, supporting H7. It confirms that the affection associated with using video consultations is an important predictor of the intention to use them. There are several studies in specific areas in telemedicine supporting H7 (Ahadzadeh et al., 2015; An et al., 2021; Kim & Park, 2012). Effort expectancy statistically impacted attitude and performance expectancy, supporting H4(a) and H4(b). However, there was no direct impact on intention to use, not supporting H4(c). The literature supports both H4(a) (Ahadzadeh et al., 2015; An et al., 2021; Kim & Park, 2012) and H4(b) (An et al., 2021; Kim & Park, 2012). Regarding H4(c), contradicting evidence exists. Some studies have proven this effect (Alam et al., 2020), while others have not proven it (Dou et al., 2017; Tavares & Oliveira, 2018; Yi et al., 2006). Facilitating conditions was not found statistically significant, not supporting H5. A possible explanation may be that patients already have all the resources and knowledge needed, not considering them a problem when deciding to use video consultations. Previous literature has already found this effect (Rho et al., 2015; Tavares & Oliveira, 2018), and it may be more prevalent during and after the COVID-19 pandemic, where many people increased their use of video conferencing platforms. Social influence was not found statistically significant, not supporting H6. Contradictory studies exist regarding this impact (Alam et al., 2020; Rho et al., 2015; Tavares & Oliveira, 2018). The private nature of consultations may explain why patients are not influenced by the opinion of others.

The suggested mediation from perceived health risk to attitude through performance expectancy was found to have a full effect as only the indirect impact was found statistically significant, meaning that H8(b) was supported, and H8(a) and H8(c) were not supported. Previous literature supports this effect (Ahadzadeh et al., 2015; Kim & Park, 2012).

None of the CFIP constructs was found statistically significant, not supporting H9, H10, H11, and H12. A possible explanation is that a wide array of topics can be discussed with the physician, ranging from sensitive to familiar topics. If the consultation focuses on psychology or infectious diseases, the effect may be found statistically significant. If the consultation focuses on general health topics, the non-significant effect we reached may be expected, as users may not worry about confidentiality.

Previous literature could not prove the relationship between COVID-19 and video consultations (An et al., 2021). Our study shows that the COVID-19 pandemic influenced both the attitude and the intention to use video consultations, supporting H13(a) and H13(b). These results are reinforced by recent statistics that show the increase in the ubiquity of video consultations' during the pandemic (Dubin et al., 2020; Mann et al., 2020; Rizzi et al., 2020). This study shows a potential effect of the COVID-19 pandemic in the attitude and intention to use this technology.

Regarding the control variables, only age was found to have a statistically significant effect on intention to use. Contrarily to popular belief, age was found to impact intention to use positively, meaning that older people were more likely to have a higher intention to use video consultations. These results are reinforced by previous literature that suggests higher age implies a more frequent need for health services (Tavares & Oliveira, 2016).

Hypothesis	Path	Beta	p-value	Result
<b>H1(a)</b>	RD to PE	0.159	< .01	Supported
<b>H1(b)</b>	RD to EE	0.312	< .01	Supported
<b>H2(a)</b>	CP to PE	0.672	< .01	Supported
<b>H2(b)</b>	CP to EE	0.308	< .01	Supported
H2(c)	CP to IU	0.089	0.152	Not Supported
<b>H3(a)</b>	PE to AT	0.643	< .01	Supported
<b>H3(b)</b>	PE to IU	0.196	0.002	Supported
<b>H4(a)</b>	EE to AT	0.138	< .01	Supported
H4(b)	EE to IU	-0.002	0.961	Not Supported
<b>H4(c)</b>	EE to PE	0.081	0.030	Supported
H5	FC to IU	0.036	0.293	Not Supported
H6	SI to IU	0.042	0.270	Not Supported
<b>H7</b>	AT to IU	0.504	< .01	Supported
H8(a)	PHR to AT	0.029	0.348	Not Supported
<b>H8(b)</b>	(PHR to PE) * (PE to AT)	0.058	0.002	Supported
H8(c)	PHR to IU	-0.003	0.908	Not Supported
H9	DC to IU	0.043	0.174	Not Supported
H10	ER to IU	-0.075	0.088	Not Supported
H11	UA to IU	0.053	0.221	Not Supported
H12	SU to IU	0.027	0.532	Not Supported
<b>H13(a)</b>	CO to AT	0.170	< .01	Supported
<b>H13(b)</b>	CO to IU	0.151	< .01	Supported

Table 5.6 – Hypothesis results

## 5.4. MANAGERIAL IMPLICATIONS

Two different organisational areas can significantly benefit from this study, namely those related to developing video consultation platforms and those responsible for creating marketing communication strategies. Before addressing the specific findings, the most important general one is that COVID-19 positively influenced the intention to use video consultations. The effect was widely talked about in the public sphere, and this study brings evidence to support it.

Implications at the platform development level can be derived from the compatibility construct when we identify the importance of compatibility with past experiences. Hospitals and other healthcare entities should develop platforms with a similar interface, functionalities, and experience to the most widely used video conferencing platforms. By doing so, perceived productivity and ease of use will increase, positively influencing users' attitudes and intention to use video consultations. An interface that emphasises time savings and any other result that derives from using video consultations should also be accessible to users. It will increase perceived productivity derived from video consultations while decreasing perceived effort, therefore positively influencing attitude and intention to use them. Despite the non-importance of the CFIP constructs, all the privacy regulations should be

fulfilled when developing platforms. In short, the higher the productivity gains and the easier it is to use these platforms, the better the attitude towards video consultations is and the higher the intention to use them. Developers must find possible ways to target these two areas directly while also looking to increase the similarity with previously used video conferencing tools and displaying the results derived from the consultations. These two factors will positively influence both perceived productivity gains and easiness of using video consultations.

Implications for communication strategies can be derived from most constructs. They will be analysed in this paragraph. Regarding compatibility, providers should find how video consultations can align with the users' lifestyles, values, and past experiences, emphasising these when developing communication strategies. For example, a specific segment of patients between 18 and 30 years old and digital natives can be identified, and a highlight of how video consultations fit their lives should be made. Addressing the importance of results demonstrability, providers must clearly express the results of using video consultations. By doing so, patients will understand the results obtained from video consultations more clearly, leading to higher expected productivity and lower perceived effort. Video consultations lead to time savings that can reach 3 hours per visit. This factor exemplifies one result that can be communicated to users (Powell et al., 2018). These time savings arise from different aspects, such as no more need for waiting times and time-consuming commutes to hospitals (Powell et al., 2018). There is a direct impact from effort expectancy on attitude. Due to this, it is essential to show that most people already have the resources and knowledge needed to use video consultations. Based on performance expectancy, the communication strategy must also highlight the benefits of using video consultations, particularly the increase in productivity they can expect. Some routine visits that lead to a high time expenditure do not require the patient to be physically present, leading to no need to go to the hospital and easier access to experts. From the perceived health risk construct, we first realise the positive influence on attitude mediated by performance expectancy, and secondly on intention to use mediated by performance expectancy. This aspect means that people who are more concerned about their health have higher perceived productivity gains from using a platform that provides them possible ways to solve their concerns. Patients more concerned with their health will perceive the platform as a more effective and a more productive means of communicating with their healthcare professional than patients less concerned about their health. This phenomenon makes it even more important to address the productivity gains that can be expected from using video consultations. As important as understanding the most important drivers of adoption, is evidencing what may have been thought of as a driver but is not. The CFIP constructs have shown that privacy concerns are not important for users to adopt video consultations, therefore minor emphasis should be put on the communication strategy.

## 6. CONCLUSIONS

Video consultations are a promising part of telemedicine with the potential to help solve some of the imminently arising healthcare challenges, which will undoubtedly intensify in the future. Our respondents comprised primarily young adults who had a complete university degree or ongoing tertiary studies. The most significant constructs were performance expectancy, effort expectancy, compatibility, the COVID-19 pandemic, and perceived health risk. All the theories besides CFIP had significant constructs, which shows that DOI, UTAUT, and HBM are important to explain the adoption of video consultations. In addition to the significance of the constructs, the model achieved strong  $R^2$  results, explaining 77.6% of the variance in intention to use and 71.4% of the variance in attitude.

Firstly, this study shows that the COVID-19 pandemic impacted the intention to use video consultations indeed. It also brings evidence for the outline of platform development and communication strategies that can lead to a higher adoption by users. The need to make platforms similar to previous ones used by the target audience is evident. Moreover, communicating the suitability of this technology to the lifestyle and past experiences of the user is equally imperative. Emphasising the results of using video consultations is hugely relevant as well. Of the utmost importance is to increase the perceived productivity gains users can achieve through video consultations and their perceived ease of use, as these tangible benefits will positively impact the intention to use the technology and the attitudes of the users towards it. Furthermore, it will make patients more concerned about their health have even higher perceived productivity gains from using the technology.

With this study, we built upon the previous knowledge regarding patients' adoption of video consultations, evidencing the importance of the COVID-19 pandemic, perceived health risks, and compatibility. Important implications for healthcare entities aiming to implement video conferencing tools were also extracted. The investigation also shows that high explanatory power can be achieved by using specific constructs from the different areas that compromise technology and use cases.

## 7. LIMITATIONS AND RECOMMENDATIONS FOR FUTURE WORKS

The model complexity led to the need of having a large number of respondents to detect  $R^2$  values with a statistical power of 80%. Due to the low adoption rate reported in the literature (Roche, 2020), a sample with people knowledgeable about video consultations had to be selected, which led to the distribution of the survey in two higher education institutions in Lisbon, as people with higher education tend to use more e-health and video consultations (Dekker et al., 2020; Drake et al., 2021). Nonetheless, recently published studies indicate that the use of video consultations has increased (Dubin et al., 2020; Jiménez-Rodríguez et al., 2020; Rizzi et al., 2020). Future studies should include a more representative general population sample and include the Use construct based on these findings.

With the proof that COVID-19 impacted the intention to use video consultations, future qualitative research can look deeper into this area to understand the root causes. Now that this study has evaluated video consultations as a whole, it is essential to try to understand the adoption and use in specific healthcare areas (general practice, oncology, psychology, etc.) because the drivers of use can be different between a patient with a mental health disorder, an infectious disease, or a simple follow-up appointment. Cross country comparisons and comparisons between different demographic groups from the same country to evaluate the differences in the drivers of adoption can also represent crucial succeeding research. Lastly, future research could also focus on understanding the drivers of using video consultations from the healthcare provider perspective. Not only are patients critical to the adoption of this technology, but physicians and other healthcare providers should also believe that video consultations can be a powerful tool to communicate with their patients.

## 8. BIBLIOGRAPHY

- Ahadzadeh, A. S., Sharif, S. P., Ong, F. S., & Khong, K. W. (2015). Integrating health belief model and technology acceptance model: An investigation of health-related internet use. *Journal of Medical Internet Research, 17*(2).
- Alam, M. Z., Hoque, M. R., Hu, W., & Barua, Z. (2020). Factors influencing the adoption of mHealth services in a developing country: A patient-centric study. *International Journal of Information Management, 50*, 128-143.
- An, M. H., You, S. C., Park, R. W., & Lee, S. (2021). Using an extended technology acceptance model to understand the factors influencing telehealth utilization after flattening the COVID-19 curve in South Korea: Cross-sectional survey study. *JMIR Medical Informatics, 9*(1).
- Angst, C. M., & Agarwal, R. (2009). Adoption of electronic health records in the presence of privacy concerns: The elaboration likelihood model and individual persuasion. *MIS Quarterly, 33*(2), 339-370.
- Barney, A., Buckelew, S., Mesheriakova, V., & Raymond-Flesch, M. (2020). The COVID-19 pandemic and rapid implementation of adolescent and young adult telemedicine: Challenges and opportunities for innovation. *Journal of Adolescent Health, 67*, 164-171.
- Bashshur, R. L., Reardon, T. G., & Shannon, G. W. (2000). Telemedicine: A new health care delivery system. *Annual Review of Public Health, 21*, 613-37.
- Bird, K. T. (1971). *Teleconsultation: a new health information exchange system* (Report No. PB 239 480). Massachusetts General Hospital, Boston.
- Carpenter, C. J. (2010). A meta-analysis of the effectiveness of health belief model variables in predicting behavior. *Health Communication, 25*(8), 661-669.
- Christensen, P. N., & Danbjørg, D. B. (2018). Use of video consultations for patients with hematological diseases from a patient perspective: Qualitative study. *Journal of Participatory Medicine, 10*(4).
- Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155-159.
- Davis, F. D. (1985). *A technology acceptance model for empirically testing new end-user information systems: Theory and results*. [Doctoral thesis, Sloan School of Management].
- Dekker, A., Bandell, D. L. J. I., Kortlever, J. T. P., Schipper, I. B., & Ring, D. (2020). Factors associated with patient willingness to conduct a remote video musculoskeletal consultation. *The Archives of Bone and Joint Surgery, 8*(6), 656-660.

- Donelan, K., Barreto, E. A., Sossong, S., Michael, C., Estrada, J. J., Cohen, A. B., Wozniak, J., & Schwamm, L. H. (2019). Patient and clinician experiences with telehealth for patient follow-up care. *American Journal of Managed Care*, 25(1), 40-44.
- Dou, K., Yu, P., Deng, N., Liu, F., Guan, Y., Li, Z., Ji, Y., Du, N., Lu, X., & Duan, H. (2017). Patients' acceptance of smartphone health technology for chronic disease management: A theoretical model and empirical test. *JMIR MHealth and UHealth*, 5(12).
- Drake, C., Lian, T., Cameron, B., Medynskaya, K., Bosworth, H. B., & Shah, K. (2021). Understanding telemedicine's "new normal": Variations in telemedicine use by specialty line and patient demographics. *Telemedicine and E-Health*, 00(00).
- Dubin, J. M., Wyant, W. A., Balaji, N. C., Ong, W. L. K., Kettache, R. H., Haffaf, M., Zouari, S., Santillan, D., Gómez, A. M. A., Sadeghi-Nejad, H., Loeb, S., Borin, J. F., Rivas, J. G., Grummet, J., Ramasamy, R., & Teoh, J. Y. C. (2020). Telemedicine usage among urologists during the COVID-19 pandemic: Cross-sectional study. *Journal of Medical Internet Research*, 22(11).
- Dzau, V. J., Cohen, M., & McGinnis, J. M. (2021). Vital directions for health & health care. *Health Affairs*, 40(2).
- European Commission. (2012). *Communication from the commission to the European parliament, the council, the European economic and social committee and the committee of the regions: eHealth Action Plan 2012-2020*. European Commission.
- Greenhalgh, T., Shaw, S., Wherton, J., Vijayaraghavan, S., Morris, J., Bhattacharya, S., Hanson, P., Campbell-Richards, D., Ramoutar, S., Collard, A., & Hodkinson, I. (2018). Real-world implementation of video outpatient consultations at macro, meso, and micro levels: Mixed-method study. *Journal of Medical Internet Research*, 20(4).
- Grossman, Z., Chodick, G., Reingold, S. M., Chapnick, G., & Ashkenazi, S. (2020). The future of telemedicine visits after COVID-19: perceptions of primary care pediatricians. *Israel Journal of Health Policy Research*, 9.
- Hair, J., Hult, G. T., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). SAGE Publications.
- Harst, L., Lantzsch, H., & Scheibe, M. (2019). Theories predicting end-user acceptance of telemedicine use: Systematic review. *Journal of Medical Internet Research*, 21(5).
- Ho, K., Cordeiro, J., Hoggan, B., Lauscher, H. N., Grajales, F., Oliveira, L., & Polinijo, A. (2009). *Telemedicine: Opportunities and developments in member states: report on the second global survey on ehealth*. *Healthcare Informatics Research*. WHO Global Observatory.
- Jiménez-Rodríguez, D., García, A. S., Robles, J. M., Salvador, M. D. M. R., Ronda, F. J. M., & Arrogante, O. (2020). Increase in video consultations during the COVID-19 pandemic: Healthcare professionals' perceptions about their implementation and adequate management. *International Journal of Environmental Research and Public Health*, 17.

- Kim, J., & Park, H. A. (2012). Development of a health information technology acceptance model using consumers' health behavior intention. *Journal of Medical Internet Research, 14*(5).
- King, W. R., & He, J. (2006). A meta-analysis of the technology acceptance model. *Information and Management, 43*, 740-755.
- Kontos, E., Blake, K. D., Chou, W. Y. S., & Prestin, A. (2014). Predictors of eHealth usage: Insights on the digital divide from the health information national trends survey 2012. *Journal of Medical Internet Research, 16*(7).
- Kubb, C., & Foran, H. M. (2020). Measuring COVID-19 related anxiety in parents: Psychometric comparison of four different inventories. *JMIR Mental Health, 7*(12).
- Lindell, M. K., & Whitney, D. J. (2001). Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology, 86*(1), 114-121.
- Mann, D. M., Chen, J., Chunara, R., Testa, P. A., & Nov, O. (2020). COVID-19 transforms health care through telemedicine: Evidence from the field. *Journal of the American Medical Informatics Association, 27*(7).
- Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research, 2*(3).
- Or, C. K. L., & Karsh, B. T. (2009). A systematic review of patient acceptance of consumer health information technology. *Journal of the American Medical Informatics Association, 16*(4).
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903.
- Powell, R. E., Stone, D., & Hollander, J. E. (2018). Patient and health system experience with implementation of an enterprise-wide telehealth scheduled video visit program: Mixed-methods study. *JMIR Medical Informatics, 6*(1).
- Powell, R. E., Jeffrey M. M. H., Grace, C., Judd, E. H., & Kristin, L. R. (2017). Patient perceptions of telehealth primary care video visits. *Annals of Family Medicine, 15*(3).
- Quinn, L. M., Davies, M. J., & Hadjiconstantinou, M. (2020). Virtual consultations and the role of technology during the COVID-19 pandemic for people with type 2 diabetes: The UK perspective. *Journal of Medical Internet Research, 22*(8).
- Rho, M. J., Kim, H. S., Chung, K., & Choi, I. Y. (2015). Factors influencing the acceptance of telemedicine for diabetes management. *Cluster Computing, 18*(1).
- Rizzi, A. M., Polachek, W. S., Dulas, M., Strelzow, J. A., & Hynes, K. K. (2020). The new 'normal': Rapid adoption of telemedicine in orthopaedics during the COVID-19 pandemic. *Injury, 51*, 2816-2821.

- Roche. (2020). *Mais de metade dos portugueses entende que pandemia dificultou o acesso à saúde*. Retrieved July 4, 2021, from <https://www.corporate.roche.pt/pt/artigos-roche/mais-de-metade-dos-portugueses-entende-que-pandemia-dificultou-o.html>
- Rogers, E. (1962). *Diffusion of innovations* (3rd ed.). The Free Press.
- Shaw, S. E., Seuren, L. M., Wherton, J., Cameron, D., A'Court, C., Vijayaraghavan, S., Morris, J., Bhattacharya, S., & Greenhalgh, T. (2020). Video consultations between patients and clinicians in diabetes, cancer, and heart failure services: Linguistic ethnographic study of video-mediated interaction. *Journal of Medical Internet Research, 22*(5).
- Smith, H. J., Milberg, S. J., & Burke, S. J. (1996). Information privacy: Measuring individuals' concerns about organizational practices. *MIS Quarterly, 20*(2), 167-196.
- Snoswell, C. L., Taylor, M. L., Comans, T. A., Smith, A. C., Gray, L. C., & Caffery, L. J. (2020). Determining if telehealth can reduce health system costs: Scoping review. *Journal of Medical Internet Research, 22*(10).
- Tavares, J., & Oliveira, T. (2016). Electronic health record patient portal adoption by health care consumers: An acceptance model and survey. *Journal of Medical Internet Research, 18*(3).
- Tavares, J., & Oliveira, T. (2018). New integrated model approach to understand the factors that drive electronic health record portal adoption: Cross-sectional national survey. *Journal of Medical Internet Research, 20*(11).
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: toward a unified view. *MIS Quarterly, 27*(3), 425-478.
- Venkatesh, V., James, Y., Thong, L., & Xin, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly, 36*(1), 157-178.
- Wild, D., Grove, A., Martin, M., Eremenco, S., McElroy, S., Verjee-Lorenz, A., & Erikson, P. (2005). Principles of good practice for the translation and cultural adaptation process for patient-reported outcomes (PRO) measures: Report of the ISPOR task force for translation and cultural adaptation. *Value in Health, 8*(2), 94-104.
- Yi, M. Y., Jackson, J. D., Park, J. S., & Probst, J. C. (2006). Understanding information technology acceptance by individual professionals: Toward an integrative view. *Information and Management, 43*.
- Zhang, X., Yu, P., Yan, J., & Ton A M Spil, I. (2015). Using diffusion of innovation theory to understand the factors impacting patient acceptance and use of consumer e-health innovations: A case study in a primary care clinic. *BMC Health Services Research, 15*.

## 9. APPENDIX

### 9.1. APPENDIX A

#### Questionnaire Items

Constructs	Items	Sources
<b>Results Demonstrability</b>	1 - I would have no difficulty telling others about the results of using a Video Consultation	(Tavares & Oliveira, 2018)
	2 - I believe I could communicate to others the consequences of using a Video Consultation	
	3 - The results of using Video Consultations are apparent to me	
<b>Compatibility</b>	1 - Using a Video Consultation is compatible with all aspects of my health care	(Tavares & Oliveira, 2018)
	2 - Using a Video Consultation is compatible with my current situation	
	3 - I think that using a Video Consultation fits well with the way I like to manage my health care	
	4 - Using Video Consultations fits in my lifestyle	
<b>Performance Expectancy</b>	1 – I consider Video Consultations would be useful in my daily life	(Venkatesh et al., 2003; Venkatesh et al., 2012)
	2 – Using Video Consultations increases my chances of achieving things that are important to me	
	3 – Using Video Consultations helps me accomplish health-care related objectives more quickly	
	4 – Using Video Consultations increases my productivity	
<b>Effort Expectancy</b>	1 – Learning how to use Video Consultations would be easy for me	(Venkatesh et al., 2003; Venkatesh et al., 2012)
	2 – My interaction with Video Consultations would be clear and understandable	
	3 – I find that it would be easy to use Video Consultations	
	4 – It would be easy for me to become skillful at using Video Consultations	
<b>Facilitating Conditions</b>	1 – I have the resources necessary to use Video Consultations	(Venkatesh et al., 2003; Venkatesh et al., 2012)
	2 – I have the knowledge necessary to use Video Consultations	
	3 – Video Consultations is compatible with other technologies I use	
	4 – I can get help from others when I have difficulties using Video Consultations	
<b>Social Influence</b>	1 – People who are important to me think that I should use Video Consultations	(Venkatesh et al., 2003; Venkatesh et al., 2012)
	2 – People who influence my behaviour think that I should use Video Consultations	

Constructs	Items	Sources
	3 – People whose opinions I value prefer that I use Video Consultations	
<b>Attitude Towards</b>	1 - Using Video Consultations for my health care would be a good idea	(Ahadzadeh et al., 2015)
	2 - Using Video Consultations for my health care would be a wise idea	
	3 - I like the idea of using Video Consultations for my health care	
	4 - Using Video Consultations for my health care would be a pleasant experience	
<b>Intention to Use</b>	1 – I intent to use Video Consultations in the future	(Venkatesh et al., 2003; Venkatesh et al., 2012)
	2 – I will try to use Video Consultations whenever it is possible	
	3 – I plan to use Video Consultations frequently	
<b>COVID-19</b>	1 – I consider that the COVID-19 pandemic increased my propensity to use Video Consultations	
<b>Perceived Severity of Disease</b>	1 – I am afraid of having a new serious disease or the deterioration of an existing one	(Ahadzadeh et al., 2015)
	2 – If I face a serious disease or a deterioration of an existing one, I will have difficulties with my work like or domestic affairs	
	3 – If I face a serious disease or a deterioration of an existing one, it will hinder my personal relationships	
	4 - If I face a serious disease or a deterioration of an existing one, I will be long haunted by resultant problems	
<b>Perceived Susceptibility to Disease</b>	1 – There is a high probability that I will be exposed to a serious disease	(Ahadzadeh et al., 2015)
	2 – There is a person with a serious disease among my family members	
	3 – It is highly likely that I will have a serious disease in my lifetime	
	4 – I have a higher likelihood of having a serious disease	
	5 – I have a strong possibility of facing a serious disease or the deterioration of an existing one due to improper daily habits (drinking, smoking, dietary habits, lack of exercise, etc.)	
	6 – I would say I am the type of person who is likely to get a serious disease	
<b>Collection</b>	1 – It usually bothers me when health care entities ask for my personal information	(Angst & Agarwal, 2009; Smith et al., 1996)
	2 – When health care entities ask me for personal information, I sometimes think twice before providing it	
	3 – It bothers me to give personal information to so many companies	

Constructs	Items	Sources
<b>Errors</b>	1 – All the personal information in computer databases should be double-checked for accuracy, no matter how much this costs	(Angst & Agarwal, 2009; Smith et al., 1996)
	2 – Health care entities should take more steps to make sure that the personal information in their files is accurate	
	3 – Health care entities should have better procedures to correct errors in personal information	
	4 – Health care entities should devote more time and effort to verifying the accuracy of the personal information in their databases	
<b>Unauthorized Access</b>	1 – Health care entities should devote more time and effort to preventing unauthorized access to personal information	(Angst & Agarwal, 2009; Smith et al., 1996)
	2 – Computer databases that contain personal information should be protected from unauthorized access, no matter how much it costs	
	3 – Health care entities should never share personal information with other health care entities unless it has been authorized by the individuals who provided the information	
<b>Secondary Use</b>	1 – Health care entities should not use personal information for any purpose unless it has been authorized by the individuals who provided the information	(Angst & Agarwal, 2009; Smith et al., 1996)
	2 – When people give personal information to a health care entity for some reason, the entity should never use the information for any other reason	
	3 – Health care entities should never sell the personal information in their computer databases to other health care entities	
	4 – Health care entities should never share personal information with other entities unless it has been authorized by the individuals who provided the information	

## 9.2. APPENDIX B

### Outer loadings and cross loadings

Constructs	AT	CP	DC	ER	EE	FC	IU	PE	PSE	PSU	RD	SI	SU	UA
Items														
AT1	<b>.94</b>	.74	.01	.16	.49	.35	.77	.75	.23	.15	.54	.54	.09	.07
AT2	<b>.94</b>	.73	-.03	.15	.48	.36	.75	.75	.23	.11	.52	.53	.10	.02
AT3	<b>.94</b>	.78	.01	.13	.51	.37	.85	.81	.21	.13	.55	.51	.08	.01
AT4	<b>.95</b>	.76	-.02	.17	.53	.39	.82	.78	.18	.11	.58	.51	.09	.04
CP1	.47	<b>.72</b>	.06	.12	.28	.09	.42	.48	.14	-.06	.36	.39	.01	.03
CP2	.59	<b>.79</b>	-.05	.15	.41	.27	.52	.57	.10	-.05	.48	.38	.06	.10
CP3	.74	<b>.88</b>	.03	.16	.41	.28	.72	.76	.10	.13	.51	.50	.05	.00
CP4	.76	<b>.89</b>	-.01	.13	.47	.31	.73	.80	.16	.14	.52	.49	.04	.02
DC1	-.02	-.01	<b>.95</b>	.15	-.09	-.14	.04	.03	.04	.13	.07	.05	.08	.13
DC2	.02	.02	<b>.96</b>	.20	-.04	-.10	.04	.06	.08	.11	.09	.08	.09	.15
DC3	-.03	-.01	<b>.91</b>	.22	-.07	-.14	.02	.03	.09	.15	.07	.04	.11	.24
ER1	.17	.20	.24	<b>.90</b>	.13	-.02	.16	.14	.20	.10	.12	.14	.31	.47
ER2	.08	.08	.14	<b>.83</b>	.11	.04	.04	.07	.19	.10	.06	.07	.28	.51
ER3	.11	.08	.13	<b>.86</b>	.13	.05	.06	.08	.18	.13	.06	.03	.29	.54
ER4	.15	.15	.11	<b>.90</b>	.13	.02	.12	.13	.21	.13	.11	.11	.22	.54
EE1	.41	.39	-.07	.08	<b>.87</b>	.64	.39	.4	.14	.01	.41	.26	.13	.09
EE2	.57	.53	-.08	.15	<b>.91</b>	.57	.51	.52	.13	-.06	.51	.39	.12	.07
EE3	.45	.39	-.06	.15	<b>.91</b>	.64	.40	.39	.14	.02	.40	.26	.10	.08
EE4	.46	.39	-.05	.13	<b>.88</b>	.65	.44	.42	.15	.07	.41	.28	.17	.11
FC1	.33	.25	-.08	.04	.61	<b>.86</b>	.29	.26	.18	.06	.27	.22	.17	.01
FC2	.33	.29	-.10	-.05	.61	<b>.88</b>	.35	.30	.14	.17	.30	.23	.08	-.05
FC3	.3	.27	-.11	-.02	.61	<b>.84</b>	.30	.29	.14	.08	.26	.24	.15	.05
FC4	.34	.20	-.14	.08	.50	<b>.75</b>	.30	.26	.17	.08	.30	.30	.13	.04
IU1	.85	.73	.02	.11	.50	.41	<b>.94</b>	.79	.18	.13	.58	.54	.09	.06
IU2	.77	.67	.03	.14	.43	.31	<b>.95</b>	.71	.21	.13	.52	.46	.14	.10
IU3	.77	.71	.06	.13	.45	.33	<b>.94</b>	.75	.20	.14	.52	.54	.14	.08
PE1	.79	.78	-.01	.09	.52	.35	.79	<b>.87</b>	.18	.07	.57	.49	.08	.03
PE2	.70	.72	.08	.15	.38	.26	.69	<b>.90</b>	.20	.15	.50	.59	.07	.01
PE3	.74	.73	.04	.16	.42	.28	.68	<b>.91</b>	.21	.16	.53	.57	.09	.04
PE4	.63	.60	.04	.07	.39	.28	.62	<b>.83</b>	.19	.08	.48	.50	.05	.01
PSE1	.17	.14	.03	.22	.13	.13	.16	.17	<b>.71</b>	.42	.15	.18	.21	.16
PSE2	.16	.10	.07	.17	.09	.14	.15	.17	<b>.90</b>	.34	.10	.11	.15	.19
PSE3	.17	.11	.09	.14	.10	.13	.16	.16	<b>.83</b>	.26	.09	.11	.12	.14

Constructs	AT	CP	DC	ER	EE	FC	IU	PE	PSE	PSU	RD	SI	SU	UA
Items														
PSE4	.25	.16	.05	.21	.20	.23	.22	.24	<b>.90</b>	.33	.15	.18	.16	.18
PSU1	.08	.05	.14	.12	.02	.11	.11	.11	.43	<b>.74</b>	.13	.21	.09	.08
PSU2	.14	.11	.11	.10	.08	.14	.14	.15	.19	<b>.60</b>	.07	.12	-.03	.04
PSU3	.07	.01	.07	.06	.00	.12	.08	.08	.32	<b>.85</b>	.07	.15	.05	.04
PSU4	.11	.04	.07	.12	.00	.10	.11	.08	.33	<b>.91</b>	.05	.17	.05	.05
PSU5	.15	.10	.13	.11	-.05	.04	.12	.13	.27	<b>.68</b>	.04	.11	.04	.01
Constructs	AT	CP	DC	ER	EE	FC	IU	PE	PSE	PSU	RD	SI	SU	UA
Items														
PSU6	.10	.03	.11	.10	-.03	.06	.12	.09	.32	<b>.85</b>	.07	.12	.03	.02
RD1	.59	.55	.05	.11	.49	.31	.56	.58	.16	.07	<b>.89</b>	.43	.11	.09
RD2	.33	.35	.05	.14	.36	.29	.32	.39	.12	.04	<b>.81</b>	.37	.12	.18
RD3	.52	.53	.11	.05	.37	.26	.53	.52	.09	.12	<b>.83</b>	.43	.02	.03
SI1	.51	.50	.06	.13	.31	.24	.51	.56	.18	.17	.48	<b>.93</b>	.07	.05
SI2	.51	.49	.06	.11	.32	.30	.50	.58	.17	.19	.46	<b>.96</b>	.03	.02
SI3	.54	.53	.08	.13	.31	.27	.54	.58	.17	.19	.46	<b>.95</b>	.05	.03
SU1	.06	.03	.05	.32	.14	.18	.06	.05	.21	.00	.07	-.02	<b>.76</b>	.44
SU2	.02	.00	.01	.27	.11	.10	.04	.02	.20	.04	.06	-.06	<b>.71</b>	.38
SU3	.01	-.03	-.02	.25	.13	.12	-.02	-.01	.16	.01	.03	-.03	<b>.60</b>	.30
SU4	.10	.05	.11	.25	.13	.12	.14	.09	.14	.06	.09	.09	<b>.94</b>	.36
UA1	.04	.05	.18	.55	.09	.01	.09	.03	.18	.06	.12	.04	.40	<b>.98</b>
UA2	.00	.00	.09	.50	.11	.01	.03	.00	.21	.03	.07	-.05	.48	<b>.80</b>

AT = Attitude, CO= COVID-19, CP = Compatibility, DC = Data Collection, EE = Effort Expectancy, ER = Errors, FC = Facilitating Conditions, IU = Intention to Use, PHR = Perceived Health Risk, PSE = Perceiver Severity, PSU = Perceived Susceptibility, PE = Performance Expectancy, RD = Results Demonstrability, SI = Social Influence, SU = Secondary Use, UA = Unauthorised Access, CD = Chronic Disease, GD = Gender

### 9.3. APPENDIX C

Confidence intervals for HTMT - Average HTMT values computed from 5000 bootstrap samples

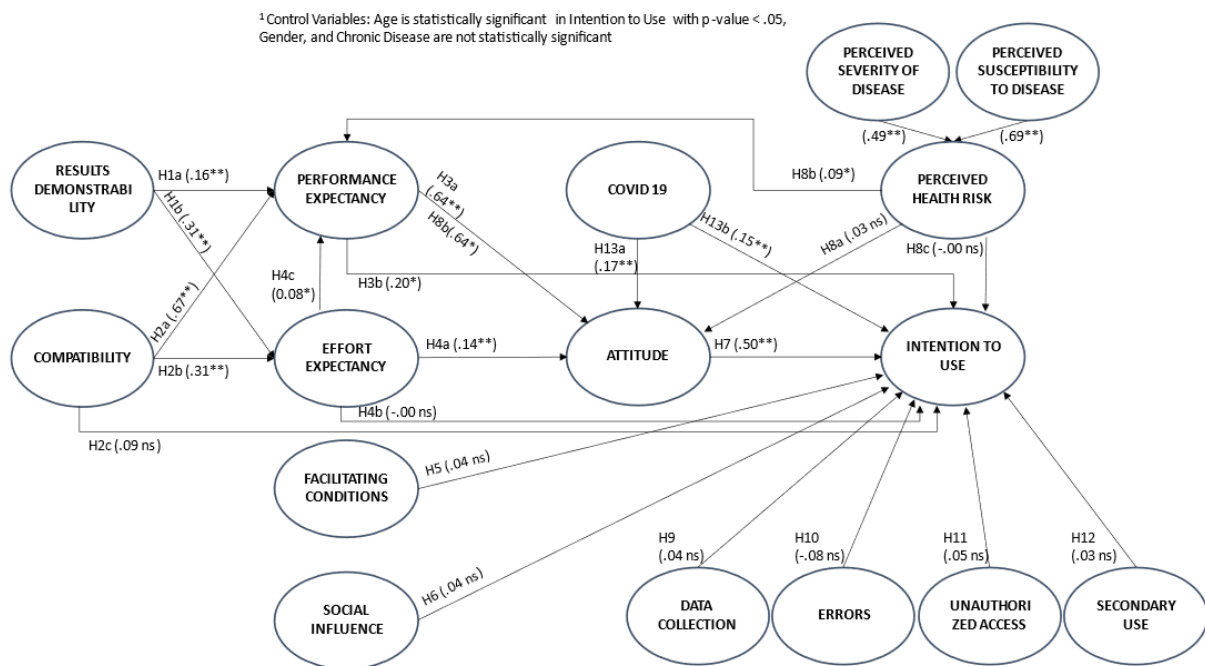
	Original Sample (O)	Sample Mean (M)	2,5%	97,5%
CO -> AT	.64	.64	.56	.71
CP -> AT	.87	.87	.83	.91
CP -> CO	.59	.59	.49	.68
DC -> AT	.02	.06	.02	.14
DC -> CO	.05	.07	.01	.17
DC -> CP	.05	.08	.04	.15
EE -> AT	.57	.56	.48	.64
EE -> CO	.47	.47	.36	.58
EE -> CP	.54	.54	.43	.63
EE -> DC	.08	.09	.03	.20
ER -> AT	.16	.16	.06	.27
ER -> CO	.12	.13	.04	.24
ER -> CP	.17	.17	.08	.28
ER -> DC	.20	.02	.09	.31
ER -> EE	.15	.16	.06	.28
FC -> AT	.43	.43	.32	.53
FC -> CO	.44	.44	.32	.55
FC -> CP	.34	.34	.22	.45
FC -> DC	.15	.15	.05	.27
FC -> EE	.79	.79	.69	.88
FC -> ER	.08	.10	.06	.17
IU -> AT	.89	.89	.85	.92
IU -> CO	.67	.67	.59	.74
IU -> CP	.82	.82	.76	.87
IU -> DC	.04	.07	.02	.16
IU -> EE	.53	.52	.44	.61
IU -> ER	.12	.13	.05	.24
IU -> FC	.42	.42	.32	.51
PSE -> AT	.25	.25	.13	.37
PSE -> CO	.26	.26	.13	.38
PSE -> CP	.18	.19	.08	.31
PSE -> DC	.08	.10	.03	.21
PSE -> EE	.18	.18	.08	.31
PSE -> ER	.25	.25	.12	.38
PSE -> FC	.22	.22	.10	.35
PSE -> IU	.23	.23	.11	.36
PSU -> AT	.15	.16	.07	.26
PSU -> CO	.17	.17	.07	.27
PSU -> CP	.14	.16	.11	.23
PSU -> DC	.16	.16	.07	.28
PSU -> EE	.07	.10	.06	.17
PSU -> ER	.15	.16	.07	.27
PSU -> FC	.14	.16	.08	.27
PSU -> IU	.17	.17	.07	.28
PSU -> PSE	.47	.47	.36	.56
PE -> AT	.88	.88	.84	.91
PE -> CO	.65	.65	.57	.72
PE -> CP	.90	.90	.86	.94
PE -> DC	.06	.08	.03	.16
PE -> EE	.53	.53	.44	.62
PE -> ER	.13	.14	.06	.26
PE -> FC	.38	.38	.27	.49
PE -> IU	.86	.86	.82	.90
PE -> PSE	.25	.26	.13	.38
PE -> PSU	.16	.17	.09	.28
RD -> AT	.65	.65	.56	.72
RD -> CO	.45	.45	.34	.55
RD -> CP	.68	.68	.59	.76
RD -> DC	.09	.10	.04	.20
RD -> EE	.56	.56	.45	.66
RD -> ER	.12	.14	.06	.25
RD -> FC	.41	.41	.28	.53
RD -> IU	.65	.65	.56	.73
RD -> PSE	.18	.18	.08	.32
RD -> PSU	.11	.14	.07	.24
RD -> PE	.69	.69	.61	.76
SU -> AT	.06	.08	.03	.17
SU -> CO	.06	.09	.03	.17
SU -> CP	.06	.09	.05	.15
SU -> DC	.07	.09	.04	.16
SU -> EE	.18	.18	.07	.31
SU -> ER	.39	.39	.27	.50
SU -> FC	.19	.19	.08	.33
SU -> IU	.09	.11	.05	.18
SU -> PSE	.25	.25	.14	.37
SU -> PSU	.07	.10	.06	.16
SU -> PE	.07	.09	.05	.16
SU -> RD	.10	.12	.06	.22
SI -> AT	.65	.64	.54	.73
SI -> CO	.51	.50	.38	.61
SI -> CP	.66	.66	.56	.76
SI -> DC	.11	.13	.05	.25
SI -> EE	.44	.44	.31	.56
SI -> ER	.20	.21	.11	.33
SI -> FC	.42	.42	.30	.54
SI -> IU	.63	.63	.52	.73
SI -> PSE	.22	.23	.11	.35
SI -> PSU	.25	.26	.14	.38
SI -> PE	.74	.73	.63	.82
SI -> RD	.60	.61	.51	.70
SI -> SU	.13	.16	.10	.22
UA -> AT	.04	.07	.03	.15
UA -> CO	.04	.07	.01	.18
UA -> CP	.06	.09	.04	.17
UA -> DC	.18	.19	.09	.29

	Original Sample (O)	Sample Mean (M)	2,5%	97,5%
UA -> EE	.13	.13	.04	.26
UA -> ER	.69	.69	.57	.80
UA -> FC	.05	.08	.04	.15
UA -> IU	.08	.10	.03	.20
UA -> PSE	.25	.25	.12	.39
UA -> PSU	.06	.10	.04	.19
UA -> PE	.03	.08	.03	.16
UA -> RD	.14	.16	.07	.28
UA -> SU	.59	.59	.47	.70
UA -> SI	.15	.18	.11	.27

AT = Attitude, CO= COVID-19, CP = Compatibility, DC = Data Collection, EE = Effort Expectancy, ER = Errors, FC = Facilitating Conditions, IU = Intention to Use, PHR = Perceived Health Risk, PSE = Perceiver Severity, PSU = Perceived Susceptibility, PE = Performance Expectancy, RD = Results Demonstrability, SI = Social Influence, SU = Secondary Use, UA = Unauthorised Access, CD = Chronic Disease, GD = Gender

## 9.4. APPENDIX D

Figure of the structural model results



\*\* p < 0.01, \* p < 0.05

