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COHORT SEGMENTATION AND MOBILE APPLICATIONS IN HOSPITALITY SECTOR

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1 INTRODUCTION

The use of computers and mobile devices like smartphones and tablets has been part of our lives making us dependents of the technology in all aspects, today exist more mobile devices than people in the world because gadgets like tablets, smartphones and not-so-smart phones are multiplying five times faster than people are (Boren, 2014). As travelers and consumers are now spending more and more time on their mobile devices than ever before, they are expressing a growing preference to engage in business transactions from their own mobile devices. Mobile applications like Booking.com, Trivago, IFood, TripAdvisor, Food.com and others are helping people who wants to participate as guest or consumer in different types of hospitality firms. These new mobile applications, added to correspondent mobile devices, has made life simpler, easier and agile, causing people to adopt them.

The Technological Acceptance Model (TAM) proposes that the acceptance of new technologies use is determinate by two key constructs: perceived utility, defined as the extent that the use of a new technology will increase the performance; perceived usefulness, defined as the extent that the use of new technology will decrease the efforts in certain activities (Davis, 1989).

Previous research includes the work of Gu, Zhu, and Guo (2013) who research understanding the acceptance of technology in classrooms. The results indicated that the differences between teachers (oldest generation) and students (younger generation) about technology lie in how they utilize technology and how important they perceived it to be. And the work of Yang and Jolly (2008) that investigated age cohort in adoption of mobile data services. Kumar and Lim (2008) research deals with age differences in mobile service perceptions, they found that significant differences between the two groups in terms of the effect of perceived economic and emotional value on satisfaction

It's well determinate by the literature that people act in different forms in different situations and context according to their age or cohort. For those of the younger generation the expectations are that they be more acclimated to the new technologies, than those of the older generations.

The aim of this research is investigating the difference between the cohort generations forward the adoption of a new technologies (mobile devices and applications). We propose as research question: What are the influence of cohort (Generation X and Generation Y) in perceived risk, trust, perceived utility, perceived usefulness in attitude and intention to use mobile devices and applications in the hospitality sector?

This paper presents an important and needed research for the area of hospitality and technology. This study will enhance the understanding on use of new technologies among two different types of segmented consumers by their cohort, Generation X and Generation Y. This paper also shows the use of SmartPLS in an original perspective with Multi-group analysis (MGA).

With this, this work is structured in five other sections, besides this brief introduction. The second section bases the main theoretical aspects of the research. The third section presents the methodological outline that guided the empirical stage of the work, and the fourth section demonstrates the data analysis and results. The final considerations are presented in the last section.

2 REVIEW OF LITERATURE

This section is dedicated to the theoretical review, conducted through a bibliographical survey, with the objective of supporting the empirical test performed.

1.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is a parsimonious model established to predict the technology acceptance (Venkatesh & Morris, 2000). The TAM model is the base to examine the impact of external factors and internal beliefs in attitudes and intention to use the technologies based in products and services (Davis, Bagozzi, & Warshaw, 1989). The model employs two internal beliefs, perceived utility and perceived usefulness as antecedents' variables that affect the consumer intentions in use technological services and devices

In the TAM model, the perceived utility refers the individual and subjective perceptions about the utility degree of technology. The more an individual perceives that the service based on technologies is utile, the greater the intention this technology (Davis, 1989). Perceived usefulness refers to the degree of required efforts to use the technology. Therefore, the more the individual realizes that technology is useful, the more will be the intention to adopt her (Davis, 1989).

Attitude toward a behavior refers to the assess level favorable (or unfavorable) that an individual have in relation to the behavior (Ajzen, 1991). Attitude is used as a predict variable to intention behavioral to the use of services based in technology in TAM model.

The Figure 1 shows the TAM model, originally developed by Davis (1989). The TAM model was developed to measure the intentions toward the use of one particular system (Davis et al., 1989; Muñoz-Leiva, Climent-Climent, & Liébana-Cabanillas, 2017; Pikkarainen, Pikkarainen, Karjaluoto, & Pahnila, 2004). To predict the consumer intentions toward the use of mobile devices and applications with the TAM model, general beliefs of consumers must be added to the included in the model (C. H. Lin, Shih, & Sher, 2007). In this case, the perceived risk and trust in the mobile devices and applications by consumer and the moderator role of generation must be incorporated to the technology acceptance model to determine the values that lead the consumer to use the services and devices.

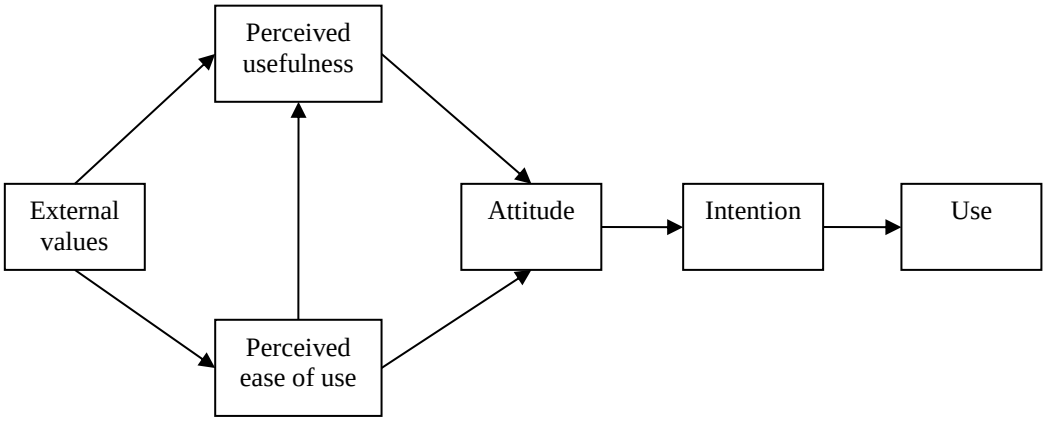

Figure 1. TAM model.
Source: Davis et al. (1989) and Davis (1989)

1.1 Trust and perceived risk

Research's analyzed the trust construct from different perspectives and multiples definitions (J. Lin, Lu, Wang, & Kee, 2011). In a particular way Mayer, Davis, and Schoorman (1995) integrated the share characteristics of trust by many disciplines and defined it as the disposition of one part in been vulnerable to others actions. According Pavlou (2003), trust is essential for understanding interpersonal behavior and economic exchanges. The importance of

trust is elevated in on-line transactions because of the high degree of uncertainty and risk presented.

Perceived risk by consumer is an important barrier for online transactions who are considering whether to make it (Kim, Ferrin, & Rao, 2008). For this research we follow the Kim et al. (2008) definitions, as a consumer's belief about the potential uncertain negative outcomes from the online transaction.

1.2 Cohorts, Generations X and Y

Cohorts generation are the most common and efficient method to segment markets (Schewe, Meredith, & Noble, 2000), because cohorts segmentation offers the stability of age segmentation (Steenkamp & Ter Hofstede, 2002), and the insights found into consumers beliefs witch stem from common values and beliefs (Melchinger, 2004). Because, according Noble and Schewe (2003), individuals were influenced by events occurring during their coming-of-age years, similarly aged individuals have similar memories. These memories are recalled predominantly from adolescence and young adulthood, for example, Holbrook and Schindler (1996) states that each generation receives a distinctive imprint from the historical, social and political events of its youth and that memories will be structured along the age dimension in ways that point to important cohort effects.

Many marketing research investigates the cohort's segmentation (Holbrook & Schindler, 1996; Jackson, Stoel, & Brantley, 2011; Reisenwitz & Iyer, 2007). The U.S. Travell Association defines Generation X those were borne from 1965 to 1980; and Generation Y those were borne from 1981 and 200 (Association, 2015). Table 1, shows the principal descriptions for each generation.

Table 1. Generation descriptions

Generations	Birth Year	Core Values	Defining moments
Silent	1922-1943	Dedication, hard work, respect for authority	WWI and WWII The Great Depression
Baby Boomers	1944-1964	Optimism, personal gratification and growth	The Women's Liberation movement The Vietnam War Landing on the moon
Generation X	1965-1980	Diversity, technoliteracy, fun, informality	The oil crisis of 1973 The end of the Cold War The HIV-AIDS epidemic Corporate Downsizing State budget cuts Emerging technology
Generation Y	1981-2000	Optimism, civic duty, confidence, achievement	The fall of the Soviet Union The first Gulf War The rise of the Information Age Wide-spread use of the Internet

Source:

In 2017, the Generation X made up most of the workforce and they were between 37 to 52 years old. There are many characteristics for Generation X, each of them are associated to a specific aspect. For example, Glass (2007) stated that Generation X are more skeptical than others cohorts. In the same way, Generation X main form of communication is through e-mail, voice mail, beepers, and cellular phones, and the Generation X prefer using the computer and surfing the Internet to make purchases (Reisenwitz & Iyer, 2009; Rodriguez, Green, & Ree, 2003). Generation X will use whatever communication form is most efficient (Glass, 2007).

According Connaway, Radford, Dickey, De Angelis Williams, and Confer (2008) , 20% of Millennials began using computers between the ages of 5 and 8. As Generation Y have grown up surrounded by computers and the internet, so are media and technology savvy (Martin, 2005)

Technology surrounds this generations and dominates their socialization: "over 10,000 hours playing video games, over 200,000 e-mails and instant messages sent and received; over 10,000 hours talking on digital cell phones; over 200,000 hours watching TV, all this before the kids leave college (Connaway et al., 2008). Generation Y have the innate ability to use technology are comfortable multitasking while using a diverse range of digital media, and literally demand interactivity as they construct knowledge (Reeves & Oh, 2008)

Unlike older generations, they are unafraid of new technologies and are often what marketers would call ''first adapters'' – the first to try, buy, and spread the word about cool new gadgets/technologies (Glass, 2007), this behavior demonstrated more trust in technologies.

1.3 Hypothesis

According Skidmore, Zientek, Saxon, and Edmonson (2014) the technological skills of Generation X are lower than Generation Y and for Obal and Kunz (2013) the trust in e-services are stronger in Generation Y than Generation X, corroborating what Cho and Hu (2009) found. Therefore, it leads us to formulate the following hypotheses.

H_1: Trust effect on perceived usefulness in the use of mobile devices and applications will be stronger in Generation Y than Generation X.

H_2: Trust effect on perceived facility in the use of mobile devices and applications will be stronger in Generation Y than Generation X.

Trust is a component that reduce the perceived risk (Kesharwani & Singh Bisht, 2012; Kim et al., 2008; Pavlou, 2003) in the technological environment, and generation perception risk are significant different (Yao, Sharpe, & Wang, 2011). Soon, the following hypothesis is formulated.

H_3: Trust effect has a negative relationship with perceived risk in the use of mobile devices and applications and the effect will be stronger in Generation X than Generation Y.

In the TAM model, the usefulness affects positively the perceived utility, as simpler for the use, more utility will be seen by users, and in the same way the usefulness affects the user attitude toward the mobile devices and applications. Continuing, in the TAM model the perceived utility is a direct determinant for the attitude in use the mobile devices and applications (Davis, 1989). Morris and Venkatesh (2000) still that Generation Y will more affect than Generation X. So, we could hypothesis the following statements.

H_4: Usefulness effect on perceived utility in the use of mobile devices and applications will be stronger in Generation Y than Generation X.

H_5: Usefulness effect on attitude in the use of mobile devices and applications will be stronger in Generation Y than Generation X.

H_6: Perceived utility effect on attitude in the use of mobile devices and applications will be stronger in Generation Y than Generation X.

For Stone and Barry Mason (1995) and Sjöberg (2000), risk influences attitude formation directly. And the respective hypothesis is formulated.

H_7: The relationship between perceived risk and attitude will be stronger in Generation X than Generation Y.

According Morris and Venkatesh (2000), compared to Generation X, Generation Y's usage decision of new technologies will be more strongly influenced by attitude toward using technology. So, we could postulate the following hypothesis.

H_8: The relationship between attitude and behavioral intention will be stronger in Generation Y than Generation X.

Based on the literature review and formulated hypothesis, the proposed model is shown in Figure 2

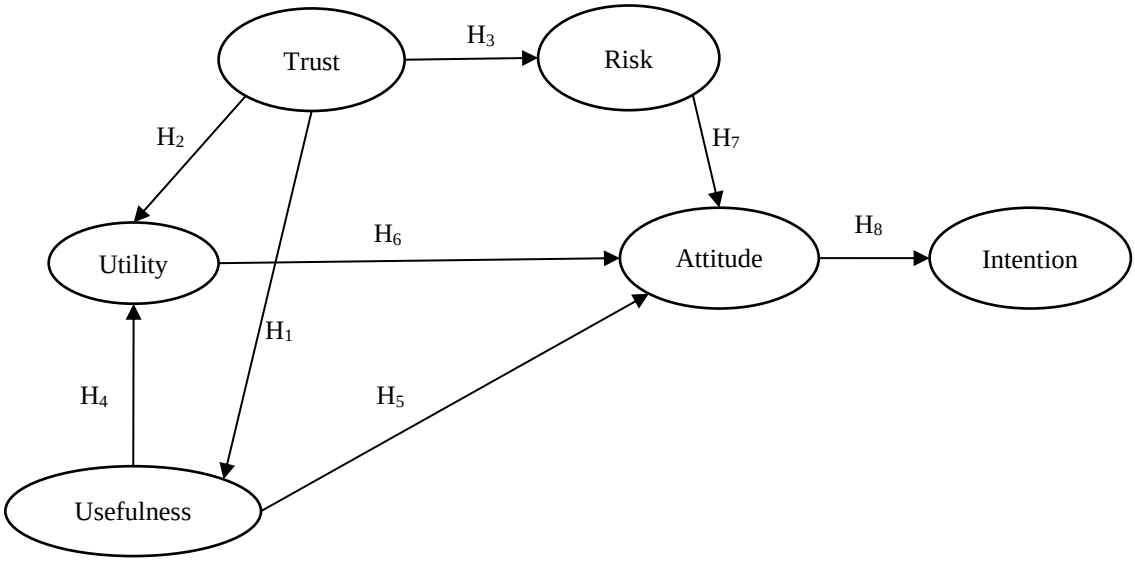

Figure 2. Proposed model and the correspondent hypothesis

3 METHOD

The main purpose of this section is to describe the method employed in the empirical part of the study.

1.2 Sampling and data collection

A self-administered survey questionnaire was developed based on the above literature review. To collect the data, the questionnaire was distributed online, using the Google Drivers Forms questionnaire tool (https://drive.google.com/drive/my-drive). In late March and April of 2017, e-mail invitations were sent to a group of professional lists with 65,000 contacts. The e-mail invitations provided respondents with information on the purpose of the study, the approximate time to fill out the questionnaire. Moreover, links to the survey were placed on Facebook and LinkedIn.

The questionnaire was available online between March 7th and April 20th of 2017. During this period, a total of 498 responses was obtained. Since the total number of responses was large, the complete case approach was used (Hair, Anderson, Babin, & Black, 2010). Thus, a total of 498 responses was considered valid for further analyses. It should be stressed that the

most common rule to determine sample size for PLS estimation consists in determining the sample according to the most complex multiple regression in the model, which consists in either the number of indicators on the most complex formative construct or the largest number of antecedents leading to a construct in the inner model (Barclay, Higgins, & Thompson, 1995). Once determined which is greater, the sample size required is 10 cases per predictor. In the proposed model, the most complex regression involves the number of structural paths directed at the green restaurant attachment construct, which are two. Thus, according to this rule, the minimum sample size necessary would be 20. With 498 responses, the PLS analysis appears to have sufficient power.

1.4 Measurement

The measurement scales were developed from the reviewed literature on the construction of the conceptual model. The items were either borrowed or slightly modified from previous research and all items were measured using a Likert scale anchored from 1 (strongly disagree) to 5 (strongly agree).

The first section of the survey consists of four items regarding a respondent's perceived usefulness scale, developed by Davis (1989); three items regarding perceived utility, the scale was developed by Davis (1989); five items regarding trust, the scale was adapted from Jian, Bisantz, and Drury (2000); three items regarding attitude, the scale was developed by Carlsson, Carlsson, Hyvonen, Puhakainen, and Walden (2006); and four items regarding intention behavior, the scale was adapted from Carlsson et al. (2006) and Cronin, Brady, and Hult (2000). The final portion of the survey elicited respondents' socio-demographic information (e.g., gender, marital status, household income, education level), since age was used as a cut factor, only respondents that fit the specific cohort Generation X or Generation Y could answer the questionnaire.

The scale was translated to Portuguese from English by two languages professional, each of them work separately. The two documents had compared each other and no differences was found. A panel of 4 judges was used to generally evaluate the quality of the survey items in Portuguese for clarity, familiarity and wording, and the like. They also critiqued the structure and content of items. After this process, a pre-test was performed with 60 graduate students for a face validation.

1.5 Data analysis plan

To analyses the proposed model in Figure 3, we used the Structural Equation Modeling (SEM). In advance, as the literature recommends (Kline, 2015), we verify the assumptions for the application of this regressive technique. First, the multicollinearity was verified by Variance Inflation Factor (VIF), even don't having a ideal value for the test, there is a consensus that VIF less than 10 indicates absence of linear correlations between the independent variables (Hair et al., 2010). The homoscedasticity was verified by Lavene's test (Hair et al., 2010), and finally, the normality distribution was verified by the Kolmogorov–Smirnov test (Hair et al., 2010).

After the preliminaries tests, the SEM was performed following Chin and Newsted (1999) proposed method, with Partial Least Square – Path Modeling (PLS-PM), using Smart PLS 2.0 M3 (Ringle, Wende, & Will, 2005), and following the recommendations made by Anderson and Gerbing (1988), doing analysis in two steps. First step, we analyze the measurement model, verifying the convergent and discriminant validity, and the second step, we analyze the structural model.

Partial Last Square (PLS) can handle formative factors, and also place minimal restrictions on the sample's size and residual distributions (Chin, Marcolin, & Newsted, 2003). In general, PLS is better suited for explaining complex relationships than it is for simple relationships because it avoids two problems: inadmissible solutions and factor indeterminacy

(Fornell & Bookstein, 1982). Different from SEM based in covariance, PLS don't optimize a global function, thus, don't exist model adjustment indices (e.g. RMSEA, CFI, NFI, etc.). However, Tenenhaus, Vinzi, Chatelin, and Lauro (2005), recommends verify an adequacy indices called GoF (Goodness of Fit), that the geometric average between the average R^2 (structural model adequacy) and average AVE (mensuration model adequacy). Wetzels, Odekerken-Schröder, and Oppen (2009), recommends a minimum GoF of 0,36 for Social Science behavioral research's.

4 RESULTS

The purpose of this section is to demonstrate the results observed at the empirical stage of the study.

1.6 Sample profile

Descriptive information of the study sample is presented in Table 2. The total number of respondents were 498 divided in 243 for Generation X and 255 for Generation Y.

Table 2
Descriptive statistics of the sample.

Characteristics	Generation X (n=242)		Generation Y (n=255)	
	Frequency	%	Frequency	%
Male	115	47,3	114	44,7
Female	128	52,7	141	55,3
Undergraduate	135	55,6	210	82,4
Graduate	108	44,4	45	17,6
Under R$ 4.400,00	111	45,7	160	62,7
R$ 4.401,00 – R$ 8.800,00	55	22,6	64	25,1
R$ 8.801,00 – R$ 13.200,00	42	17,3	20	7,8
Over de R$ 13.201,00	35	14,4	11	4,3

1.7 Multi group analysis

Furthermore, multiple group analyses were calculated in a hierarchical approach comparing two sub-samples which were selected according their cohort strata.

1.8 Assessment of the measurement model

The measurement model was assessed separately for each subgroup. According some researches, many indices are available to evaluate the model adjustment (Bentler, 1990; Bentler & Bonett, 1980; Fornell & Larcker, 1981; Joreskog & Sorbom, 1996), but there aren't any consensus about an unique indices or standard. Therefore, multiples criterions mu st be used to evaluate the theoretic model (Bagozzi & Yi, 1988; Hair et al., 2010).

The convergent validity was observed by the presented loads. In the model, where all loads were used, the loads λ range from 0,547 (λRI01) to 0,970 (λA1). The discriminant validity was verified by the criterion propose by Fornell and Larcker (1981), where the square root of each latent variable was higher than the correlation between them and the other latent variables in the model.

Table 3
Analysis of discriminant validity

	Generation X						Generation Y					
	1	2	3	4	5	6	1	2	3	4	5	6
1. Intention	**0,664**						**0,763**					
2. Usefulness	0,297	**0,859**					0,638	**0,787**				

3. Attitude	0,369	0,278	**0,795**				0,667	0,605	**0,864**			
4. Risk	0,428	0,275	0,615	**0,870**			0,716	0,649	0,590	**0,802**		
5. Trust	0,453	0,251	0,506	0,536	**0,724**		0,498	0,436	0,530	0,411	**0,783**	
6. Utility	0,283	0,440	0,355	0,300	0,314	**0,726**	0,537	0,678	0,546	0,552	0,378	**0,821**

All model adjustment indicators were satisfactory. All AVE (Average Variance Extracted) were higher than 0,50, for the three groups. Composite Reliability of all latent variables were higher than 0,60, and the Cronbach Alpha were higher than the minimum value. Besides that, the Goodness-of-Fit (GoF) were higher than 0,36 can be considered as adequate. The Table 4, shows the identified indicators for all analyzed groups.

Table 4
Indexes of model adjustment.

	Gen X (GoF = 0,37)				**Gen Y (GoF = 0,47)**			
	AVE	**CR**	**R^2**	α	**AVE**	**CR**	**R^2**	α
Intention	0,440	0,758	0,136	0,599	0,582	0,846	0,445	0,763
Usefulness	0,737	0,894	0,063	0,825	0,618	0,828	0,190	0,688
Attitude	0,632	0,836	0,413	0,708	0,746	0,898	0,452	0,828
Risk	0,756	0,903	0,287	0,838	0,642	0,843	0,169	0,720
Trust	0,523	0,845		0,780	0,613	0,887		0,844
Utility	0,527	0,815	0,238	0,709	0,673	0,891	0,468	0,838
Optimal values	**> 0,5**	**> 0,6**		**> 0,6**	**> 0,5**	**> 0,6**		**> 0,6**

Note: CR= Composite Reliability; AVE= Average Variance Extracted; GoF – Goodness of Fit; α = Cronbachs α

1.9 Assessment of the structural model

We estimated two separated models in PLS: The Generation X subgroup and the Generation Y subgroup. We then tested for differences across all two models using the test for differences suggested by Chin (2007).

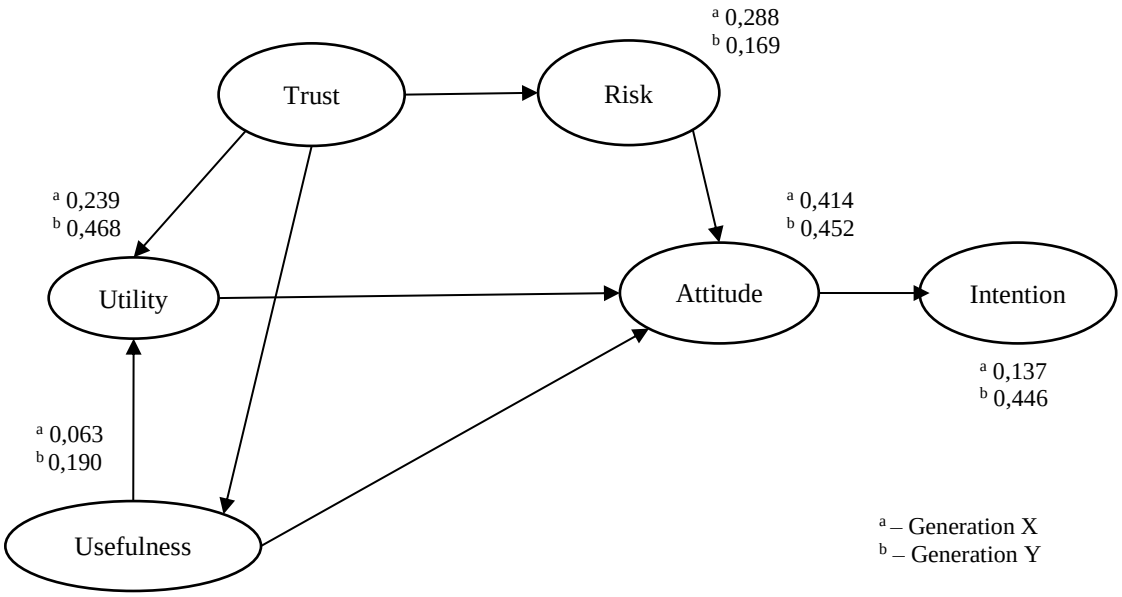

Figure 3. Model

In the Figure 3 , could be seen the determination coefficients (R^2) of dependents variables for the two groups: Intention, Attitude, Risk, Utility and Usefulness. These coefficients indicate

the percentage of variance of dependent variable, that is explained by independents variables. The R^2 values are shown beside the circles.

For the validation of structural model the bootstrapping algorithm was used from SmartPLS 2.0M3 software (Ringle et al., 2005), with 5,000 parameter for the number of cases and samples. The Table 5, shows analyses results conducted with the SmartPLS 2.0M3.

Table 5
Path coefficients of tested models.

	Relationship	Generation X			Generation Y		
		β	t-statistic	p-value	β	t-statistic	p-value
H_1	**Trust → Usefulness**	0,289	4,753	***	0,475	7,994	***
H_2	**Trust → Utility**	0,326	5,108	***	0,108	2,116	**
H_3	**Trust → Risk**	0,674	18,252	***	0,471	8,060	***
H_4	**Usefulness → Utility**	0,249	4,063	***	0,566	10,031	***
H_5	**Usefulness → Attitude**	0,191	2,735	**	0,267	2,669	**
H_6	**Utility → Attitude**	0,208	2,730	**	0,149	2,212	**
H_7	**Risk → Attitude**	0,227	3,204	**	0,348	3,785	***
H_8	**Attitude → Intention**	0,358	4,866	***	0,584	11,011	***

Notes: *** p < 0.001; ** p < 0.01; * p < 0.05. n.s.= nonsignificant; (R) = Rejected; (A) = Accepted.

Table 6 show the results for the comparison of the different samples. As can be seen, significant differences exist in 3 of the 8 relations established in each group that could be compared, which confirms the existence of heterogeneity (two latent classes) within the global sample.

Table 6
t-Statistic for Multigroup Analysis

	Relationship	Standard Error				
		Gen X	Gen Y	$\beta_X - \beta_Y$	t-Value	p-value
H_1 (A)	**Trust → Usefulness**	0,075	0,070	-0,186	$1,819^{*}$	0,070
H_2 (A)	**Trust → Utility**	0,068	0,064	0,218	$2,341^{**}$	0,020
H_3 (A)	**Trust → Risk**	0,053	0,064	0,203	$2,435^{**}$	0,015
H_4 (A)	**Usefulness → Utility**	0,061	0,050	-0,317	$4,044^{****}$	0,000
H_5 (R)	**Usefulness → Attitude**	0,061	0,096	-0,076	$0,662^{ns}$	0,508
H_6 (R)	**Utility → Attitude**	0,067	0,088	0,059	$0,531^{ns}$	0,596
H_7 (R)	**Risk → Intention**	0,055	0,092	-0,071	$1,118^{ns}$	0,264
H_8 (A)	**Attitude → Intention**	0,069	0,043	-0,226	$2,814^{***}$	0,005

Notes: ns = nonsignificant (2-tailed t test); (R) = Rejected; (A) = Accepted; **** p < 0.001; ***p < 0.01; ** p < 0.05; * p < 0,1

Trust shown a positive relationship with Usefulness and is stronger in Gen Y (β=0,475, t=7,994, p<0,001) than in Gen X (β=0,286, t=4,753, p<0,001) and the relationship is equal among the two cohorts (t=1,819, p<0,1) leading to accept the H_1. Trust shown a positive relationship with Utility and is stronger in Gen X (β=0,326, t=5,108, p<0,001) than in Gen Y (β=0,108, t=2,116, p<0,001) and the relationship is equal among the two cohorts (t=2,341, p<0,05) leading to reject the proposed hypothesis H_2. These finds go to meet what Cho and Hu (2009) and Obal and Kunz (2013) found about the relationship of trust and perceives usefulness and facility.

The positive relationship between Trust and Risk are evident when we compare the Gen Y (β=0,471, t=8,060, p<0,001) and Gen X (β=0,674, t=18,252, p<0,001) and the relationship is equal among the two cohorts (t=2,435, p<0,05) leading to accept the H_3. Kim et al. (2008) and Pavlou (2003) states the influence of trust in reduce the perceived risk in the use of

technology, in this sense the results showed here are compatible with are discussed by Glass (2007).

Usefulness shown a positive relationship with Utility and is stronger in Gen Y (β=0,566, t=10,031, p<0,001) than in Gen X (β=0,249, t=4,03, p<0,001) and the relationship is equal among the two cohorts (t=4,044, p<0,001) leading to accept the H_4.

However, the relationship between Usefulness and Attitude and Utility and Attitude despite being significant the relationship is not equal among the two cohorts (t=0,662, p<n.s.), and (t=0,531, p<n.s.) leading to reject H_5 and H_6.

In the same way, the relationship between Perceived risk and Attitude was significant for the two cohorts (Gen X and Gen Y), but the relationship is not equal among the two cohorts (t=1,118, p<n.s.), so we must reject H_7. This find was against what were found by Stone and Barry Mason (1995) and Sjöberg (2000), both of them stated that perceived risk will have a negative relationship with attitude, however, here the fact is that two cohorts seems risk and attitude in different ways.

The relationship between attitude and intention is stronger in Gen Y (β=0,584, t=11,011, p<0,001) than in Gen X (β=0,358, t=4,866, p<0,001) and the relationship is equal among the two cohorts (t=2,814, p<0,01) leading to accept the H_8. These findings corroborated what Morris and Venkatesh (2000) found, that compared to older users, younger users' technology usage decisions were more strongly influenced by attitude toward using technology.

5 DISCUSSIONS AND CONCLUSIONS

This study examines the effect of cohort segmentation on perceived risk and trust toward the attitude and intention to use mobile devices and respective applications by Technological Acceptance Model (TAM) in hospitality sector. The findings of this study provide some valuable insights to mobile service providers regarding the difference in service perceptions between Generation X and Generation Y. The results of the study entailed the following implications.

First, trust shown being an important facilitator to adoption of new technologies mainly for those who belongs to Gen Y. Trust in mobile devices and applications enhance the perceived utility and perceived usefulness, and those that are youngest perceive these two points more than those who belongs to Gen X. Second, trust has other role in the adoption of new technologies, it could reduce the perceived risk according Kesharwani and Singh Bisht (2012), Kim et al. (2008) and Pavlou (2003), we noted that Gen Y feel more trust in technology so perceive less risk than Gen X, this significant difference is pointed by Yao et al. (2011) where for them the risk tolerance decrease as people age.

Third, in the TAM model the usefulness affects positively the perceived utility, that is, how much simple the system is, more useful Davis (1989). Besides that, the usefulness of a system could direct influence the user attitude toward the use of mobile devices and applications in hospitality sector. Perceived utility is a direct determinant from attitude in use a system in particular Davis (1989). Our results first show that either Gen X and Gen Y see usefulness and perceived utility in mobile devices and applications, and either the attitude is affected by both but they understand this constructs in a different way. Therefore, it is for this reason, that when we compared the two cohorts the results were not significant.

Fourth, Gen X is more influenced by perceived risk and as consequence their attitude toward the use of mobile devices and applications will be more careful than the Gen Y that perceive less risk in use mobile devices and applications. These finds is coherent with were found by others research's like Stone and Barry Mason (1995) and Sjöberg (2000).

And finally, Fifths, attitude toward the adoption (behavioral intention) of mobile devices and applications were significant stronger in Gen Y than Gen Y, for Morris and Venkatesh (2000) one possible explanation is that the younger generation were much more like to have

been exposed to technologies at a relatively early ages, what are according with Martin (2005), Glass (2007), and Connaway et al. (2008). And for the older generation (Gen X) the computers could have been commonplace during the high school or even during the college, causing this difference in the relationship between attitude and intention behavior (Morris & Venkatesh, 2000).

In the light of these findings, our contribution for the theory lies in the fact that we bring the discussion of cohort segmentation for the hospitality sector using the Technology Acceptance Model (TAM) to evaluate the use of mobile devices and applications. With more than 11,6 billion of mobile devices near 2020 (MobileFuture, 2016), the use of this devices and applications will accelerate and the differences between users will be increasingly accentuated due to the fact that more and more generations are being created within a highly technological environment and this can be observed regardless of social or education level.

As a managerial contribution, we suggest to marketing managers that: (1) Segment their marketing actions according each generation; (2) For those who belongs to Generation X, marketers must decrease the perceived risk of use new technologies and enhances the facilities and utilities of these devices and applications, the trust component will increase with the use and the perceptions along the time; (3) For the Generation Y, marketers must increase the facilities and utilities perception, the perceived risk are lower and trust in the mobile devices and applications are higher.

It should be acknowledged, however, that our study was subject to many limitations. The limits of this study are fundamentally related to their generalization power. As a convenience and nonprobabilistic sample were used, is not possible to turn the results as a descriptive of population. Certainly, the results constitute a good indicative for new research's and if possible, use a probabilistic and representative sample to advance the process of knowledge building. Moreover, the fact that the data were collected in Brazil raises the question of its transferability into other cultural regions such as the USA, Europe or Asia.

This study was conducted using a snapshot research approach. The understanding of the causality and interrelationships between variables important to understanding the differences between cohort segmentation in a hospitality context could thus be further enhanced by longitudinal evidence.

Another limitation lies in the fact that we use as external values the perceived risk and trust to evaluate the Technological Acceptance (TAM) Model between cohort segmentation. As a suggestion for future research, maybe using another type of external values could produce other types of outcomes. One suggestions will be assessment the model with perceived quality or satisfaction with mobile devices or mobile applications in the hospitality sector.

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