

# The adoption of BYOD or COPE policies by a Brazilian company in the petroleum industry

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## Abstract

This study aims to assess the perception of employees of a large Brazilian company taking into account the use of personal mobile devices for professional purposes as well as their preference regarding BYOD and COPE models. 768 employees answered a 21 questions online survey, and data analysis was done using the logistic regression model. The results show that the practice of bringing personal devices to the company raises the individual's likelihood to prefer this model over the COPE model. Therefore, it is up to the organization to observe how often its employees bring personal electronic mobile devices to the organization, and also observe questions of gender and education levels when promoting the implementation of BYOD or COPE, in order to broaden the chances of successfully implementing IT policies.

**Keywords:** BYOD. Consumerization. COPE. Information Technology.

## 1 Introduction

Corporate mobility is more complex today as a result of the so called “consumerization of Information Technology”. Information Technology (IT) consumerization is the personal use of IT resources, such as devices or software, which are also used for professional purposes (Harris, Ives, & Junglas, 2011). According to Moschella, Neal, Opperman, and Taylor (2004), IT consumerization is a strong trend which is guaranteed to bring significant long-term commercial consequences, including sharp cost reductions and generations of better informed technology users. Indeed, the fast growth of consumerization over recent years, pointed out at the 2012 Mobile World Congress and followed by many published studies (Copeland & Crespi, 2012), supports the thesis that a large number of employees expect to use their personal notebooks, smartphones and tablets professionally as per the Micro (2012) survey. The result thereof is what we now term “Bring Your Own Device”, or BYOD.

In this context, IT consumerization plays an important role in changing the relationship between employees (as IT consumer) and the organization. However, BYOD is not only a simple idea or a way of working (Deloitte, 2013). BYOD is part of consumerization as it involves the use of everyday technologies in the workplace, focusing on the use of devices originally acquired for personal use (Jones, 2012). In other words, BYOD describes the circumstances in which users make their own personal devices available for company purposes (Disterer & Kleiner, 2013).

That being said, BYOD brings new responsibilities to the IT organization, as it attempts to deal with an endless array of platforms, devices and user profiles. As an alternative to BYOD, COPE (Corporate Owned, Personally Enabled)

is when the organization purchases and owns a device, giving the employee the right to use it following a set of rules regarding personal and professional use (Proffitt, 2012). The COPE model contributes to better management of the organization’s mobile devices, limiting models and ensuring increased data protection. It may also reduce costs and operational expenses (Sheldon, 2013).

In fact, it is observed that when an organization opts for IT consumerization, particularly the adoption of BYOD, there is an adaptation to the IT context and organization culture aiming towards establishing policies to be adopted and the model to be followed. As a result, the process of change has become one of the biggest challenges for companies and IT managers during recent years (Harris, Ives, & Junglas, 2011).

Due to these issues, a fair amount of research has been published focussing mainly on organizational and technical aspects of IT. Another peculiarity of these studies is the target survey respondents. In all the works researched, surveys were applied to IT CEOs, Managers, Executives and decision makers.

As a result, there is a gap insofar as the evaluation of employee perceptions regarding IT consumerization is concerned. This study aims to assess the perception of employees of a large Brazilian company in the petroleum sector regarding the use of personal mobile devices for professional purposes, as well as their preferences between BYOD and COPE.

Other IT consumerization references covered in this research deal with changes in IT strategy (Hartveld, 2012), corporate network security (Mahesh & Hooter, 2013), security and fraud (Tokuyoshi, 2013), use of BYOD adoption models (Liang, Huang, Yeh, & Lin, 2007), effects on IT performance and management (da Silva & Maçada, 2017), interaction with digital

information panels (Ballagas, Rohs, Sheridan, & Borchers, 2004) and impacts of consumerization on the corporative environment (Moschella, Neal, Opperman, & Taylor, 2004).

## 2 IT Consumerization in companies

Corporate mobility policy has become increasingly complex with employees using personal devices in the workplace as part of a tendency called “IT consumerization”. Many employees expect to be able to choose and use their personal smartphones, tablets, laptops as well as other applications and platforms such as Apple, Google, Research In Motion (RIM), etc. In order to meet this expectation, many companies have implemented BYOD - “Bring Your Own Device” programs, allowing employees to use their personal devices for work activities. In order to grasp the value of BYOD, corporations have to use a wide variety of strategies to evaluate the impact on expenses and corporate activities.

With that in mind, Markelj and Bernik’s (2012) study discusses the use of mobile devices while dealing with questions relating to data security in enterprises which apply BYOD. The study points out the need to adopt clear and well defined information security policies, and presents current solutions and best practices and techniques in BYOD implementation as a way to mitigate risks and not compromise information security.

Mahesh and Hooter (2013) studied the impact of personal mobile devices usage on corporate network management and security, and concluded that it is essential to define an integrated policy which covers data security and business continuity when adopting BYOD.

In research conducted by Rains (2012), companies which provide IT technical support on em-

ployee devices showed higher levels of satisfaction with the BYOD program.

According to Micro (2012), whose study gained a better understanding of the factors that lead to BYOD adoption, as well as of which strategies and indicators are used to assess impacts and challenges associated with implementation, the most influential factors for using BYOD are increased productivity as well as flexibility for employees to choose their own devices. A large number of companies named security challenges as key points for implementation of BYOD programs.

Copeland and Crespi (2012) researched the impact of consumerization on companies, suppliers, employees and consumers. The authors concluded that convenience and increased employee productivity are the most important benefits to companies which adopt BYOD programs. On the other hand, information security appears as the biggest concern. The study does not mention employee perception.

Avanade (2012) evaluated the tendencies which involve the use of personal computing technologies in a company, available resources at an executive level, preferred device brands and driving forces behind the trend. Results show that the integration of employee devices into company applications and services is a relatively simple question, and IT decision makers intend to make new investments to support personal computer technologies in the workplace within the next 12 months.

Harris (2012) in the research with the objective of evaluating the sensibility of questions related to BYOD in the companies. The study concludes that most companies already use some BYOD program. There is a recurring concern about regarding security matters, that the use of BYOD by the company is considered a tool for retention and recruiting, and increases productivity, innovation and creativity.

Finally, in the perspective of Motorola Solutions Mobility Barometer for Latin America, a survey which evaluates mobility opportunities and challenges for companies, one out of two companies does not plan to implement BYOD, and the clear tendency is to equip employees with corporate technology tools in order to ensure good performance. (Wrobel & Costa, 2013).

### 3 Methodology

This work proposes discussion on existing interactions between the socioeconomic characteristics of employees of a company in the petroleum sector, relating same to their impressions regarding participation in a BYOD or COPE program that could be implemented by the company.

In January 2014, 768 employees answered a 21 question online survey regarding gender, age, income, education level, position in the company, ownership of mobile IT devices, evaluation of BYOD or COPE programs, as well as reasons as to whether the employee would bring a personal mobile device to the company. Devices were defined as smartphones, tablets and notebooks.

The descriptive statistic was used to measure information referring to aspects that involve device ownership, including how often personal devices are brought into the workplace, a report on the use of personal mobile devices for corporate activities, the reasons that influence the employee to bring, or not, a personal device to the company and preference between BYOD or COPE.

Considering that the purpose of the study was to explain a qualitative event through regression, data analysis was done using logistic regression which estimates the probability of occurrence of a certain event based on explanatory variables. (Corrar, Paulo, & Dias Filho, 2009).

With the use of logit model for individual data, the problem of incremental  $X$  effect remaining constant was resolved. We also managed to obtain the permanence of probability of the event between 0-1, given the variation of  $X$ . (Gujarati & Porter, 2011).

Four binomial probability models were used for the 'participation in the adopted BYOD program' variable, where 1 represents acceptance to participate and 0 the opposite. The same regression format was used to measure the chances of BYOD preference over COPE, where 1 represents preference of COPE and 0 the opposite.

In order to validate the models, Log Likelihood Value tests supported by MacFadden's- $R^2$ , Cox-Snell  $R^2$  and Nagelkerke  $R^2$  were performed, comparing the model to one which ignores independent variables. The MacFadden's- $R^2$  expresses the percentage variation between the Likelihood Value of the model, which considers only the intercept, and the Likelihood Value of the model, which considers the explanatory variables. Likewise, Cox-Snell  $R^2$  is used to compare performance of two competing models. Models which present the highest Cox-Snell  $R^2$  should be preferred. Cox-Snell  $R^2$  is based on a scale that starts at 0 but does not reach 1. Another way to estimate the adjustment of the model is the Nagelkerke  $R$ . This measure is similar to the Cox-Snell  $R^2$ , but the scale is adjusted to reach the maximum value (Corrar *et al.*, 2007).

Another accuracy test applied to the models was the Hosmer and Lemeshow test, to a 5% level of significance. Hosmer and Lemeshow is a chi-square test which consists in divide the number of observations in ten groups, and then, compare the predict frequencies with the observed. Further, Wald Test was applied for significance analysis of each coefficient of the logistic equation. Wald Test aims to estimate if the parameters of the model are different from zero.

## 4 Results

### 4.1 Descriptive analysis

Descriptive analysis of the sample size shows that 280 (36.4%) and 488 (63.5%) respondents were high school and college graduates respectively. Post analysis was based on these characteristics, taking into account that education is associated, for instance, with income levels and position in the company. This enables a broad vision of employees in the organization.

The average age of employees with college education is higher, i.e. 39, compared to 35 years of those with only high school education. These groups are comprised mostly by men, and represent higher education levels within same, i.e. 66% and 67% respectively.

However, when it comes to income, those with college education possess a much bigger group of individuals with income over 10 minimum wages (53%), whereas those with high school education present a balance in the distribution of intermediate income between 1 and 5 minimum wages (47%).

The results show that the average possession of devices by college employees is 14% higher than high school level employees. It should be pointed out that with regards to tablets, most survey participants informed that they do not own one, i.e. college level (57%), high school (67%). On the other hand, possession of notebooks was highest for both levels, college (84%) and high school (76%). Regarding the probability of bringing personal mobile devices to the workplace, again the result indicates similar behavior in both groups. Here, we highlight the number of times respondents said they brought personal notebooks to the workplace in a week, i.e. 0.79 (high school) times and 0.80 (college) times, despite the fact that possession of this device is the highest among all devices.

Regarding the factors that motivate employees to bring personal devices to the workplace, high school level employees indicated mobility (19.69%) and facility of use in group related activities (18.15%).

College level employees indicated access to blocked sites (22.38%) as the main factor, closely followed by convenience (19.25%) and better performance of personal devices compared to company devices (19.04%). Therefore, some elements encourage the integration of devices to company activities. However, access to blocked sites may represent a tendency towards using notebooks for personal purposes.

With regards to the reasons listed for bringing smartphones to the workplace, mobility is again the main factor among respondents with only high school level education (21.37%), followed by facility of use in group related activities (21.37%) and flexibility in completing quick web searches (20.23%). Respondents with college education listed device functionality in group related activities (22.62%) and flexibility (19.31%) as the main reasons to bring their own devices.

That being said, although there is evidence that smartphones are used in clearly work related activities, the significant number of affirmations that they are only used for personal purposes indicates that same cannot be integrated into company activities.

As for tablets, it can be concluded that respondents have similar reasons for bringing same as those related to smartphones, i.e. convenience, flexibility in completing quick web searches and mobility.

The lowest scores obtained in both groups refer to lack of information regarding the use of company resources, and use for recreational purposes, when considering motivations behind bringing personal devices to work.

Notably, considering the average of these two education levels – high school and college – the fact that the company provides adequate devices necessary for completing activities is the main reason they do not bring their own devices, with an average of 30.94% for notebooks, 26.21% for smartphones and 25.87% for tablets. The second reason is the lack of wi-fi access, with an average of 15.71% for notebooks, 22.96% for smartphones and 17.97% for tablets.

Blocked access to company systems is pointed out as being the third reason they do not bring personal notebooks (average 14.34%) and smartphones (average 14.79%). However, insofar as tablets are concerned, the third reason is the fear that the device may be stolen (average 14.48%).

Reasons relating to device usage and personal matters scored low in comparison to other reasons, as well as those which referred to the perception of the company towards the behavior when bringing personal devices to the company and employee perceptions that the company has the duty to provide the necessary devices so that employees can complete their tasks.

When analyzing different characteristics of the respondents as to BYOD adoption, as far as gender is concerned, we see that women have a neutral position regarding the idea (34.25%), whereas men are more favorable (40.36%).

Insofar as the education level characteristic is concerned, perceptions towards BYOD are equivalent, with the majority of answers favorable to the implementation, the highest (42.18%) relating to respondents with high school education.

When considering job type, employees and apprentices presented the highest percentage of those in favor of BYOD adoption, at 42.92% and 41.18%, respectively. Trainees display neutrality (47.92%) whilst hired workers showed 33.51% favorability and 32.91% neutrality.

Analysis of the income variable shows that those who earn between 5 and 10 minimum wages have a higher percentage in favor of the idea (41.66%), closely followed by those who earn more than 10 minimum wages (40.97%). It can be concluded that those with a higher income are more favorable towards implementation of a BYOD program, whilst those in the group of up to one minimum wage presented the highest neutral percentage (48.84%).

To improve the understanding of employee preferences regarding IT policies which could be adopted by the company, the following were investigated: the intent to participate in a BYOD program, permission to install company software on personal devices and preference between BYOD and COPE.

Results showed that both groups preferred COPE (average 74,5%), where the company would provide devices to employees in order to execute tasks. However, when asked if they would participate in a BYOD program, both agreed they would participate, with percentages of 58% (high school) and 62% (college).

These favorable perceptions towards IT policies are confirmed when 67% (high school) and 68% (college) employees informed that they would allow the installation of company software on personal devices in order to implement the company's BYOD program.

## 4.2 Econometric Analysis

Logistic regression is justified in order to obtain a probabilistic model and estimate from the data collected. Corrar, Paulo, e Dias Filho, (2009) clarifies that the “aim of logistic regression is to find a logistic function formed by pondering variables (attributes), whose answer allows to establish the probability of occurrence of a certain event and the importance of variables for this occurrence”.

Within the context of this work, logistic regression was initially used to investigate and measure the probability of BYOD adoption. Upon further analysis, same was used to measure the probability of employee preference in adopting BYOD over COPE in order to guide the organization with regards to employee perception and contribute to future implementation and adoption strategies.

In the first phase, and in order to measure propensity towards adopting BYOD, 4 logistic regression models were used with the following independent variables: gender (*dummy*), with 1 representing males and 0 representing females; age; income; function; position; education; notebook ownership; tablet ownership; smartphone ownership; number of days the employee brings his/her personal tablet to work; number of days the employee brings his/her personal smartphone to work and number of days the employee brings his/her personal notebook to work. The objective of using 4 regression estimation models was to observe the behavior of probability upon the exclusion of determined variables. As a result, it was possible to understand and quantify the presence or absence of these variables and their influence on the resulting probability. Based on these estimations, we were able to infer that variables have a stronger effect on the intention towards adopting a BYOD program, or in propensity towards choosing between a BYOD or a COPE program offered by the organization.

Table 1 presents the main results obtained through logistic regression estimates with regard to an individual's participation in a future BYOD program.

Model 1 comprises of the variables indicated above. According to Cox & Snell estimates, 10,6% of log likelihood ratio variations are explained by a set of independent variables. Only the 'number of days the employee brings his/her

personal tablet to work' and 'number of days the employee brings his/her personal smartphone to work' were statistically significant, at 5%. Both variables have a positive effect on the chances of an individual adhering to the BYOD program for the sample in question.

The second estimation process is similar to Model 1, with the exception of the 'Function' variable which was excluded. The main difference in comparison to Model 1 is that the 'Income' - over 10 minimum wages - variable was statistically significant at 5%, with a negative effect. This indicates that higher income employees are less inclined towards adopting BYOD. Furthermore, the 'number of days the employee brings his/her personal smartphone to work' variable is no longer statistically significant. On the other hand, the 'number of days the employee brings his/her personal notebook to work' variable is statistically significant at 10%. The Cox & Snell estimate was approximately 9%.

Following the principle of parsimony, the 'Position' variable was removed from Model 2. The results obtained were very similar to the previous estimation with, however, a small decrease in the 'over 10 minimum wages' parameter. The likelihood ratio variations explained by the independent variables were approximately 9%.

Finally, in Model 4, the variables relating to tablet, notebook and smartphone ownership were removed. Highlighted here is the fact that the 'number of days the employee brings his/her personal smartphone to work' variable is now statistically significant. Other variables also considered to be statistically significant are 'number of days the employee brings his/her personal notebook to work', 'number of days the employee brings his/her personal tablet to work', and income over 10 minimum wages.

Hosmer-Lemeshow goodness of fit tests were applied to all models. No significant differences

**Table 1: Intention to participate in the company's BYOD program**

Variable	Model 1	Model 2	Model 3	Model 4
Gender	0,271 (0,263)	0,292 (0,258)	0,274 (0,255)	0,250 (0,239)
Age	0,006 (0,013)	0,011 (0,013)	0,007 (0,012)	0,012 (0,011)
College education	0,076 (0,279)	0,109 (0,273)	0,052 (0,266)	0,017 (0,249)
Apprentice	0,264 (1,023)	0,212 (1,010)	-	-
Employee	-0,349 (0,701)	-0,281 (0,649)	-	-
Hired	0,079 (0,618)	0,113 (0,577)	-	-
Trainee	0,239 (0,616)	0,237 (0,780)	-	-
No function	0,256 (0,773)	-	-	-
Advisor	0,152 (0,654)	-	-	-
Assistant	0,344 (0,724)	-	-	-
Consultant	0,151 (0,731)	-	-	-
Coordinator	1,010 (0,823)	-	-	-
Manager	-	-	-	-
Supervisor	-	-	-	-
Owens Smartphone	-0,412 (0,444)	-0,466 (0,434)	-0,424 (0,432)	-
Owens Tablet	0,327 (0,251)	0,228 (0,246)	0,230 (0,244)	-
Owens Notebook	0,574 (0,362)	0,548 (0,351)	0,559* (0,347)	-
1 minimum wage	-0,328 (0,767)	-0,277 (0,716)	-0,089 (0,498)	0,122 (0,464)
1 to 3 minimum wages	-0,077 (0,539)	-0,222 (0,488)	0,021 (0,410)	0,415 (0,37)
5 to 10 minimum wages	-0,248 (0,378)	-0,356 (0,360)	-0,286 (0,350)	-0,208 (0,331)
Over 10 minimum wages	-0,433 (0,338)	-0,621** (0,325)	-0,555* (0,315)	-0,508* (0,305)
Days notebook	0,267 (0,111)	0,236** (0,102)	0,249** (0,102)	0,244** (0,099)
Days Tablet	0,225** (0,089)	0,204** (0,084)	0,201** (0,083)	0,193** (0,079)
Days Smart	0,109** (0,077)	0,102 (0,075)	0,106 (0,075)	0,158*** (0,050)
Constant	-0,689 (1,064)	-0,501 (0,802)	-0,563 (0,642)	-0,908 (0,580)
Observations	<b>768</b>	<b>768</b>	<b>768</b>	<b>768</b>
Cox & Snell R <sup>2</sup>	<b>0,106</b>	<b>0,092</b>	<b>0,091</b>	<b>0,085</b>
Nagelkerke R <sup>2</sup>	<b>0,143</b>	<b>0,124</b>	<b>0,123</b>	<b>0,114</b>

\*\* significance 5%. \* significance 10%. The number in parenthesis represents the standard error.

Source: survey results (2014), obtained through SPSS 18. \*\*\* significance 1%.

between predicted and actual values observed were found.

These results show that individuals who habitually bring personal devices to the workplace are more inclined towards adopting a BYOD program. Furthermore, this effect increases in accordance with higher number of days an employee brings a personal device to work.

Table 2 presents estimates which have as dependent variable (Y) the point that seeks to portray the respondent's preferences towards IT BYOD or COPE (IT consumerization models), being values 0 for BYOD and 1 for COPE. As such, the reference category for this estimate is whether the individual is inclined towards COPE.

The following logistic model function was used:

$$fZ = 11 + e - (Z)$$

Where,

$$Z = \ln \frac{PY1}{PY} = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki} + \epsilon$$

$\beta_0$  represents the constant variable of the model,  $\epsilon$  the residue, and  $\beta$  the explanation parameter vector for variables  $X_1$  and  $X_k$  in relation to Logit (Y). This way, it is possible to establish the effect of each variable on the probability of an individual adopting BYOD or COPE.



In order to assess employee preference between a plan that would propose a BYOD program and a plan that would promote the practice of COPE, Table 1 was designed. The following independent variables were used to evaluate propensity towards BYOD or COPE adoption: gender (*dummy*), with 1 representing males and 0 representing females; age; income; function; position; education; notebook ownership; tablet ownership; smartphone ownership; number of days the employee brings his/her personal tablet to work; number of days the employee brings his/her personal smartphone to work and number of days the employee brings his/her personal notebook to work.

It presents the results of 4 models of logistic regression, with the purpose of identifying the influence of the variables listed below in relation to the probability to prefer one of the proposed approaches over the other.

Table 2 presents estimations as to preferences towards BYOD or COPE IT models, with 0 representing BYOD and 1 COPE. The reference category is if an individual is inclined towards COPE.

In model 1, gender, age, education, position, income, how many times the individual brings their tablet and smartphone to work, and opinion about BYOD were statistically significant. The gender variable shows that men are more inclined towards provision of equipment by the company (COPE), being statistically signifi-

cant at 10%. The age variable presents a positive effect and is statistically significant, i.e. the older the person, the more inclined towards COPE. As far as position in the company is concerned, trainees and hired workers are less willing to accept COPE when compared to employees. Individuals who earn up to one minimum wage are more will-

**Table 2: Preferences for BYOD or COPE model**

Variable	Model 1	Model 2	Model 3	Model 4
Gender	0.675* (0.356)	0.629** (0.342)	0.708** (0.329)	0.800** (0.314)
Age	0.027** (0.017)	0.011 (0.016)	0.005 (0.013)	0.000 (0.012)
College education	0.396** (0.380)	0.230 (0.358)	0.212 (0.336)	0.175 (0.312)
Apprentice	-	-	-	-
Employee	20.033 (16730.13)	-	-	-
Hired	-3.755*** (1.405)	-	-	-
Trainee	-2.807** (1.352)	-	-	-
Owens Smartphone	-0.335 (0.652)	-0.099 (0.634)	-0.21 (0.63)	-
Owens Tablet	-0.107 (0.336)	-0.051 (0.325)	-0.003 (0.314)	-
Owens Notebook	-0.525 (0.444)	-0.329 (0.423)	-0.304 (0.409)	-
1 minimum wage	-2.989** (1.417)	0.492 (0.683)	-	-
1 to 3 minimum wages	-0.0704 (0.660)	0.238 (0.529)	-	-
5 to 10 minimum wages	-0.755 (0.494)	-0.555 (0.459)	-	-
Over 10 minimum wages	-0.331 (0.453)	-0.098 (0.420)	-	-
Days notebook	-0.43 (0.109)	0.006 (0.103)	0.037 (0.101)	0.043 (0.097)
Days Tablet	-0.040** (0.095)	-0.024 (0.092)	-0.030 (0.092)	-0.22 (0.085)
Days Smart	0.004** (0.112)	0.015 (0.111)	-0.17 (0.110)	-0.017 (0.069)
Opinion on BYOD	-0.868*** (0.156)	-0.854*** (0.157)	-0.834** (0.153)	-0.869*** (0.153)
Constant	5.998** (1.662)	2.897*** (0.977)	3.082** (0.851)	-3.326*** (0.756)
Observations	296	296	296	296
Cox & Snell R <sup>2</sup>	0.224	0.182	0.174	0.176
Nagelkerke R <sup>2</sup>	0.321	0.262	0.25	0.255

\*\* significance 5%. \* significance 10%. The number in parenthesis represents the standard error.

Source: survey results (2014), obtained through SPSS 18. \*\*\* significance 1%.

ing to use COPE than any other income range. Finally, the more days the individual brings the tablet and smartphone to work, the less likely they are to adopt COPE. Approximately 22% of the variations in the log odds ratio are explained by the group of independent variables.

Model 2 has the same variables as Model 1, except for positions of individuals in the company. Only gender and opinion were statistically significant. According to the results, the perception about male preference towards COPE found in Model 1 is supported. Regarding the opinion on BYOD, it is confirmed that the more favorable individuals are towards BYOD, the less willing they are to adopt COPE.

Model 3 is similar to Model 2, except for the variable income. The results are similar, with the same variables statistically significant, and similar effects pointing to the same signs. Approximately 17.4% of the variations in the odds ratio log are explained by the group of independent variables.

Model 4 is composed of gender, age, education, number of days the individual brings the notebook, smartphone and tablet to work and opinion regarding BYOD. The results are similar to those found in models 2 and 3, with only the gender and opinion about BYOD variables being statistically significant. Explanatory power regarding the log odds ratio is 17.6%

In summary, older, college educated male individuals are more likely to use COPE over BYOD. On the other hand, individuals who already are in the habit of bringing their own personal electronic devices are less likely to use COPE.

Therefore, and given diverse individual perceptions, influenced by socio-demographic and behavioral characteristics, regarding IT consumerization, significant variables should be considered when implementing BYOD or COPE in an organization.

## 5 Conclusions

The study assessed the use of mobile devices by employees of a Brazilian company in the petroleum sector with the goal of identifying their likelihood to use personal devices for work related activities, as well as verifying their preference towards either using their own mobile device or receiving one from the company in order to integrate them into the organization.

With regards to the first question, we conclude that the habit of bringing a personal device to the workplace increases an individual's propensity towards adopting BYOD, which also increases preference towards this model over COPE. However, gender and education influence the chances of an individual preferring COPE over BYOD. Males and individuals with higher education levels are also inclined towards choosing COPE over BYOD.

Therefore, it is up to the organization to observe how often their employees bring personal mobile devices to work, and also observe questions of gender and education when promoting the implementation of BYOD or COPE with the purpose of broadening the chances of success in implementing IT policies.

In the case of the company subject of this study, the fact that the majority of its employees own personal notebooks or smartphones, as well as the fact that they bring smartphones into the workplace almost daily, may be favorable in implementing both models. This is supported by the results obtained via logistic regression which show that those who habitually bring personal devices to work are more likely to adopt a BYOD model.

Elements such as device functionality, mobility and flexibility must be considered when trying to motivate employees to bring their personal devices to the organization. Furthermore, the possibility of using devices to access sites which do not

contribute to company activities must be observed, along with doing the best to promote the integration of these devices with company systems.

Generally speaking, it can be concluded that company employees are, in most cases, favorable towards the adoption of both personal or company IT mobile electronic devices for use in organization activities. It is the company's duty to observe socio-economic or behavioral elements in relation to such devices, so that it can enhance the chances of success in having employees adopt IT policies.

Finally, we suggest that a comparative study with employees of other sectors of the economy be conducted, in order to understand their perceptions on adopting proposed IT models, as well as gain insight into subjective aspects which lead employees to prefer BYOD over COPE. We also suggest that a study focusing on the security, privacy and electronic vigilance of devices be conducted, and that the impact of these attributes on possible changes of employee perceptions regarding the adoption, or not, of IT consumerization models be evaluated.

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