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Customer Relationship Management: Factors Affecting Rating of Online Customer Satisfaction in Private Sector Banks

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ABSTRACT

Customer Relationship Management is an important and significant trend in all the successful organizations in the contemporary world. Its application is very evident in banking sector, especially private banks, where the success is measured by the number of loyal customers earned rather than the transactions and turnovers. This article focuses on the importance of different factors related to Pune's private banks' online infrastructure like synchronization of offline and online services and security of online services. We also look at how their perceptions about in-person banking services impact their opinion on the rating of online banking services. We also briefly touched upon electronic customer relationship management or eCRM, which will surely be the future of banking services.

Keywords: Customer, satisfaction, Pune, eCRM.

▪ INTRODUCTION

Customer Relationship Management has been around for a long time now. Kennedy (2006) defines Customer Relationship Management as a method "about identifying a company's best customers and maximizing the value from them by satisfying and retaining them". There have been a lot of debates in favor of and against CRM, but studies suggest that if implemented properly, customer relationship management is an efficient tool that saves organization's money, infuses increased revenue and imparts loyalty to the customers. In today's time, where competition is so fierce and can only be expected to grow in future, organizations need to have some advantage over the others to flourish. Customer Relationship Management is an easy to implement and company specific process through which the organization can try to be a step ahead of the competition. The article mainly focuses on how the rating of online services in private banks in Pune area is dependent on the multiple online services that these banks provide. We have also discussed how development of internet infrastructure and improvement of statistical surveying methods have made it easy to study the impact of customer relationship management on overall consumer satisfaction. We have used R, which is a free software platform for statistical computing and graphical visualization, to study the relationships between different factors concerning the customer satisfaction with online services.

▪ LITERATURE REVIEW

Freeland (2003) talks about the importance of internet to build an efficient customer relationship management process and its utilization in present and future. He also stresses on building the online infrastructure required to handle customer data, which will make it easy for the concerned people to analyze and obtain results from it.

Hamid and Kassim (2004) showed in their research that customer loyalty is a result of both online and offline services. They stressed on the importance of internet and its potential to ease the process of customer relationship management. They also found that companies, till the year 2004, mostly focused on using the internet to provide corporate information to build their brand rather than using it for other strategy and planning, which in some way limits the potential of the infrastructure.

Kennedy (2006) explains the conception and rise of electronic customer relationship management. He describes e-CRM as a double-edged sword, which promises both- a window of opportunities and a door of challenges. It is based on how effectively the process is adopted and implemented. He explores the opportunities created by e-CRM in the sense that it enhances customer interactions and relationships. He also

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talks about the challenges, which concerns the data infrastructure, integration, privacy and security challenges.

- **METHODOLOGY**

a) Data Collection

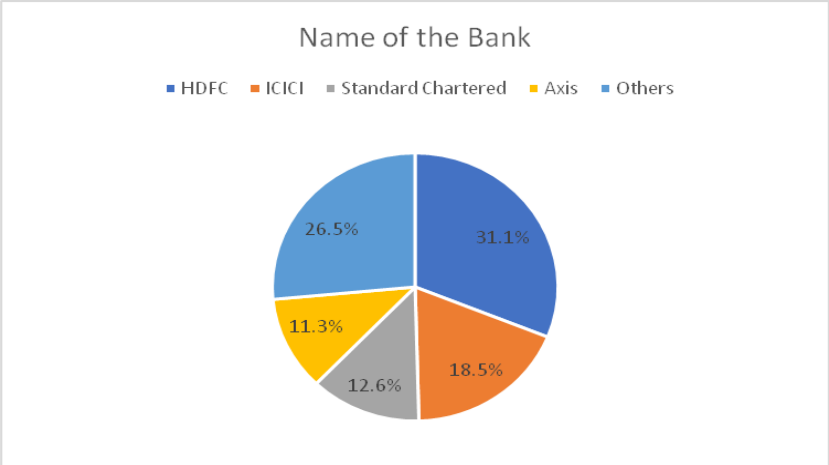
Data is gathered from Pune district residents who have a bank account in at least one private bank. The demographic information contained the name of the bank, age, gender, employment status, residence location, etc. This information was used to analyze the behavioral characteristics of the survey respondents who have chosen a certain answer towards a specific question. The second section of the survey consisted of rating specific bank features on a scale of 1-5, 1 the lowest and 5 being the highest. The third section had a couple of questions- first one asking the subject to rate the online customer services and second one asking the subject to rate the overall services of the bank.

The survey questionnaire was designed with the aim of obtaining almost all required demographic and customer experience data. In this article, we focus on establishing the impact of the following factors - age, gender, synchronization between in-person and online banking and online customer satisfaction rating, on the overall customer rating of the bank services.

b) **Data Analysis**

1) Name of the Bank

In the questionnaire, we asked the subjects the name of their respective private banks. We gave 4 definite choices- HDFC, Axis, ICICI and Standard Chartered banks, and a fifth "Others" option was given to mention any other banks. Fig.1 shows the pie chart distribution of the responses for this question. Out of the 300 subjects in the sample, 238 answered the name of their respective banks. The number of HDFC Bank customers was the highest- 31.1%, followed by ICICI Bank (18.5%), Standard Chartered (12.6%) and Axis Bank (11.3%) customers. These 4 banks represent over 70% of the total sample.



2) Age

The age variable was divided into 5 distinct groups. Less than 18 years represented the school going population, who may require assistance for accessing and understanding the banking services. The most important age groups for our study were between 18-25 years and 25-40 years, who have seen the growth of online customer relationship management very closely. These age groups represent the college students and working class, middle-aged samples, who by the virtue of digitalization of banking, come across the online banking services more often than others, and are also frequent users of internet banking and mobile applications.

Most of the respondents were from the age group 25-40 years, which represented 56.2%. Next was the age group 18-25, which represented 36.5%. Hence, more than 90% of the sample size belonged to the group which frequents the use of internet and mobile banking.

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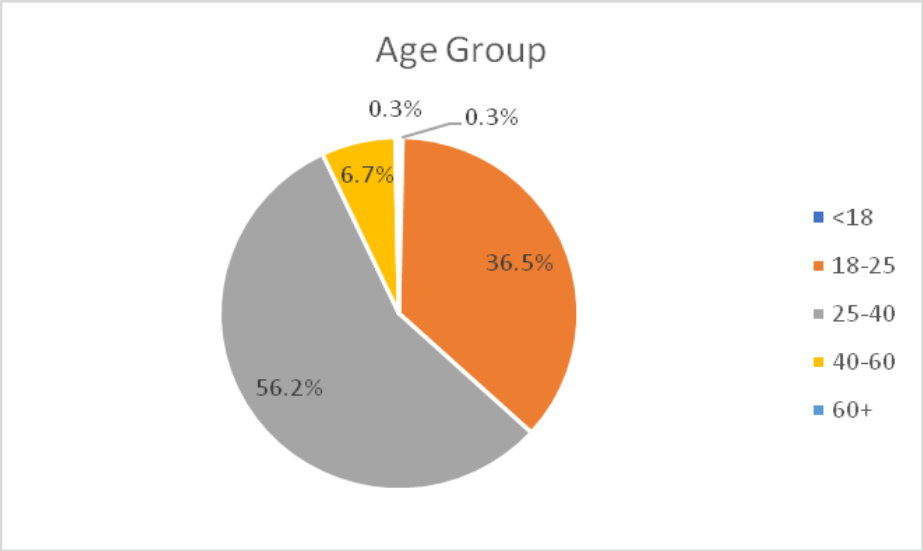
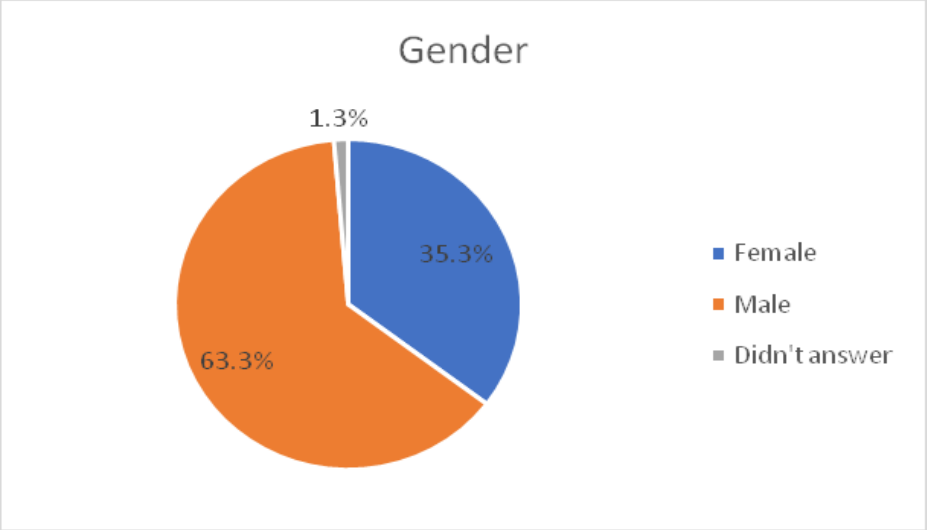


3) Gender

Gender as a variable was represented by Males (63.3%), Females (35.3%) and 1.3% respondents said they prefer not to disclose their gender. The sample was skewed towards male counterparts which is representative of the general statistics in the country, as mentioned by Financial Express (2018).



4) Synchronization between in-person and online banking services

Based on previous studies and general perceived logic, we decided to put a question for survey respondents to rate what they perceive is the quality of synchronization between their in-person and online banking. For example, when they deposit money in the bank, how quickly can they see it in their online or mobile applications? How quick is the OTP (One-Time-Password) service, etc. We hypothesize that better and efficient synchronization between in-person and online banking services will lead to better overall rating for the bank.

8.5% of the sample survey respondents gave a poor (1 or 2) rating to the synchronization process, whereas 69.0% gave it a rating of 3 or 4. 22.4% respondents gave a rating of 5, which is an indication of the major improvement that is underway in banking technology sector.

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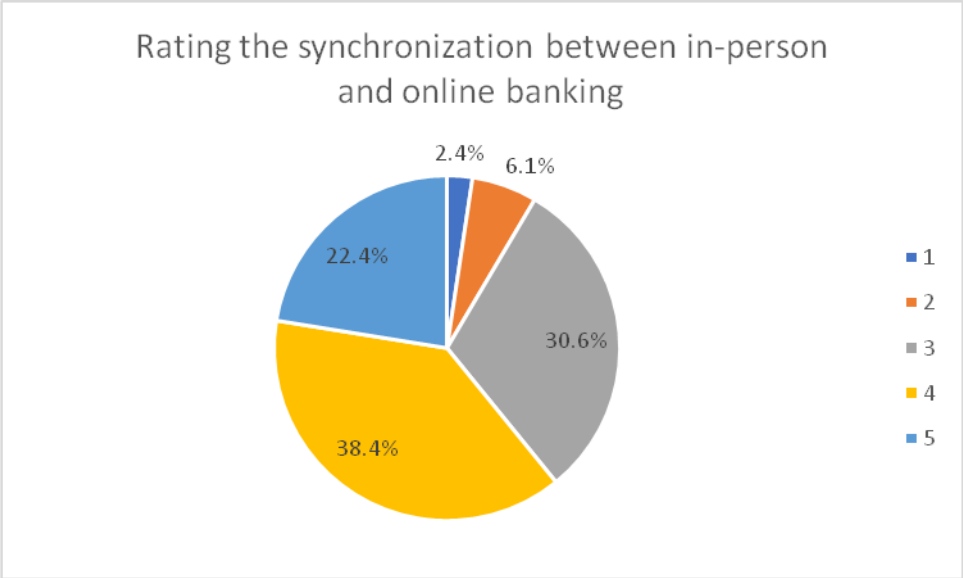
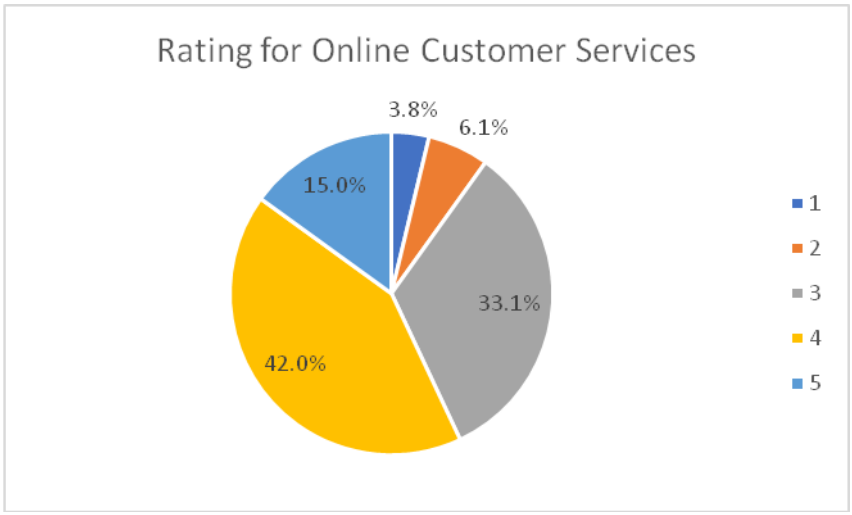


5) Rating for Online customer services

This question was designed to get a prior determinant of customer satisfaction on online services. This is the most important variable of interest, as we aim to correlate it directly with the overall customer satisfaction. As established earlier, the maximum respondents in our survey were between the age group 18-40 years and consisted primarily of employed people and students. More than 90% of respondents gave a rating between 3-5, which is a good observation. The observations conclude that most samples are satisfied with the quality of online customer services in their respective banks.



6) How important is it to have in-person bank services?

This question was asked to assess how important it is for the customers to have the existence of traditional in-person banking services in addition to the online infrastructure. While the banking process is shifting towards online, it seems imperative at least in near future that in-person and online services will have to coexist. Hence, it is important to evaluate the correlation between the need of in-person services and customer perception of online services.

Not surprisingly, over 80% of the sample responded with an importance between 3-5 on a scale of 5. While customers are moving to online services, the shift is gradual, and they still use both in-person and online services in coherence.

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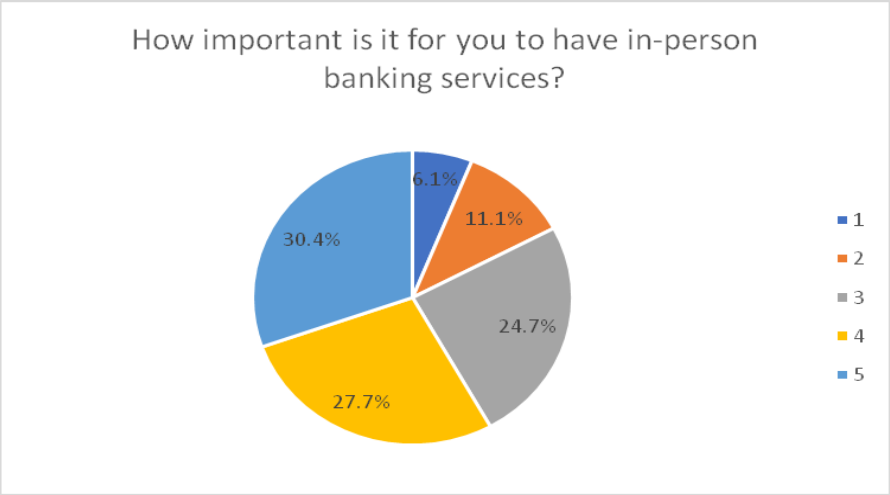
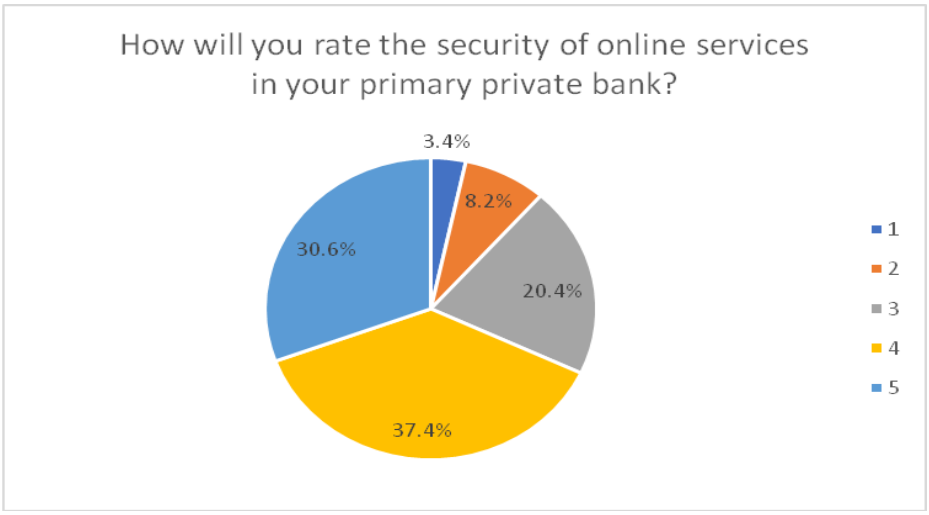


7) Security of Online Services

An important reason why customers aren't completely willing to shift to online banking is the security infrastructure that exists in banking sector in India. An efficient online security system will lead to an increased trust in overall online services.

68% of the respondents gave an impressive rating or 4 or 5, which is positive. But more than 10% also gave a poor rating of 1 or 2, which shows there is a lot of room for improvement.



c) Fitting Linear Models to analyze the impact of above factors on overall customer satisfaction

Let us assume the following notations for our response and predictors:

Rating for online customer services - Y

Synchronization between in-person and online services- X_2

Security of online services- X_2

Importance of in-person bank services- X_3

A linear model is of form- $Y= \beta_0 + \beta_i X_i$

β_0 is the intercept, and β_i are the coefficients of predictors X_i. Our current model can be represented using the notations we defined above-

$Y= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$

1) **Full Model**

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In this model, we model the response online customer rating against the synchronization of in-person and online services, rating of online security facilities and the importance of in-person bank services to understand the effects of these factors in presence of each other.

Hypothesis

For the full model, we see the following model-

$Y= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$

Null Hypothesis H_0: None of the X_i impacts the response Y i.e. all β_i are equal to 0.

Alternative Hypothesis H_A: At least one of the factors affects the response i.e. at least one β_i is not equal to zero.

Regression is done with significance level alpha=0.05.

A p-value of <0.05 (95% significance level) in Simple Linear Regression parameter estimate will give sufficient support for rejecting the null hypothesis.

```
> lmod <- lm (R1 ~ factor(P1) + factor(P2) + factor(P3), data1)
> summary(lmod)

Call:
lm(formula = R1 ~ factor(P1) + factor(P2) + factor(P3), data = data1)

Residuals:
Min      1Q  Median      3Q     Max
-2.43900 -0.44842  0.00809  0.56100  2.34146

Coefficients:
Estimate Std. Error t value Pr(>|t|)
(Intercept)  1.37949    0.33374   4.133 4.73e-05 ***
factor(P1)2  0.43358    0.34236   1.266 0.206407
factor(P1)3  0.93864    0.31866   2.946 0.003495 **
factor(P1)4  1.31692    0.32075   4.106 5.30e-05 ***
factor(P1)5  1.45411    0.32403   4.488 1.05e-05 ***
factor(P2)2 -0.04655    0.29352  -0.159 0.874101
factor(P2)3  0.50121    0.27388   1.830 0.068309 .
factor(P2)4  0.79082    0.27145   2.913 0.003865 **
factor(P2)5  1.07085    0.27514   3.892 0.000124 ***
factor(P3)2  0.37774    0.22543   1.676 0.094924 .
factor(P3)3  0.27904    0.20669   1.350 0.178094
factor(P3)4  0.33005    0.20599   1.602 0.110231
factor(P3)5  0.42870    0.20770   2.064 0.039935 *
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```
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1


Residual standard error: 0.7408 on 279 degrees of freedom
(8 observations deleted due to missingness)
Multiple R-squared:  0.4093,    Adjusted R-squared:  0.3838
F-statistic: 16.11 on 12 and 279 DF,  p-value: < 2.2e-16
```

We can see that only the intercept, P1 and P2 are highly significant variables (synchronization of in-person and online services, rating of online security facilities respectively) and Importance of in-person services valued 5 are significant at 95% level. We can conclude that in a model consisting of all the parameters, the only significant effect is caused by the sample population who has given a higher rating for the deciding factors.

2) Model Y ~ X1

In this model, we model the response overall customer satisfaction against synchronization of in-person and online services.

Hypothesis

For this model, we see the following form-

$Y= \beta_0 + \beta_1 X_1$

Null Hypothesis H_0: Age has no effect on overall customer satisfaction.

Mathematically, $\boldsymbol{\beta_1 = 0}$

Alternative Hypothesis H_A: Age has a significant effect on overall customer satisfaction.

Mathematically, $\boldsymbol{\beta_1 \neq 0}$

Regression is done with significance level alpha=0.05.

A p-value of <0.05 (95% significance level) in Simple Linear Regression parameter estimate will give sufficient support for rejecting the null hypothesis.

```
> lmod1 <- lm (R1 ~ factor(P1), data1)
> summary(lmod1)
Call:
lm(formula = R1 ~ factor(P1), data = data1)
Residuals:
Min      1Q  Median      3Q     Max
-2.3222 -0.3333  0.1339  0.6778  2.1429
Coefficients:
Estimate Std. Error t value Pr(>|t|)
(Intercept)   1.8571     0.3041   6.106 3.30e-09 ***
factor(P1)2   0.4762     0.3584   1.329    0.185
factor(P1)3   1.4651     0.3158   4.640 5.30e-06 ***
factor(P1)4   2.0089     0.3135   6.408 6.00e-10 ***
factor(P1)5   2.1277     0.3199   6.652 1.45e-10 ***
```

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```
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Residual standard error: 0.8047 on 288 degrees of freedom
(7 observations deleted due to missingness)
Multiple R-squared:  0.286,     Adjusted R-squared:  0.2761
F-statistic: 28.85 on 4 and 288 DF,  p-value: < 2.2e-16
```

We can see that most of the p-values are lesser than the alpha=0.05 except P1=2. Hence, we can conclude that synchronization of in-person and online services is a significant factor to determine the customer satisfaction with online services in private banks. Interpretation of coefficient is easy. The coefficient of P1=2 is 0.4762. Hence, the mean value of overall customer satisfaction with online services will be the sum of the intercept and the coefficient i.e. 1.8571 + 0.4762= 2.33. Since the coefficients are in increasing order for ascending P1, we can say that higher synchronization between in-person and online services results in increased online customer rating.

3) Model Y ~ X2

In this model, we model the response online customer satisfaction rating against online security rating.

Hypothesis

For this model, we see the following form-

$Y= \beta_0 + \beta_2 X_2$

Null Hypothesis H_0: Employment status has no effect on overall customer satisfaction.

Mathematically, $\boldsymbol{\beta_2 = 0}$

Alternative Hypothesis H_A: Employment status has a significant effect on overall customer satisfaction.

Mathematically, $\boldsymbol{\beta_2 \neq 0}$

Regression is done with significance level alpha=0.05

A p-value of <0.05 (95% significance level) in Simple Linear Regression parameter estimate will give sufficient support for rejecting the null hypothesis.

```
> lmod2 <- lm (R1 ~ factor(P2), data1)
> summary(lmod2)
Call:
lm(formula = R1 ~ factor(P2), data = data1)
Residuals:
Min      1Q  Median      3Q     Max
-3.07778 -0.58333 -0.07778  0.41667  1.80000


Coefficients:
Estimate Std. Error t value Pr(>|t|)
(Intercept)   2.2000     0.2553   8.617 4.64e-16 ***
factor(P2)2   0.3833     0.3039   1.261 0.208183
factor(P2)3   1.0500     0.2758   3.807 0.000172 ***
factor(P2)4   1.5064     0.2668   5.647 3.92e-08 ***
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```
factor(P2)5   1.8778     0.2691   6.977 2.07e-11 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Residual standard error: 0.8074 on 288 degrees of freedom
(7 observations deleted due to missingness)
Multiple R-squared:  0.2812,    Adjusted R-squared:  0.2712
F-statistic: 28.17 on 4 and 288 DF,  p-value: < 2.2e-16
```

We can see that most of the p-values are lesser than the alpha=0.05. Hence, we can conclude that online security rating is also a significant factor to determine the customer satisfaction with online services in private banks, especially the higher values. Here, P2=1 i.e. the mean customer satisfaction with online services is the value of the intercept i.e. 2.2. Ratings for other levels can be derived from adding their coefficients to the intercept value.

4) Model Y ~ X3

In this model, we model the response online customer satisfaction against importance of in-person services.

Hypothesis

For this model, we see the following form-

$Y= \beta_0 + \beta_3 X_3$

Null Hypothesis H_0: Online customer satisfaction has no effect on overall customer satisfaction.

Mathematically, $\boldsymbol{\beta_3 = 0}$

Alternative Hypothesis H_A: Online customer satisfaction has a significant effect on overall customer satisfaction.

Mathematically, $\boldsymbol{\beta_3 \neq 0}$

Regression is done with significance level alpha=0.05.

A p-value of <0.05 (95% significance level) in Simple Linear Regression parameter estimate will give sufficient support for rejecting the null hypothesis.

```
> lmod3 <- lm (R1 ~ factor(P3), data1)
> summary(lmod3)
Call:
lm(formula = R1 ~ factor(P3), data = data1)
Residuals:
Min       1Q   Median       3Q      Max
-2.93182 -0.64198  0.06818  0.59722  2.33333
Coefficients:
Estimate Std. Error t value Pr(>|t|)
(Intercept)   2.6667     0.2106  12.661  < 2e-16 ***
factor(P3)2   0.6970     0.2618   2.662  0.00821 **
factor(P3)3   0.7361     0.2355   3.126  0.00195 **
factor(P3)4   0.9753     0.2328   4.189 3.74e-05 ***
```

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```
factor(P3)5   1.2652     0.2312   5.473 9.65e-08 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
Residual standard error: 0.8936 on 287 degrees of freedom
(8 observations deleted due to missingness)
Multiple R-squared:  0.1158,    Adjusted R-squared:  0.1035
F-statistic:   9.4 on 4 and 287 DF,  p-value: 3.743e-07
```

All ratings for the importance of in-person banking are significant at 95% significance level. A person rating the importance of in-person services as 5 will rate the online customer satisfaction as 3.93 on an average, which shows a fair correlation between the values.

▪ CONCLUSION

The primary aim of the article was to see if any of the factors- synchronization of in-person and online services, rating of online security facilities and the importance of in-person bank services is a strong predictor of the online customer satisfaction. From our analysis, we have found that all the factors are significant, especially at higher ratings. Importance of in-person services is not highly significant in the full model but has a very strong one-to-one correlation with online customer satisfaction. After studying all the coefficients, we can say that higher value of the factors gives a higher value for online customer satisfaction, indicating a monotonous relationship. The main limitation of our study is that we were not able to collect the data from a large population, but it was due to the selective condition on the sample selection. In future, we would work to improve on it and make the research more generalized and established over a large population sample.

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