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Abstract

Customer satisfaction is an important aspect for the success of any business that provides services. This research strives to provide new methods or ways to improve customer satisfaction during the process of buying a home. The new methods were developed using the Six Sigma improvement cycle DMAIC (Design, Measure, Analyze, Improve and Control). To analyze this topic, customer complaints regarding the service provided by lenders and builders during the purchase of a home were evaluated. Complaints were classified in different categories and the root cause was identified. As a result, it was possible the development of solutions to improve the different aspects of the service where customer's expectations were not achieved. The proposed solutions can be implemented by the service providers to improve customer satisfaction during the home-buying process.

Introduction

This research work aims to design or find new methods to improve the quality of customer service during the process of buying a house, especially when it is a new construction in the United States. The housing market is vital for the U.S. economy; therefore, it is something that needs to be stimulated and taken care of in order to keep it flowing and growing. Unfortunately, with the constant growth and development of different areas in the country, sometimes the good customer service practices are lost in this process. For this reason, there are many people that prefer to lease instead of buying; some withdraw in the middle of the process, and others regret buying after they move-in.

Background

In a report published by NerdWallet [1] people said that being a homeowner causes anxiety. Two-thirds (65%) of homeowners have experienced anxiety related to their home, and 75% of those said that unexpected home repair costs were the cause. Also, NerdWallet conducted an online survey in 2018 where they asked 974 homeowners which of 7 statements about homeownership caused them more anxiety. Their response can be seen in Figure 1.

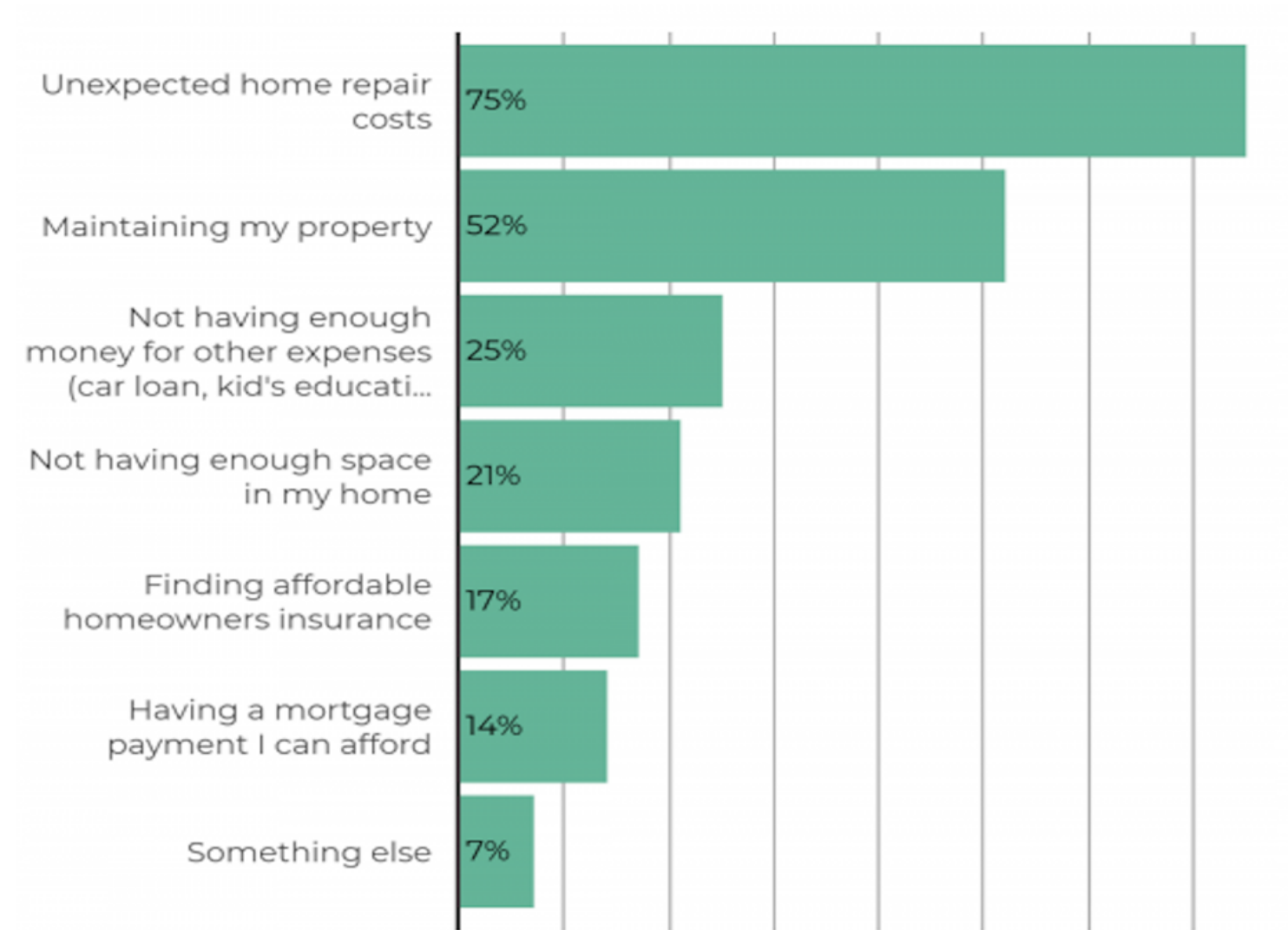


Figure 1

Which of the following have given you anxiety about homeownership?

The statements below are general statistics about United States housing market published by iProperty Management:

- "The housing industry represents more than a quarter of our nation's total investment dollars and about 5% of our total economy.
- There are currently over 136.57 million housing units in the U.S. 930,000 of housing units in the U.S. are rentals.
- In 2018, the total number of homeowner households hit an all-time high of 76.2 million. 36.6% of households rent their homes.
- The rental vacancy rate is 7.2%; the homeowner vacancy rate is 1.6%. The national rental vacancy rate rose in 2018 for the first time since 2009, ticking up from 6.9% to 7.2%.
- According to the 2018 census, the homeownership rate is 64.4% [2]."

Problem

The main objective of this research is to find new techniques or methods for the measurement and improvement of customer satisfaction in the area of housing market. This is intended to be achieved through the analysis of customer's complaints and the implementation of quality techniques.

Methodology

The design used to develop this project is qualitative research. Qualitative research method allows the collection of data based on the observation of behaviors, discussions, and open responses for interpretation as an object of study[3]. This research will be focused on the feedback collected about the financial institutions and builders by the Better Business Bureau and Consumers Affairs. The data will be sorted and evaluated to identify common issues across the board. To achieve the objectives established for this research, the quality strategy DMAIC (Design, Measure, Analyze, Improve, Control) which is an integral part of Six Sigma, will be applied. The DMAIC takes a problem that has been identified by the organization and applies a set of tools and techniques in a logical style to reach a sustainable solution.

Results and Discussion

A DMAIC model was implemented on the selected process to identify areas of improvements.

Define Phase

To perform this analysis, a sample of the customer's feedback from two lenders and two builder's companies was collected. The four companies selected provide services in the whole country of the United States. The purpose of analyzing customer feedback was to understand if the customer service given by these companies is affecting the customer's decision making of whether buying a house or not. Also, to find if there is an opportunity for improving the customer service given, to achieve customer satisfaction.

Measure Phase

The data collection for this research was performed through an extensive search of customer feedback regarding the service provided by two building companies Lennar and Ryan Homes, and two lenders Eagle Home Mortgage and Homebridge Financial. A total of 200 reviews were collected divided into 50 reviews from each company mentioned before between the years 2017 and 2019. Through the data gathered, it was possible to identify the common complaints or missing opportunities.

Analyze Phase

To have a better understanding of customer's needs and identify where the service provider was falling to achieve customer satisfaction and prove the hypothesis, complaints categories were established. These categories were determined based on the common complaints found in the reviews. Given the differences in the service provided and the customer needs, builders and lenders' reviews were classified under different categories. Tables 1 and 2 show the categories used for the review's classification and distribution.

Table 1
Builders' Reviews Common Complaints

Complaint Category	Lennar Homes	Ryan Homes
Delays	4	5
Poor Quality of Workmanship	30	31
Warranty Claims	7	5
Incomplete construction	1	1
Bad Communication	6	3
Other	1	3

Table 2
Lenders' Reviews Common Complaints

Complaint Category	Eagle Home Mortgage	Homebridge Financial
Misinformation	8	2
Lack of knowledge	8	3
Delays	13	1
Bad Communication	16	10
Poor Service (other)	9	3

In Figures 2, 3, 4 and 5 are the complaints analysis for builders and lenders presented in percentages.

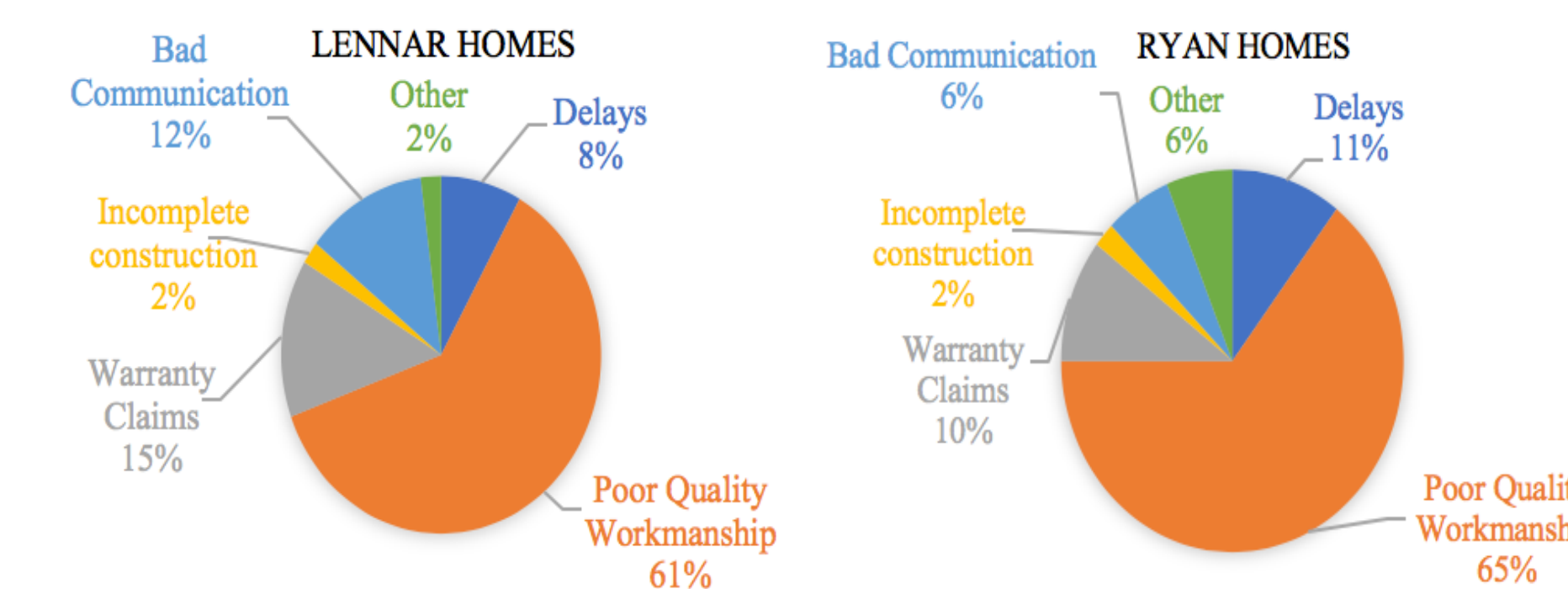


Figure 2
Lennar Homes Complaints Categories Percentages

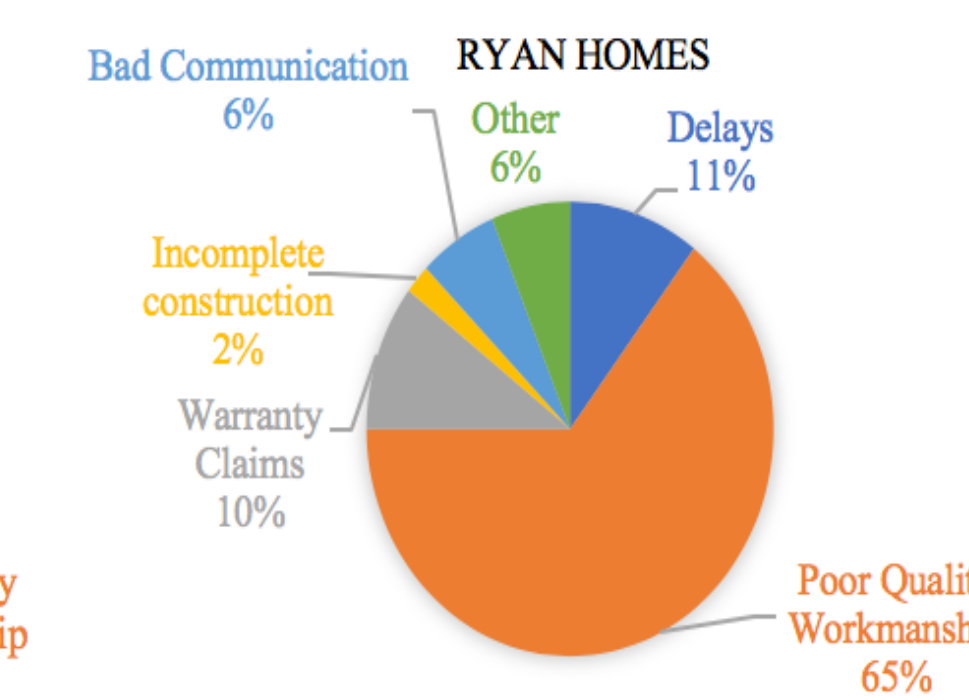


Figure 3
Ryan Homes Complaints Categories Percentages

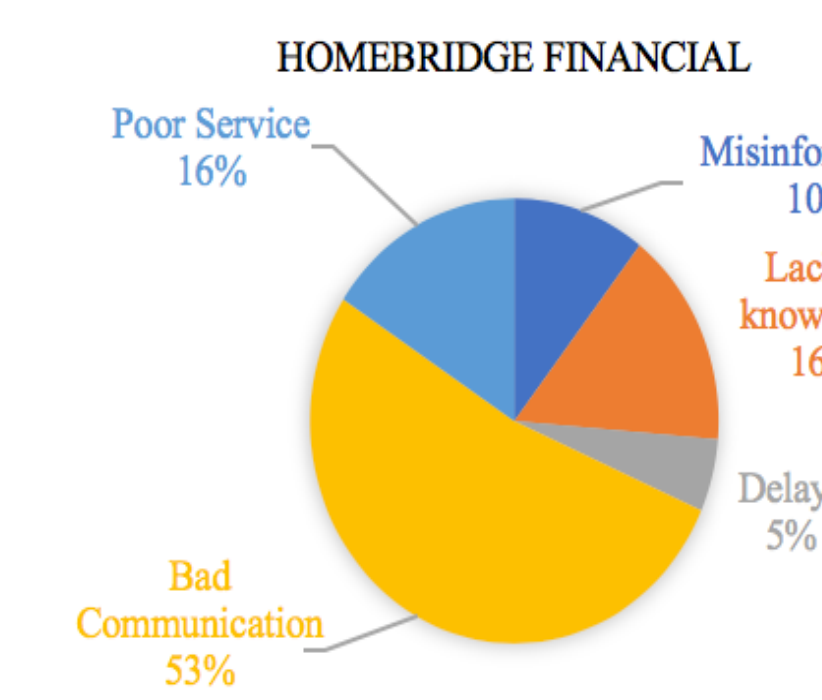


Figure 4
Homebridge Financial Complaints Categories Percentages

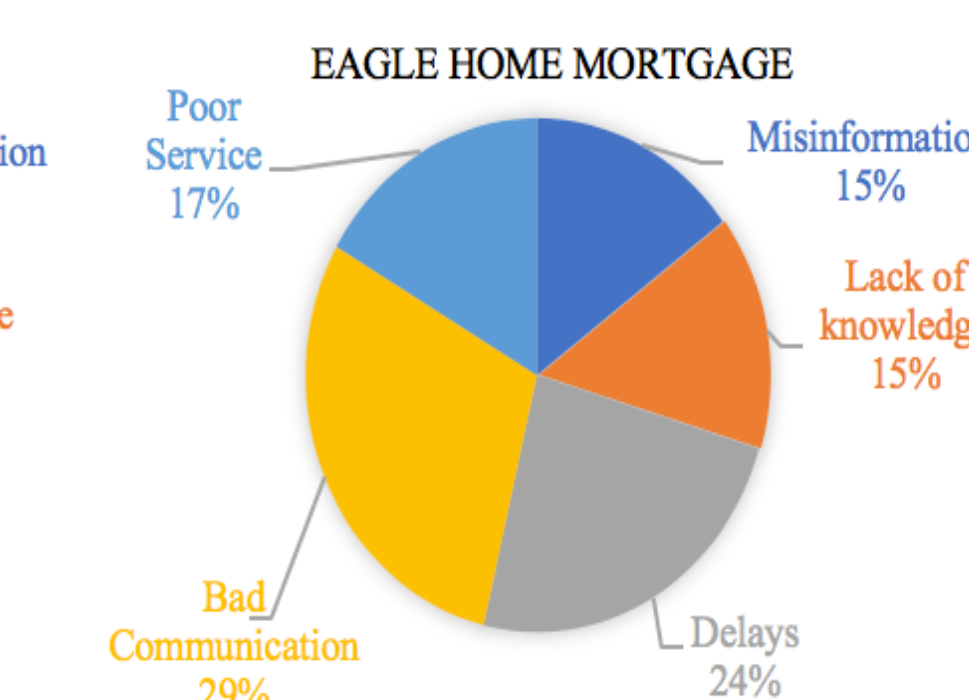


Figure 5
Eagle Home Mortgage Complaints Categories Percentages

Improve Phase

In this phase, some methods to eliminate the root cause of customers' complaints were developed. The service providers can apply those methods to improve customer satisfaction. Tables 3 and 4 show the practice of new methods that can decrease customers' complaints about builders and lenders.

Table 3
Builders' Improvements Suggested

Complaint	Method
Delays	<ul style="list-style-type: none"> • Provide project management training. • Schedule contractors far in advance.
Poor Quality of Workmanship	<ul style="list-style-type: none"> • Use of specifications. • Review building code and industry standards. • Provide on-site quality supervision • Develop quality inspection forms.
Warranty Claims	<ul style="list-style-type: none"> • Develop a system for warranty claims processing and tracking. • Analyze warranty data to identify and manage common issues.
Incomplete construction	<ul style="list-style-type: none"> • Provide project management training. • Establish quality control procedures. • Improve employee engagement.
Bad Communication	<ul style="list-style-type: none"> • Provide customer service training to staff to strengthen their skills. • Keep track of customers' feedback.

Table 4
Lenders' Improvements Suggested

Complaint	Method
Misinformation	<ul style="list-style-type: none"> • Keep track of what is being published by the media. • Provide customers accurate information.
Lack of knowledge	<ul style="list-style-type: none"> • Provide consistent training about changes in the industry and processes. • Hire experienced and qualified personnel.
Delays	<ul style="list-style-type: none"> • Develop a checklist to track all paperwork. • Provide training in time management. • Follow-up after a problem is solved.
Bad Communication	<ul style="list-style-type: none"> • Evaluate the current communication channel efficiency. • Provide customers an orientation of the process steps and keep them informed of any change or delay. • Provide employee recognition to promote engagement. • Provide employees a channel to communicate how they feel regarding work conditions, compensations, and opportunities.
Poor Service	<ul style="list-style-type: none"> • Enhance customer service strategy. • Develop a space for customers to provide their feedback.

Control Phase

Through this research, it was determined that these companies need to apply a continuous improvement philosophy. Continuous improvement rather than approach is a strategy that consists of a series of actions and the implementation of resources to achieve complete objectives in all processes in which it is applied. Nowadays, there are multiple models of continuous improvement in business, most of them are associated with the increase of quality of products or services, but in general, their steps or stages can be applied to any function or business process to be improved.

To maintain the quality of service Lennar Homes, Ryan Homes, Eagle Home Mortgage and Homebridge Financial need to monitor their customers' needs and expectations. These results can be achieved by creating a channel of communication with their customers and be open to hearing their complaints and suggestions. In other words, they need to develop a practice for measuring service quality. Some of the methods that can be executed to measure the quality of the service are:

- **Satisfaction Surveys**
- **Customer Satisfaction Metrics**
 - **Net Promoter Score (NPS):** measures customer satisfaction through a simple question like "Would you recommend us with your family and friends?". The answer is presented on a scale from 1 to 10 with which customers can be classified into three types of clients, "promoters," "passives," and "detractors." In that way, businesses can identify how their customers feel about the business.
 - **Customer Satisfaction Score (CSAT):** is one of the most common methods and its function consists of the application of surveys that aim to measure satisfaction with specific experiences. Normally the answers consist of a 5-point scale from "Very Satisfied" to "Very Unsatisfied." It gives a score that reveals the general status regarding a particular service, interaction, procedure or product. Since it provides precise information, companies can meet or improve certain aspects of their business.
 - **Customer Effort Score (CES):** it combines NPS and CSAT. It is a metric that quantifies the effort made by a customer to have their requests or questions answered. The CES focuses on the process that people must go through to get help and can include questions that indicate the level of difficulty involved in solving their issues. Customers need to select one of seven answers from a scale beginning with "Strongly Disagree" through "Neutral" and ending with "Strongly Agree" [4]

Conclusions

The application of DMAIC methodology permitted the identification of flaws in the services provided by the companies mentioned before during the home buying process. Besides, it allowed the development of methods to eliminate the root cause of those issues. With this integration, it was also possible to fulfill the objectives of the project that were to provide possible solutions to improve the different aspects of the service were customer's expectations were not been met. Companies can achieve better results by the continuous improvement and application of the control phase and by taking the appropriate corrective and preventive actions.

Through this research work, it was determined that there is an existent need for housing developers in the U.S. to improve the quality of their products and services. As well, it is necessary that the agencies responsible for the authorization, examination, and delivery of housing developments to comply with their tasks of following up with the construction and the final inspections of those properties for quality assurance. After the application of the DMAIC methodology, a series of different methods were identified and suggested that the companies Lennar, Ryan Homes, Eagle Home Mortgage and Homebridge Financial can employ to improve their relationship with their customers.

Future Work

For further research, it would be recommended to incorporate public involvement in the study. Thus, a realistic evaluation of the issues presented in the current research, the participation of customers that are currently in the process of acquiring a new home would be beneficial and determinant. Through that interaction, it can be obtained additional information to reinforce the findings. Also, it will be convenient to carry out experimental studies on the implementation of the methods for customer satisfaction improvement to determine if the expected outcomes are obtained.

Acknowledgements

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References

- [1] E. Renter, "Picture Improves for Homeowners", *NerdWallet*, 2018. [Online]. Available: <https://www.nerdwallet.com/blog/mortgages/2018-homeownership-pulse/> [April 2019]
- [2] CA Property Management Los Angeles, "Homeowners vs Renters Statistics & Demographics by State", *iProperty Management*, 2019. [Online]. Available: <https://ipropertymanagement.com/renters-vs-homeowners-statistics/> [April 2019].
- [3] C. Flipp, "Qualitative vs. Quantitative," 2014. [Video file]. Available: <https://www.youtube.com/watch?v=2X-QSU6-hPU>. [February 2019].
- [4] B. E. Hayes, *Measuring Customer Satisfaction and Loyalty: Survey Design, Use, and Statistical Analysis Methods*, 3th ed., Milwaukee, WI: ASQ Quality Press, 2008.