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## Survey Service Development Using Lean Startup in BANI Era

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**Abstract**

The BANI era, characterized by brittleness, anxiety, non-linearity, and incomprehensibility, has negatively impacted the Indonesian property sector, with housing seekers postponing buying homes due to high prices and opting for boarding houses instead, leading to a growth in the boarding house business. Boarding houses are a popular option for college students in Indonesia, but students often face difficulties in finding a suitable one and may encounter problems with services not meeting their expectations, according to a survey of 85 respondents. Teman Survei tries to overcome the problem with providing survey service about boarding house. Entrepreneurs in the boarding house sector need to focus on agility to maintain engagement across generations and global cultural and demographic boundaries. The Lean Startup provides a scientific approach to innovating and managing startups, which helps navigate businesses towards growth by considering customer feedback faster. Lean Startup has helped several high technology companies to grow since 2008 and is still relevant in this era, with five main principles including validated learning, innovation accounting, and build-measure-learn. As an application of them, Teman Survei created a website MVP for collecting data on customers' boarding house preferences, which directs users to their WhatsApp business for further consultation, payment, and recommendations. The purpose of this paper is to provide a solution to a problem through a business model and Minimum Viable Product (MVP) using the lean startup method, and to evaluate the results of MVP testing after the first and second iterations. The result almost of early adopters and customers are satisfied with the MVP and add several recommendations for Teman Survei's MVP next development.

*Keywords:* Lean Startup; Survey Service; MVP

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**1. Introduction***1.1. BANI Era, Uncertainty, and Property Industry Trend in Indonesia*

The world has reached unprecedented levels of uncertainty starting from the beginning of the pandemic COVID-19. The circumstances in this era are very challenging for most people when making decisions of any importance due to unpredictable situations. Previously, researchers understood the situation as VUCA. Currently, because of the rapid evolution of the world, triggered by inequality, climate change, pandemic, and global instability, the terminology of VUCA is not relevant and changed to BANI as a new concept to represent the world today. BANI is an abbreviation of Brittle, Anxious, Non-linear, and Incomprehensible (Grabmeier, 2020). This situation influences human behavior and activity due to adaptation to the situation.

This also could be a problem for business owners, innovators, and entrepreneurs who depend on human behavior to make the right decision and generate a product. Even there are many interconnected parts and variables that cause incompleteness of information. Biased information could affect human decision making, either personally or as a business owner or leader. However, bad quality of decision making can bring the company to negative impacts such as decline of the profit, failure in operational, high value of the cost, etc. (Taipalus et al., 2020). One of Sector in Indonesia which was affected in the BANI era is the property sector. According to Rumah.com Indonesia Property Consumer Sentiment Study H1 2023, There was a decline in housing seeker sentiment. This phenomenon is caused by inflation and macroeconomic instability in Indonesia. It is hard for the Indonesian Government, especially to set house prices more affordable. Half of respondents evaluate that the price of properties in Indonesia is too high. Current situation makes 53% of respondents postpone their planning to buy a house. As an alternative, there is an apartment and boarding house (indekos) to live in (Rumah.com, 2023).

However, in fact, Indonesian people are not interested in living in an apartment. 64% people choose site house for living because with the apartment price, people could get a bigger site house. Indonesian people also felt uncomfortable with the legality of apartments, and they are not interested in living in multi-floor buildings. That makes Indonesian people decide to live in a boarding house rather than an apartment until they could buy a site house (Rumah.com, 2023). Reflecting to this opportunity, boarding houses business also grew rapidly and still promises for property owner. Panangian Simanugkalit, founder Panangian Property Community, Indonesian property expert, and former special staff member of the Minister of State for Housing of the Republic of Indonesia said that investment or boarding house business can generate higher capital gains when compared to other types of property investment.

According to Indonesia Property Watch (IPW) in the Tempo Bisnis Article, September 5, 2018, the survey showed that 47.4 percent of Millennials chose to live in boarding houses, 47.1 percent chose to live in apartments and 5.5 percent chose to live in their building or residence of family or siblings Tempo.com, 2020). Cove, co-living and renters startup based in Singapore, recorded performance showing an upward trend in the second quarter of 2021 in contrast to the first quarter. This improvement was initiated by a 170% surge in room growth, followed by a 68% increase in the volume of bookings during the same quarter. In Indonesia, there is Mamikos, a boarding house search service startup. In the first quarter of 2022, Mamikos experienced a surge of over 125% in the number of requests for room rentals. Their platform received more than 5 million chats and had 7 million monthly boarders seeking accommodations (Bisnis.com, 2021).

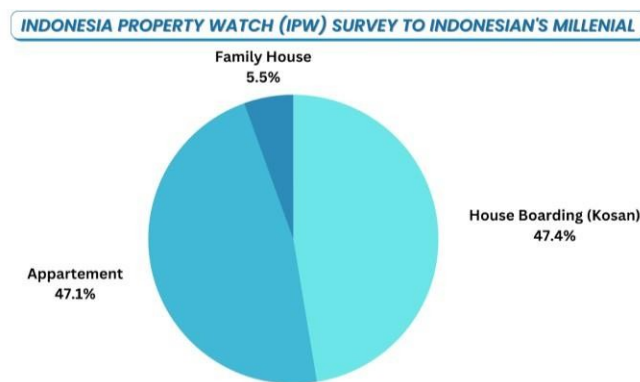


Fig.1. Indonesia Property Watch (IPW) Survey Result Source: (Tempo Bisnis, 2018)

### *1.2. Opportunity of Boarding House Industry*

According to Ministry of Education, Culture, Research and Technology (Kemendikbud), Indonesia has more than 4,600 private and public universities spread throughout Indonesia. In 2022, total students in Indonesia was 9.32 million college students. This amount increased 4.02% from the previous year which the amount of college students was 8.96 million. Although already scattered throughout Indonesia, all students who enter a university could come from various areas that are even far from the campus location. Students who come from remote areas like it or not have to live near their campus to study.

Boarding houses are usually hunted by overseas students for temporary housing during college. However, they often found various problems experienced by the residents of the boarding house. We found this problem based- on the results of survey data on students from various regions with a total of 85 respondents, of which 77 respondents were boarding house tenants and 8 others lived at home.

The first problem is related to the difficulty of finding a boarding house. This difficulty was initiated by several factors. These factors are an effort to find information with a survey method which is considered troublesome and the availability of information. When conducting a direct survey to look for boarding houses, 51.9% of respondents felt that a lot of energy was wasted because they had to survey various boarding houses, 50.6% of respondents found it difficult because they did not have time to survey boarding houses, and 26% of respondents stated that direct surveys cost a lot of transportation. The second problem is related to residential services that do not match the expectations of the boarding house residents. There are several services that are highlighted by the residents, such as completeness of facilities, curfew regulations, residential cleanliness, and affordability of access to boarding houses.

### *1.3. Boarding House Survey Service*

To overcome the problem and boarding house issue, Teman Survei is a survey service company that provides reliable, factual, and latest information about the object and location. Currently, Teman Survei focuses on students especially to provide them information about house boarding, apartment, and building for their event. Teman survei offers value credibility, newness, and factual data and information about house boarding to satisfy customers.

Teman Survei provides a solution for those who want to rent property but are constrained by distance and time to conduct in-person surveys. Teman Survei provides a website that can be surveyed including boarding houses. Teman Survei provide several features, namely property information, testimonial video, and video room tour as core service and unique selling point.

### *1.4. Teman Survey Minimum Viable Product (MVP)*

Teman Survei created MVP in the shape of a website that is eligible for computers and smartphones. The purpose of the website is to collect data from customers about their profile and boarding house preference which would be surveyed by Teman Survei's team. After fill the registration on the website, user would direct to Teman Survei's whatsapp business to discuss further about the specific location and preference of boarding house. Also consultation, make a payment, and give the recommendation about appropriate boarding houses.

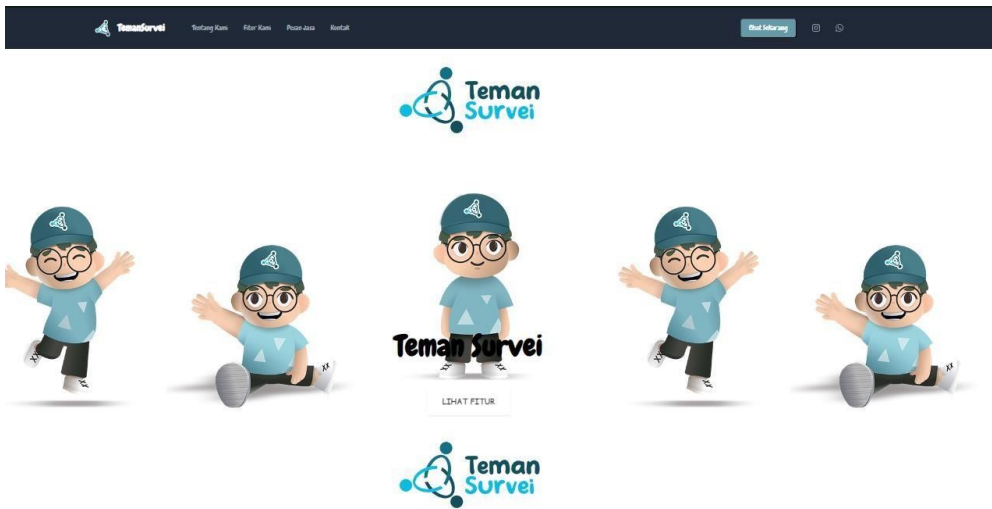


Fig. 2. Teman Survei Website Page 1 (Source: Author)

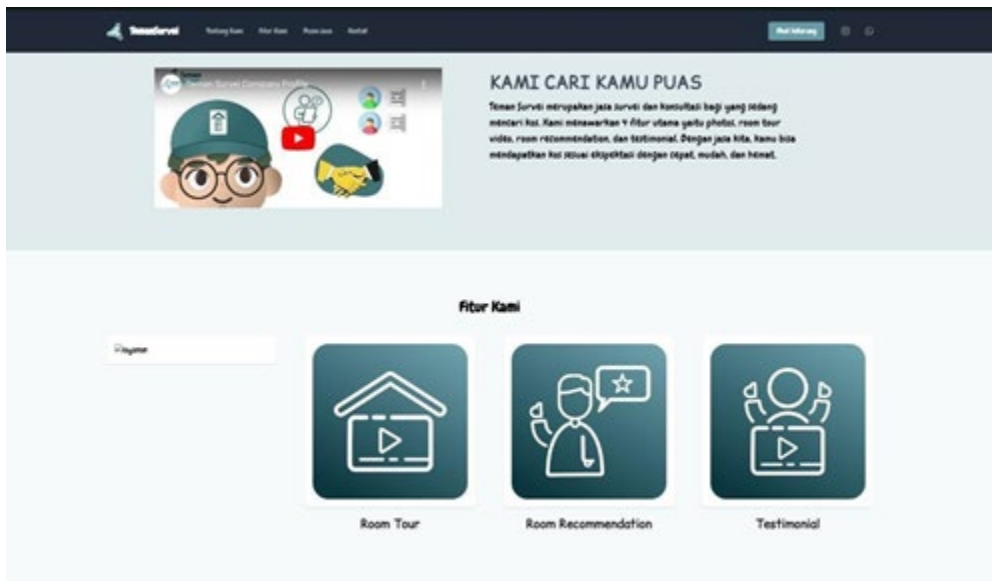


Fig. 3. Teman Survei Website page 2 (Source: Author)

The image shows a survey form titled "Teman Survei" overlaid on a website background. The form contains the following fields and sections:

- Nama Lengkap**: A text input field for the respondent's full name.
- Email**: A text input field for the respondent's email address.
- Alamat Lengkap**: A text input field for the respondent's full address.
- Whatsapp**: A text input field for the respondent's WhatsApp number.
- Asal Kuahyut**: A text input field for the respondent's origin.
- Nama dan kontak referensi (jika sudah ada)**: A text input field for the respondent's name and contact information of a reference person.
- Daerah (jika yang ditugaskan jika belum ada referensi)**: A text input field for the respondent's region.
- Budget (jika per bulan)**: A text input field for the respondent's monthly budget.
- Min Deman**: A section with radio button options:  Laki-laki,  Perempuan, and  Lainnya.
- Fasilitas yang ditugaskan**: A text input field for the respondent's assigned facilities.
- Aspek tambahan**: A text input field for any additional aspects.
- Submit**: A blue button at the bottom of the form.

The background website features a navigation bar with "TemanSurvei" and "Berita" links, a header with a cartoon character, and a testimonial section with a play button icon and the word "Testimonial".

Fig. 4. Teman Survei Website Page 3 (Source: Author)

### 1.5. Lean Startup

Although the circumstances of macroeconomy still support the boarding house sector, startup or business owners or entrepreneurs must pay more attention and focus on agility to maintain engagement of the environment across generational, global cultural, and demographic boundaries. Entrepreneurs must set and understand the effective and efficient way to keep growing when the change comes. Agility helps entrepreneurs to prevent miscellaneous mistakes and bring the entrepreneur to always find the right way (Horney et al., 2010). There is a key takeaway to keep growing a business in the BANI era. One of them is to break out the opportunities through innovation. Entrepreneurs have to accelerate the pace of innovation with keeping being agile to raise the growth as oxygen of the business (“Exceptional Leadership by Design: How Design in Great Organizations Produces Great Leadership,” 2018).

The Lean Startup provides a scientific approach to innovating and managing startups to desire customer feedback faster with several principles. Lean Startup combines several concepts on design thinking, customer development, and agility to support entrepreneurs innovate the business model in the non-linear era. Lean startup could navigate business to reach the growth with considered customer side. According to Steve Blank, Lean startup adopted three key principles. The first is starting with a set considered assumption. So, rather than build a perfect business model in the brittle era, entrepreneurs accept all their hypotheses and summarize

it in a business model canvas. Second is “get out of the building” approach or customer development process. Try to go out, validate the assumptions, and look for feedback from customers, users, and the company's target market. and the last one is agile development (Ries, 2016).

Lean startup has helped several companies since 2008, especially high technology companies to grow in the middle of complexity such as Zappos, Dropbox, General Electric (GE), Votizon, Intuit, Toyota, etc. In this era, where pace of product development is extremely high, lean startups are still relevant and the principles are accepted by product development groups. According to Eric Ries, Founder of the Lean Startup, the framework has five main principles inside the process. Start from entrepreneurs are everywhere, entrepreneurship is management, validated learning, innovation accounting, and build-measure-learn. The principles also help entrepreneurs to keep growing in the BANI era (Ries, 2016).

### *1.6. Minimum Viable Product (MVP)*

MVP is a basic version of a product that has enough features to satisfy early customers or early adopter and gather feedback for future development. The purpose is to test and validate a business idea and product prototype with minimal investment, and improve the product based on customer feedback. In the Lean Startup, MVP is the crucial component to learn from the customer perspective. But, the first principle of MVP is the minimum level that could reach all of business ideas. MVP develops and grows over time with the learning outcomes from customers until product market fit. MVP could be in the shape of a website, product, apps, or anything depending on needs (Ries, 2016).

### *1.7. Purpose and Research Question*

The main purpose of this paper is to offer a solution for the problem in the shape and Minimum Viable Product (MVP) using lean startup method. Furthermore, researchers could decide to pivot or preserve the MVP based on usability testing to the market. To fulfill the research objective, this paper try to answer the following question:

“How is the result of MVP testing after the first and second iteration?”

## **2. Method**

### *2.1. Data Collection*

This paper focused on answering the result of the MVP testing in the first and second iteration after evaluation and refinement MVP from the previous. For sake of MVP validation, researcher tested the early MVP to five people related to Teman Survei user persona. The researcher observes the user in five minutes when using the website. After that, researchers do in-depth interviews with the user to find insight and feedback from them. After the first iteration and getting feedback, the researcher tried to test the website to customers which is in the stage of launching into the market. Then the result of those two iterations would be processed to get recommendations related to the next MVP.

### 2.2. In-depth Interviews

In-depth interview is a method of qualitative research that involves an intensive, open-ended conversation between a researcher and an interviewee. The purpose of the in-depth interview is to gather rich, detailed data about the interviewee's experiences, perspectives, and opinions on a particular topic. The interview is typically conducted in a semi-structured manner, with the researcher asking open-ended questions and following up with probes and clarifications to gain a deeper understanding of the interviewee's responses (“Qualitative Research Practice: A Guide for Social Science Students and Researchers,” 2003).

This interview is delivered to new college students who live outside Bandung and are interested in living in a boarding house when they come to Bandung. This category was chosen because the research adjusted Teman Survei’s target market. That makes the feedback and interview result relevant and could be used for the next product development process. The goal of this interview is to understand the customer preferences of User Interface (UI), User Experience (UX), and the features.

### 2.3. User Persona

A user persona is a fictional representation of a typical user, created to better understand their needs, behaviors, and motivations. The persona is based on research and analysis of real-world users and includes information such as their demographic information, goals, challenges, and preferences (Nielsen, 2013). Teman Survei also develop persona to define focused target market when developing MVP. User persona ease business to create the value due to the user defined well. Below the user persona of Teman Survei’s target market:

Table 1 User Persona (Source: Author)

		User Persona
<b>Demographic</b>	Age	17-25
	Gender	Man and Woman
	Status	New college student
	Monthly expenditure	Rp2.500.000
<b>Geographic</b>	Region	Outside Bandung
<b>Psychographic</b>	Value	Need a comfortable boarding house as my preference
	Benefit	Life in a place that appropriate with personal preference with experience in another region.
<b>Behavior</b>	Behavior	Search the information about boarding house in the browser and after found, would be ensure it through direct survey to the location
	Pain points	High effort, cost of mobilization, and too much time spent when surveyed boarding houses, even if the amount of boarding houses is more than one.

### 3. Result

#### 3.1. First Iteration

The first iteration was held in March, 2023 for the early adopters. The researcher asked several questions to validate assumptions which are the user interface, user experience, and user understanding in using the feature. There are nine people who have use Teman Survei MVP and interviewed in the first iteration.

Table 2 First Iteration of Interview (Source: Author)

Code for Informant	User Interface	User Experience	Features
1.1	The website design is good. But the selection of fonts and sizes must match. For the photo, maybe it can be enlarged because I can't get all parts of the photo. Overall, it is good because it is my first time feeling comfortable when seeing the new website.	For convenience, it's easy to use, especially the button. There is no sense of difficulty in using it.	Overall, these four features can be considered to assist in choosing a boarding house. All the features were very good, clear, easy to understand, and helpful.
1.2	The website is quite interesting. The type of font used is suitable for the eyes and it would be better if the font could be enlarged. For the website's layout is good, but for the white space that is still empty, it can be filled with a picture of a boarding house or a silhouette of a boarding room.	When use Teman Survei's website, it very easy and not complicated, especially from the appearance and placement of each button on the website.	Photos features are quite clear and complete. I hope there is a photo of the parking lot to check parking availability. For the Room tours, the video room tours are clear and complete from outside until entering the boarding house to the room and the facilities are well explained. If the room tour has sound in the video, it feels like a real-life room tour. For the video testimonial, it is clear and complete. Teman Survei could add the pluses and minuses



			side of the building. Overall, the features are very helpful and make me would use the services of Teman Survei to find a boarding house.
1.3	In terms of color, the website is good and looks simple. The website fonts have also passed good standards compared to other websites.	The buttons on the Teman Survei website and all of the experience are very impressive. But Teman Survei, have to add a review page from previous Teman Survei users and a Q&A page to make website easier to understand for potential users.	The photos feature is good because service buyers can request the boarding area they want photographed. Teman Survei have to widen the photos so the boarding house can be seen more clearly. The video should introduce the environment outside the boarding house and the boarding room environment, such as the nearest market and access roads to the boarding house. Testimonials feature is very helpful, especially buyers can request questions to ask local residents. Room recommendation also is very helpful for because there is several problems that can be solved with this feature such as take a long time to choose the room. The order form is not made confusing, right-on target, and simple.
1.4	The color design of the website should use a darker blue color so that the eyes are more focused and give a strong impression. For the title	Teman Survei is easy to use because when the menu is clicked it goes straight to the main	The feature photo is very good, but it would be better if it could be seen from top to bottom so that the transparency of

<p>font of the website's features, it would be better if the size is enlarged.</p>	<p>destination and is not complicated. Website's feature should have maps for the location of the boarding house and facilities around the boarding house such as laundry, places to eat, and others.</p>	<p>Teman Survei was more reliable. In addition, a detailed description of the cost, such as the time of payment of the cost of the boarding house, is not yet available. The video quality is good in the room tour feature, but it would be better if Teman Survei added a voice over about the description of the facilities in the room. In addition, Teman Survei could test the facilities in the boarding house, such as hot water in the bathroom as contents. In addition, for video capture, it should be done slowly per facility so that it is clearly visible. Overall, the features help to find a boarding house, especially if consumers could not come directly to the boarding house.</p>	
<p>1.5</p>	<p>Teman Survei website design already has good quality. The color of the website has a good color combination, the font that is pleasing to the eye, to the layout that is considered good.</p>	<p>Teman Survei website have to insert back button to the photo feature. Also, it would be better for the website if it could provide a description of the facilities from the available boarding house. Overall, the website is satisfying.</p>	<p>The quality of the video and detailed information in the feature are good when describing the boarding house. Information about house quality on the testimonials feature is helpful. Because the feature helps me to know the advantages and disadvantages of</p>

boarding houses in more detail. Room recommendation also satisfying because it helps show all parts of the boarding room. Overall, these four features really help me to get the ideal boarding house because the features are very complete in explaining the advantages and disadvantages of boarding houses. The order system is also easy to use.

### 3.2. Second Iteration

After testing the MVP in the first iteration and collecting the result, researcher test the MVP to the customer through product launching. The second iteration was held in July, 2022 for the interviewee. The goal is to understand the customer's perspective about User Interface (UI), User Experience (UX), and features of the website. There are 5 people who have interviewed about the Teman Survei's MVP.

Table 3 Second Iteration of Interview (Source: Author)

Code for Informant	User Interface	User Experience	Features
2.1	The interface of the website is interesting, but I could not understand clearly about the kind of service that would be offered.	The website it easy to use. Maybe the website would be better when insert list of building within filter based on the category. The website also could be completed with the user flow to set their expectation about the website. The website is very comfortable because customers would be directing to customer service.	The website has complete and interesting features. Would be better when Teman Survei collab with other company that provide related things, such as media about house building.
2.2	The website design it's interesting and make me comfortable.	The experience of the website is very easy to use and comfortable. The step to use the	The features such as photo, video, testimonial video, room recommendation, are very

	The font type and size also very match. The color is also eye catching for me.	platform and get the service also takes a bit of time. The website would be better if there is several references or recommendation about the building for the user. So, customers do not fill the preferences manually.	interesting and helpful for the customer that would not directly come to the boarding house.
2.3	The website interface makes me confused in the early of exploration. But after try more, I have understood and fluent to use it.	I think the website is still uncomfortable because in the early exploration I was confused. But, the flow is very easy to understand. Would be better if the surveyed boarding house also inserted in the website.	The features are more complete than other websites about boarding houses. Even the website offers room tour video to ensure customer.
2.4	The interface of the website is quite good. Maybe need to add more detailed information about the boarding house. Overall, from the color and font is very good.	The website is very helpful, quite easy to access and use. The flow also simple and I not felt difficulty when using the website.	The feature on the website is very helpful because more updated and would be the bridge between prospective occupants and building owner.
2.5	The website has a good interface, but the photo was error on me and not appear to my desktop, so I could not see it. About the color and font is very good and the layout interesting.	When I accessed the website, it had error and difficult to access. The menu picture does not appear to my desktop. But the flow of the website is easy to understand.	In general, the features are quite good and very helpful for the college students because they don't know any more about the boarding house. Maybe the survey video would be edited, so the video would interesting. The website also could use back sound, animation, etc to enhance the user experience.

#### 4. Discussion and Conclusion

This paper analyzes the result of MVP testing in the first and second iteration, which are the first to early adaptors and the second one is customer after product launched to market. The results are divided into two parts which are the first iteration and second iteration. Then, the part consists of three sections which are User Interfaces, User Experience, and features. The result of the second iteration would be processed and considered to build the recommendation for the next development of MVP.

#### *4.1. First Iteration*

##### *4.1.1. User Interface*

The validation of assumption that Teman Survei has a good website User Interface (UI) was done by interviewing early adopters. Interview question was developed simply and exploratively to get a good user perspective about the MVP. Almost all of the interviewees felt the website color combination are appropriate. The layout and margin of the page are comfortable to look at. The font is also appropriate with the website.

There is feedback about photo and font size. There are early adopters that argue the size photo and font have to enlarge to ease customers seeing the content.

##### *4.1.2. User Experience*

Through interviews with early adopters, Teman Survei validated the next assumption which is that the User Experience (UX) of Teman Survei's Website is comfortable and easy to use. The deliverable question was arranged well to ease understanding of the user. Almost all of the interviewees said that the website is easy to use. There are early adopters that argue the back button in the photo feature must be built. In other side, there are feedback to add several additional feature, such as map for the boarding house and other service around them, QnA page, and boarding house.

##### *4.1.3. Features*

The final assumption is about convenience to understanding the features when using it. Interviewee provided easy questions to be answered after try the website. Almost all interviewees said that all of the features are easy to use, understand, and helpful. There are several feedback such as the environment outside the room has to be input, additional voice over in the video is better, additional information or description about the boarding house, and pros and cons from testimonial video. Overall, the features are satisfied and helpful.

#### *4.2. Second Iteration*

##### *4.2.1. User Interfaces*

The same assumption is still tested for the customer to validate the MVP inside of User Interface (UI). The question is also easily and simply delivered. There are customers who argue that Teman Survei's interface is

less comfortable due to the manual form being too complicated. On the other side, there are customers that need more information such as how to use websites like user guides to ease them. Several customers are still confused when they see the website and make them uncomfortable. Only one customer said that the website is easy to use.

##### *4.2.2. User Experience*

The assumption of this section is to validate that Teman Survei's website flow is easy to use and understand by the customer. Interviewee provided a simple question to answer. Almost all of them said that Teman Survei's website is easy to use and understand. Just fulfill the form and the customer could discuss more. The flow is also easy to understand by customers. There is a customer who gives feedback that the website must contain flowchart or guide to customer understands first and sets the expectation earlier than trial without guide.

#### 4.2.3. Features

The final assumption is about validating usability and understanding the feature without guide and help from Teman Survei/ Validation by providing easy questions for the interviewees. The result is that customers understand the feature easily. Customers also said that the feature is more complete than other boarding house websites. In other side, several customers give an argument that they need additional feature such as filter, maps, list of building or boarding house complete with the detail price, and collaboration with media that relate with boarding house.

#### 4.3. Conclusion

This paper focused on answering questions about the result of MVP testing in the first and second iterations. In the first iteration (testing to the early adopters, almost all of the interviewees felt the website, either the user interface, user experience, or features, are going well and satisfying. Several feedback about additional features and interfaceUses will also be reviewed and processed by Teman Survei for the better development in the next MVP. Also for the second iteration (testing to the customer after product launch), almost all of the interviews felt the website, in every aspect, is satisfying, easily understood features, but needed a guide and flowchart to understand the website flow. There are several feedback about additional features such as maps, filters, detailed price and attachment of the boarding house, etc. For the next iteration, Teman Survei have to understand the customer preference through feedback and decide the product roadmap for the next development.

### 5. Recommendation

Researchers give recommendations to process and develop the next MVP based on customer preferences in the feedback list after the testing. Researchers get the insight from the feedback and classify it into 3 sections, there are user interfaces, user experience, and features. The MVP development plan for the next iteration should be considered this.

Table 4 List of Recommendation from Customer Feedback (Source: Author)

User Interface	User Experience	Features
Font size	Flow chart	Maps to detect the location of the boarding house
Picture size	Guide for the website use	Filter to identify the appropriate boarding house
	Fix the bug and error	Detailed information of boarding house (price and facilities) in the website
		Collaborate with media that related boarding house
		List of boarding house as references

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