The Development of 'LokalMuna' A Web Based Platform for Micro Local Food Businesses in San Pablo City, Laguna

James Lauren C. Borja, Maricris V. Tuazon, Mark Andrew P. Poonin, Ronnel A. dela Cruz, and Joanna E. de Torres

Abstract—**The project entitled 'LokalMuna' is a web-based online platform showcasing micro local food businesses residing in San Pablo City, Laguna. Established with the cooperation of Negosyo Center SPC, the study aims to help micro local food businesses in marketing their products online that are heavily affected by the pandemic. The system was developed using the Incremental Model which was divided into three main modules. These modules are based on the types of users of the system; the micro-local food business, customer, administrator and the new micro local food business. The system was tested using the Functionality and Browser Compatibility Testing together with Software Usability Management Inventory that consist of preliminary testing and final testing with the twenty-five (25) Non-IT respondents. In addition the system was also evaluated using an adaptation of ISO 25010 by ten (10) IT Experts and forty (40) Non-IT respondents. According to the results in the Non IT evaluation, the system got 4.29, meanwhile in IT Experts evaluation the system scored 4.61 signifying that the respondents agree that the system is functional, efficient, compatible, usable, reliable, secured and maintainable. In conclusion, the proponents were able to develop a web-based platform for the Negosyo Center SPC that is able to promote and highlight the micro local food businesses in San Pablo City, Laguna.**

Index Terms—**DTI, MSMEs and Negosyo Center.**

I. INTRODUCTION

The Negosyo Center San Pablo City was established on July 12, 2017 to bring forth progress among entrepreneurs and currently as of 2020, they catered over 1200 MSMEs in the city as they facilitate business registration in their office, business advisory from their Facebook page and business advocacy and promotion to the local businesses. In terms of advocacy and promotion of MSME's, the present approach of Negosyo Center SPC is to conduct physical events in malls, supermarkets, and other open spaces to promote local enterprises. However, as the pandemic extends, physical contact events for both Negosyo Center SPC and local businesses may become increasingly riskier and costly. Furthermore, the Negosyo Center SPC spends a significant amount of time planning events before implementing it, as they must also need to wait for the DTI Regional Office approval before finally executing events resulting to slow project implementation.

The Negosyo Center SPC has currently no existing web-based platform that serves as an e-commerce website for these enterprises, particularly to the micro local food businesses that is based in San Pablo City, Laguna who have been heavily affected by the ongoing pandemic.

As the Negosyo Center aims to help the MSMEs in their recovery in any way that they could. LokalMuna can become a platform that will assist the localized food businesses in San Pablo City by promoting and advertising their products and services. Moreover, having an online presence provides a competitive edge from other businesses who only run offline. In a recent study [1]. Setting The Future of Digital and Social Media Marketing Research, the recent statistics for January 2020, 4.54 billion people are active internet users, encompassing 59% of the global population [2]. Digital and social media marketing allows companies to achieve their marketing objectives at relatively low cost [3]. People are spending a growing amount of time online looking for information, discussing products and services with other customers, and interacting with businesses. Organizations can significantly benefit from making digital and social media marketing an integral element of their overall business strategy [4].

It is apparent that even the local enterprise shouldn't be left behind or neglect the radical changes in the people's way of living but rather embrace and adapt these changes in order to hopefully gain advantage and opportunities. Generally, the objective of the study is to develop a web-based system for the Negosyo Center SPC that would be the channel to promote and highlight the micro local food businesses that the City of San Pablo can offer. Specifically, the study aims to 1) design and develop a web based information system that has a login/registration form, admins dashboard that can edit user roles, make announcements, view customer reviews, and manage their admin account, micro-local food business dashboard that can view, add, edit, and delete product items and view customer review, appointment features for the new and aspiring micro local food business owners who want to register their local food businesses and be featured in the website, options to locate the physical stores using google maps, and directory of categorized local food businesses. 2) test the developed system to its functionality and its compatibility to adapt to other browsers. 3) evaluate the developed system using an evaluation tool that adapts the ISO 25010 software quality using the product quality composition.

II. RELATED LITERATURE

A. Micro Local Businesses

A micro enterprise, also known as a micro business, is a small business that employs and functions with a small number of employees. A micro business employs fewer than ten employees and is typically launched with a small sum of

money borrowed from a bank or other institution. The majority of micro enterprises focus on supplying products or services to their immediate surroundings [5].

B. E-Commerce

The process of selling goods and services through the internet is known as e-commerce. Customers use electronic payments to purchase things from the website or online marketplace. The merchant sends the goods or offers the service after receiving the payment.

Electronic commerce has been since the early 1990s, when Amazon only sold books, but it is now a multibillion-dollar industry that has grown even more during the pandemic. E-commerce expenditure reached $347.26 billion in the first half of 2020, up 30% year over year. In comparison, e-commerce sales climbed by only 12.7 percent in the first half of 2019. It's not surprising. With few other options, consumers got used to buying everything from food to furniture from online stores. "We're certainly seeing several studies that show folks are going to keep their new habits," Tory Brunker, director of product marketing at Adobe, told Business News Daily. "I really think this is our new normal." [6] [7].

In addition, based to the research from consulting the firm McKinsey & Company, several online shopping categories, such as over-the-counter medicine, groceries, household supplies, and personal-care products, are expected to expand by more than 35% [8].

III. METHODOLOGY AND PROJECT DESIGN

A. Methodology

This study is a developmental research because it involves the systematic study of designing, developing, and evaluating the 'LokalMuna' Web Based Information System. In this design, the process of development is analyzed and described, and the final system is evaluated. The IPO model shown in Fig 1. served as the conceptual model of the study. It served as a guide for the proponents to simply identify the requirements needed for the development of the project and to ensure that the proponents are equipped with the necessary requirements to be able to achieve their primary goal which is to create a functional and responsive system. The development of 'LokalMuna' has four elements which are the input, process, output, and evaluation. The input stage contains the knowledge requirements such as programming concepts, database management, web development and the information of the registered local micro small medium enterprises of Negosyo Center San Pablo City. It also includes the identification of the roles of the users such as Negosyo Center SPC as the administrator, MSMEs of San Pablo City as the micro local food business, new business owner in the San Pablo City as the new micro local food businesses and regular people who wants to search for local products as the customer. On the software requirements it exhibits the software technologies that were used in the development of the system, such as HTML, CSS, JavaScript, MySQL/XAMPP, PHP, Laravel 5.8, Bootstrap, Composer and Git Bash. Finally, in the hardware requirements which compose of tools that was used to host the developed system, such as Windows 7 or higher operating system, minimum of

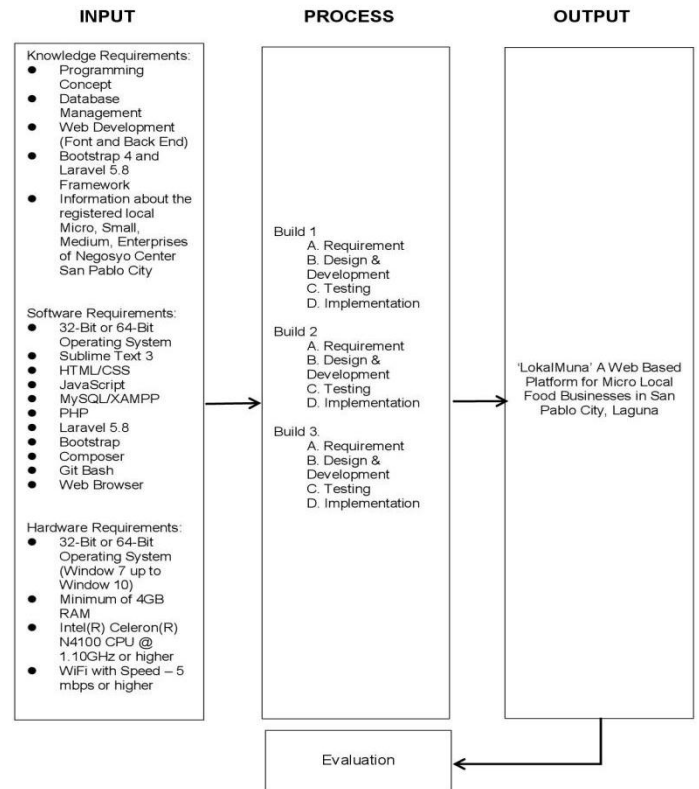4GB RAM, minimum of Intel® Celeron® N4100 CUP @ 1.1GHz or higher and a working WiFi.

Fig. 1. Conceptual Model.

The process component comprises the phases undertaken, and methods performed in the development of LokalMuna. The project was developed using the Incremental Model. In incremental model, the whole requirement is divided into various builds. Multiple development cycles takes place here, making the life cycle a "multi-waterfall" cycle. Cycles are divided up to smaller, more easily manageable modules. In this model, each module in this approach goes through the processes of requirements, design, implementation, and testing. A working version of software is produced during the first module, so the developers will have a working software early on during the software life cycle. Each subsequent release of the module adds function to the previous release. The process continues till the complete system is achieved.

In this first phase of software development, the proponents discussed and figure out the requirements needed in order to build the system.The proponents has planned the core modules, categorize it into sub-module, planned the list of activities, gathered the development tools both hardware and software requirement, discussed the initial plans to the client and intended output of the project to the Negosyo Center, San Pablo City. And Also, reached out to micro local food businesses owners for collaboration and participation for the development of LokalMuna. The proponents also created a Use Case Diagram for identification of the roles of each user and to also discern of the users capabilities and limits.

In the second phase of the software development, the proponents designed the software structure of the system and started the coding of the LokalMuna.

Different testing was conducted in this study—namely, functionality testing, browser testing and Software Usability

Measurement Inventory (SUMI). In the testing phase, the proponents conducted functionality testing to determine if all the functionalities offered by the system are working properly. The proponents also performed a browser testing to assess if the LokalMuna is compatible with different browsers. Lastly, the proponents also conducted a Software Usability Measurement Inventory (SUMI) testing to 25 Non-IT respondents that allows the proponents to measure if the developed system satisfies the needs of the users and meets the standard requirements for a high quality and extremely usable system. After the process component was performed, the developed LokalMuna is the expected output of the system.

The proponents administered an evaluation to identify if the system was conforming to the international standard of software product quality using the ISO/IEC 25010 with forty (40) Non-IT respondents and ten (10) IT-Experts. The Non-IT respondents were selected representative from the Regional Office of DTI Laguna, the registered MSMEs from the Negosyo Center San Pablo City, online sellers who had been online selling from the past 3-4months, and regular customers that surfs the web to find products and services. Meanwhile, the selected IT respondents must present a Curriculum Vitae certifying that they have a three years experienced in the field of IT industry; this means that all of the respondents already equipped with the necessary knowledge to use the system and evaluate the product quality of the system in terms of functional suitability, performance efficiency, compatibility, usability, reliability, security, and maintainability. Moreover, the developed system was illustrated and discussed with the respondents. They were given ample time to utilize the system. Data collection was performed using a survey questionnaire. The instrument used in this research is adapted from ISO/IEC 25010. The questionnaire was answered by the respondents using Google Form. The questions were designed to be answered using the Numerical Scale of the ISO/IEC 25010. Respondents can answer the items using a scale of 1 (Poor) to 5 (Excellent). This study used descriptive statistics such as mean for statistical data treatment. The Numerical Scale of the ISO/IEC 25010, mean range, and verbal interpretation are shown in Table I.

TABLE I: SCALE, MEAN RANGE, AND VERBAL INTERPRETATION

Scale	Mean Range	Verbal Interpretation
1	1.00 – 1.50	Poor
2	1.51 – 2.50	Fair
3	2.51 – 3.50	Good
4	3.51 – 4.50	Very Good
5	4.51 – 5.00	Excellent

B. Project Design

The discussion that follows focuses on the design of what action a certain user can execute when using the system. The Use Case Diagram is shown in Fig. 2.

The Administrator, the Micro Local Food Business, the Customer, and the New Micro Local Food Business are the four actors in the developed system. After logging in, the administrator can assign user responsibilities such as regular customers or micro local food businesses. The admin are also able to, ban, unban, view the online/offline status and receive, review, delete, re-store or delete permanently the appointments from new micro local food

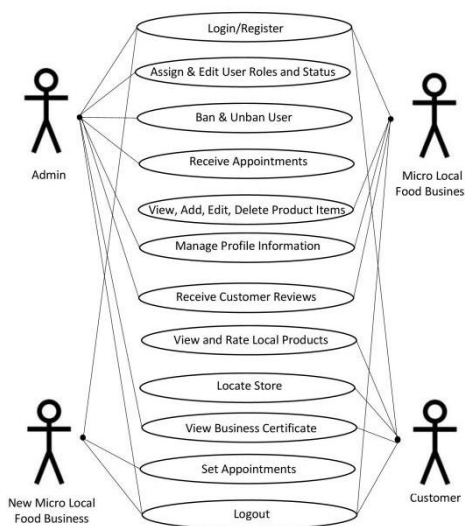businesses who wants their products to be featured in the LokalMuna website.

Fig. 2. Use Case Diagram.

Moreover, the admin is also capable of adding tasks for other admins just like those To-Do-Lists for that may help the other admin get, and stay, on top of important tasks. The admin is also capable of posting new announcements for both customer and micro local food businesses. And Lastly the admin is also able to see the customer feedback so they can monitor the satisfaction of the customers about the local products that are produced by the local makers of San Pablo City, Laguna.

Meanwhile, the Micro Local Food Business once logged in it will redirected to its respective dashboard, the Micro Local Food Business can finally have the overview of the total categories, total brands, total products and total customer reviews. They can also receive announcements from the admin which is the Negosyo Center SPC on their dashboard overview. The micro local food business are also able to add categories if they think that the list of default categories doesn't suit their products. They are also able to create, update, delete their products items, update the open and closed hours of their stores, manage their account profiles and upload business certificates so the customer will have an assurance that hey are accredited by the local government to gain trust. And lastly receive customer reviews.

With regards to the Customer, once logged in the customer are able to see the latest announcements from the Negosyo Center SPC, view product description, view product image, product price, and store information such as the open hours, close hours and business certificates. The customer does also have an option to locate the physical store using the google maps. And lastly, they can also rate the products and give comments and feedback based on their satisfaction.

Finally, to the New Micro Local Food Business who wants to be part of Negosyo Center SPC, can set an appointment to the system. They can input product name & description of their food business, input sample product image and name of the store and input contact details and store location.

IV. RESULTS AND DISCUSSION

A. Developed System

LokalMuna is a web-based online platform showcasing micro local food businesses residing in San Pablo City, Laguna. Established with the cooperation of Negosyo Center SPC (Fig. 3a). It covers everything from the start to the finish of the program. The system is separated into four modules, each of which corresponds to one of the system's users. The admin can monitor the registered locals and customer, receive appointments, post announcements, and review customer feedback's to the micro local businesses using the Admins dashboard (Fig. 3b). In addition, the system also allows the Micro Local Food Business to have a separate dashboard (Fig. 3c), that allows them to create update, delete and view their products, receive customer reviews, and update their stores information such as open and close hours, location, logo etc. Moreover, the system empowers Customers to see the available local stores and local products available within San Pablo City, Laguna (Fig. 3d). The customer are also capable of locating the store using the locate option, view the business certificate of the Micro Local Food Business to guarantee trust and quality and lastly, to rate and leave a comment on the product or store based on their satisfaction. To end, the system also offers New Micro Local Food Businesses residing in San Pablo City, Laguna to be part of Negosyo Center SPC, and featured their locally made products on the LokalMuna by setting appointment to the admin using the appointment form (Fig. 3e).
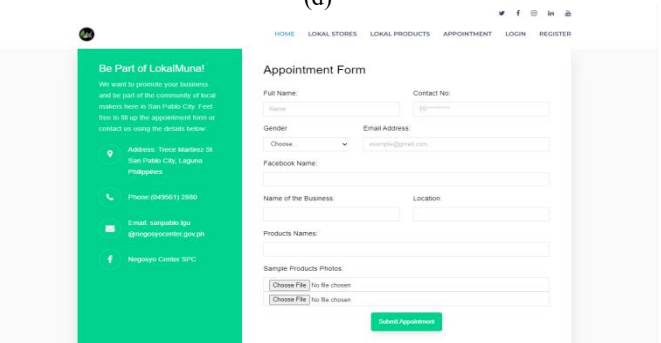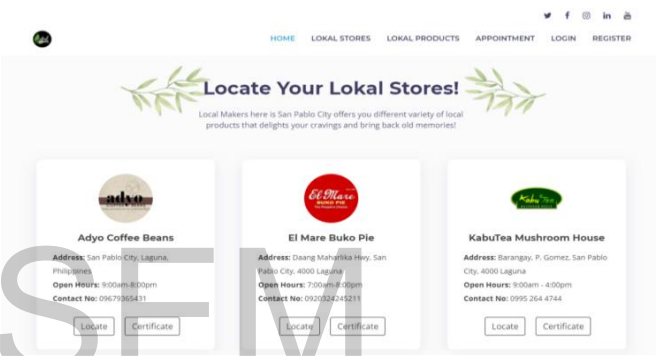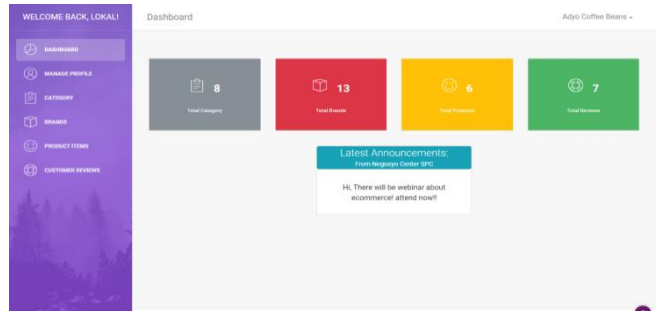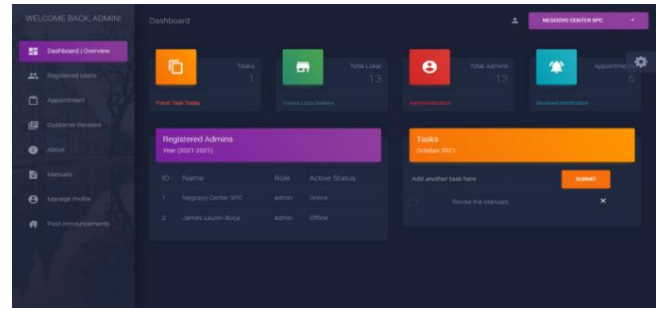

Fig. 3. (a) home page (b) administrator's module (c) micro local food business's module (d) customer's module (e) new micro local food business's module.

B. Testing Result

A various tests were carried out to guarantee that the designed system is of high quality and performs as intended. The initial test was to see if all of the system's functions were working and producing the expected results. In order to conduct this test, test scenarios and test cases were designed and executed. Table II shows a list of test scenarios as well as the number of test cases completed. Each test case was carried out with the goal of ensuring that the system's functions are working as expected and that the system's goals and requirements are being met. The number of passed and failed test cases is indicated in the table's last column, "Remarks."

4

TABLE II: SUMMARY OF FUNCTIONALITY TEST RESULT

Functionality/ Test Scenario	Number of Test Cases	Remarks
1. Login / Logout	4	4 Passed, 0 Failed
2. Registration	4	4 Passed, 0 Failed
3. Manage Profile Feature	5	5 Passed, 0 Failed
4. Post Announcements	2	2 Passed, 0 Failed
5. C.R.U.D Category	4	4 Passed, 0 Failed
6. C.R.U.D Brands	4	4 Passed, 0 Failed
7. C.R.U.D Product Item	5	5 Passed, 0 Failed
8. Rate/Comment Product Item	2	2 Passed, 0 Failed
9. Locate Store	4	4 Passed, 0 Failed
10. Submit/Send Appointment	4	4 Passed, 0 Failed
11. Manage Registered Users	3	3 Passed, 0 Failed

Legend:

Passed - indicates that the actual result of the test meets the expected result.
Failed - indicates that the actual result of the test was different from the expected result.

Logging in and out was the first test scenario performed. Providing valid username and password, inputting invalid username and password, inputting one invalid and one valid, and logging out of the system are all test cases contained in the Login and Log out test scenario. Entering acceptable information, as well as entering invalid information and submitting blank forms, were all tested in the Registration test scenario. The Manage Profile test scenario was also carry out to identify if the users can update their profile information. With regards to the Post Announcement test scenario, it focuses on the administrator's ability to post announcements both from the homepage and to the micro local food business dashboard, it also includes editing, deleting and retrieving the post. On the C.R.U.D Category to the Product Item test scenarios, it centers to the capability of the micro local food business dashboard, whether the system is capable of creating, reading, updating and deleting the submitted data. The Rate/Comment Product Item test scenario's focal point is to determine if the system are able to let the customer rate and give feedback to the product items to the specific store that they choose. Furthermore, the test scenario also determines whether the specific micro local food business that was rated received the exact feedback from the customer. On the Locate Store test scenario, once clicked the 'Locate' option the customer should be redirect to a google map that determines the exact location of the micro local food business was also conducted. The Submit/Send Appointment test scenario was done by providing acceptable information as well as entering invalid information and submitting blank forms. Moreover, the test scenario also involves checking whether the admin receives the appointment set by the new micro local food business owner. Finally, the Manage Registered Users test scenarios was done by sorting the micro local food businesses account on the system, banning the account and testing it to determine if the banned account can access his or her account. It also includes un-banning the account to find out if the un-banned account can finally use his or her account.

All test cases performed showed a positive remark by showing all the expected outputs and post-condition. This means that all test scenarios and their corresponding test cases all passed the testing conducted.

Another test was performed in this study. To determine the system's compatibility to various web-browser, browser testing was conducted. But, before the initial testing, the proponents conducted a survey interview to their clients, customers and beneficiaries such as the micro local food businesses in San Pablo City, Laguna to determine their preferred browser in-terms of managing their business or their office. Google Chrome, Mozilla Firefox, Opera, Apple Safari, and Microsoft Edge were among the options provided on the poll. According to the interview with Negosyo Center SPC, the majority of their personnel use Microsoft Edge as their main browser for administrative work. Meanwhile, when it comes to questioning micro local food businesses, the vast majority of them use Google Chrome as their primary browser. In regards to the interview with customers, the proponents discovered that they use Google Chrome as well, but that some of them use Apple Safari because they are iOS users. Table III. Summarizes the browser testing results that was conducted.

TABLE III: SUMMARY OF BROWSER TEST RESULT

Web Browser	Expected Results	Actual Results	Remarks
Google Chrome	The image size, buttons, icons, and design are all adjusted to fit the screen. Furthermore, the browser performs speedily.	The image size, buttons, icons, and design are all adjusted to fit the screen. In addition, the browser responds efficiently.	Recommended
Microsoft Edge	The image size, buttons, icons, and design are all adjusted to fit the screen. Furthermore, the browser performs speedily.	The image size, buttons, icons, and design are all adjusted to fit the screen. In addition, the browser responds efficiently.	Recommended
Apple Safari	The image size, buttons, icons, and design are all adjusted to fit the screen. Furthermore, the browser performs speedily.	The image size, buttons, icons, and design are not adjusted to fit the screen. In Addition, it is slower than the two browsers listed below.	Not Recommended

Legend:

Recommended - preferred and endorsed browser while using the system
Not Recommended - not preferred nor endorsed browser while using the system

In accordance with the results of the testing, the proponents recommended using Google Chrome and Microsoft Edge due to the results that the sizes of images, buttons, icons and designs are well adjusted and fits into the screen. Both browsers also perform at much faster speed compared to Apple Safari where it loads slower causing too much waiting time to the testers. To better enjoy the experience of using LokalMuna the proponents objective is to have browsers that perform speedily and make the user experience phenomenal which Apple Safari doesn't meet. In addition, the images, and layout designs didn't adapt to the Apple Safari browser causing confusion throughout the testing process.

Lastly, the proponents also conducted the Software Usability Measurement Inventory (SUMI) for their final testing. For measuring the quality of developed system from the end user's point of view. SUMI contained 5 aspects of user satisfaction such as the Efficiency, Affect, Helpfulness, Control and Learnability. The questionnaire was consisted of 25 questions that were answered by 25 non-IT users for preliminary and final. The preliminary test was conducted by introducing the system to the respondents and allowing them to explore the LokalMuna. After testing the system the respondents were given the questionnaires using Google Form. After gathering the feedback from the respondents the proponents applied the assessments of the 25

non-IT. Afterwards, final testing was conducted with the same set of respondents. The Figure 4 below exhibits the summarized results of the Software Usability Measurement Inventory test of the LokalMuna.
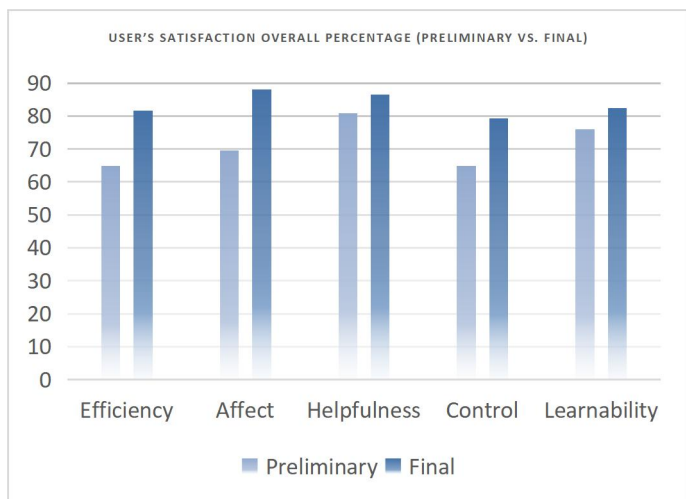

Figure 4. User's Satisfaction Overall Percentage
(SUMI Preliminary vs. Final)

TABLE IV: SUMMARY OF SUMI TALLY

	Efficiency	Affect	Helpfulness	Control	Learnability
Preliminary	64.8	69.6	80.8	64.8	76
Finals	81.6	88	86.4	79.2	82.4

Figure 4 shows the User's Satisfaction Overall Percentage based on Software Usability Measurement Inventory SUMI conducted on 25 respondents. After tallying and analyzing all the responses both from the initial survey (preliminary) and the last survey (final), the proponents concluded that there was a considerable increase of user's satisfaction in all the aspects of SUMI such as in the system's efficiency, its affect to the users, its helpfulness, the easiness of its control, as well as its quick learnability. By achieving a good results from all the various testing that was conducted, it reflects that LokalMuna has performed based on the intended planned, compatible, and produced satisfaction to the uses.

C. Evaluation Result

In terms of the Product Quality Composition, the project's performance was assessed using a questionnaire adapted from the ISO 25010 software quality model for. The results were compiled from all of the respondents' evaluations. Table V presents the findings of the forty (40) Non-IT respondents ratings, including the mean for each criterion, as well as the qualitative interpretation. The table also exhibits the overall mean, which is calculated by averaging the means of all seven criteria.

TABLE V: RESULT OF NON IT RESPONDENTS' RATINGS

Criteria	Mean	Verbal Interpretation
Functional Suitability	4.33	Very Good
Performance Efficiency	4.28	Very Good
Compatibility	4.30	Very Good
Usability	4.30	Very Good
Reliability	4.29	Very Good
Security	4.24	Very Good
Maintainability	4.30	Very Good
Overall Mean	4.29	Very Good

In terms of the Functional Suitability, the developed system attained a score of 4.33 from the forty (40) Non-IT respondents. This signifies that most of the evaluators agreed developed system is complete, correct, and appropriate.

In terms of Performance Efficiency, the developed system also attained a score of 4.28 form the forty (4) Non-IT Respondents. This signifies that the Non-IT Respondents agreed that the developed system is responsive and the resources met the requirements of the user.

With regards to Compatibility, the developed system obtained a score of 4.30 from the forty (40) non-IT Respondents. This signifies that the non- IT Respondents generally agree that the developed system is interoperable.

In terms of Usability, the developed system attained a score of 4.30 from the forty (40) non-IT Respondents. This signifies that most of the non-IT Respondents agreed that the developed system is easy to learn, operate and access.

In terms of Reliability, the developed system attained a score of 4.29 from the forty (40) non-IT Respondents. This signifies that the non-IT Respondents agreed that the developed system is mature, fault tolerant, and recoverable.

With regards to Security, the developed system obtained a score of 4.24 from the forty (40) non-IT Respondents. This signifies that the non-IT Respondents generally agree that the developed system ensures that data are accessible only to those authorized to have access.

With regards to Maintainability, the developed system obtained a score of 4.30 from the forty (40) non-IT Respondents. This signifies that the non-IT Respondents generally agree that the developed system modifiable and testable.

In conclusion, the developed system obtained an overall score of 4.29 based on the non-IT Respondents' evaluation and interpreted as "Very Good". With these means that the non-IT Respondents generally agree that the developed system met the ISO standard and is functional, efficient, compatible, usable, reliable, secured and maintainable.

With regards to the IT Experts, the proponents also conducted an evaluation with 10 IT Experts to examine the system using the software quality model ISO 25010. Table VI presents the results of the evaluation including the mean for each criterion, as well as the qualitative interpretation. The table also exhibits the overall mean, which is calculated by averaging the means of all seven criteria.

TABLE V: RESULT OF IT RESPONDENTS' RATINGS

Criteria	Mean	Verbal Interpretation
Functional Suitability	4.70	Excellent
Performance Efficiency	4.70	Excellent
Compatibility	4.50	Very Good
Usability	4.60	Excellent
Reliability	4.55	Very Good
Security	4.54	Very Good
Maintainability	4.58	Excellent
Overall Mean	4.61	Excellent

In terms of Functional Suitability, the developed system attained a score of 4.70 from the ten (10) IT Experts. This indicates that most of the IT Experts agreed that the developed system is complete, correct and appropriate.

In terms of Performance Efficiency, the developed system also attained a score of 4.70 from the ten (10) IT Experts. This indicates that the IT Experts agreed that the developed system responsive and the resources met the requirements of the users.

With regards to Compatibility, the developed system obtained a score of 4.50 from the ten (10) IT Experts. This indicates that the IT Experts generally agree that the developed system is interoperable.

In terms of Usability, the developed system attained a score of 4.60 from the ten (10) IT Experts. This indicates that most of the IT Experts agreed that the developed system is easy to learn, operate and access.

In terms of Reliability, the developed system attained a score of 4.55 from the ten (10) IT Experts. This indicates that the IT Experts agreed that the developed system is mature, fault tolerant, and recoverable.

With regards to Security, the developed system obtained a score of 4.54 from the ten (10) IT Experts. This indicates that the IT Experts generally agree that the developed system ensures that data are accessible only to those authorized to have access.

With regards to Maintainability, the developed system obtained a score of 4.68 from the ten (10) IT Experts. This indicates that the IT Experts generally agree that the developed system modifiable and testable.

In conclusion, the developed system obtained an overall score of 4.61 based on the IT Experts evaluation and interpreted as "Excellent". It concludes that IT Experts generally agree that the developed system met the ISO standard and is functional, efficient, compatible, usable, reliable, secured and maintainable.

V. CONCLUSION AND RECOMMENDATIONS

The 'LokalMuna' website was developed to help Negosyo Center San Pablo City in promoting and supporting the micro local food businesses in showcasing their locally produced products to the online market. The LokalMuna is also capable of receiving appointments from new micro local food business who wants to be featured of the website and be part of Negosyo Center San Pablo City.Micro local food businesses can post, edit, delete their products using the website's local dashboard. Furthermore, customers can also see the products, contact details and locate the physical store using the website.

The system was also tested with several testing procedures. In terms of functionality, all of the buttons were properly working according to its function. In regards with browser testing, the proponents would recommend using Google Chrome and Microsoft Edge browsers to enjoy the experience of using the LokalMuna website. Lastly, the proponents also used Software Usability Measurement Inventory (SUMI) to measure user satisfaction with its five aspect such as efficiency, affect, helpfulness, control and learnability. The 25 Non-IT respondents agrees that they felt satisfied when working with the system, that the way the information is presented is clear and understandable and that the software documentation is very Informative. In addition, the majority of the respondents disagrees that learning to operate the system is initially full of problems and disagree that the system is awkward when doing something.

Lastly, the proponents also conducted an evaluation procedure that was adapted from ISO/IEC 25010 on the LokalMuna website. IT Experts rated the developed system with a rating of 4.61 and a rating of 4.29 from Non-IT respondents signifying that the respondents agree that the system is functional, efficient, compatible, usable, reliable, secured and maintainable.

The development of the system is a great help to Negosyo Center SPC and the Micro Local Food Businesses in San Pablo City. However, there are some modifications that can be further improved to make the system much operative.

By creating a mobile application for better experience for the mobile users that don't want to use browser or devices like laptop or desktop and would help them in navigating the contents easier, more efficient, responsive and organized.

Moreover, adding a transaction feature that enables the customer to make more engagements to the micro local food businesses and further increase their chance of generating more profits.

Furthermore, the capability were the system can sell products with an integrated point of sales system features that might allow the micro local food business to gain more customers and would help them in more efficient and seamless transactions.

And lastly, a feature that can generate reports of monthly logs of the micro local food businesses in system that allows the admin to monitor the activities of the micro local food businesses in the system.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

James Lauren C. Borja headed the development of the software program, collaborated to the DTI Laguna Office , and wrote the paper; Mark Andrew P. Poonin headed the documentation of the system, computation and interpreted the evaluation, and wrote the paper; Maricris V. Tuazon headed the collaboration with Micro Local Food Businesses in San Pablo City, gathered the qualified respondents and wrote the paper; all authors had approved the final version.

ACKNOWLEDGMENT

REFERENCES

[1] Dwivedi, Y. K., Ismagilova, E., Hughes, D. L., Carlson, J., Filieri, R., Jacobson, J., Jain, V., Karjaluoto, H., Kefi, H., Krishen, A. S., Kumar, V., Rahman, M. M., Raman, R., Rauschnabel, P. A., Rowley, J., Salo, J., Tran, G. A., & Wang, Y. (2020, July 10). Setting the future of digital and social media marketing research: Perspectives and Research Propositions. International Journal of Information Management. Retrieved December 15, 2021, from https://www.sciencedirect.com/science/article/pii/S0268401220308082

[2] Statista. (2020). Global digital population as of January 2020.

[3]Ajina, A. S. (2019). The perceived value of social media marketing: an empirical study of online word-of-mouth in Saudi Arabian context. Entrepreneurship and Sustainability Issues, 6(3), 1512.

[4]Abed, S. S., Dwivedi, Y. K., & Williams, M. D. (2015). SMEs' adoption of e-commerce using social media in a Saudi Arabian context: a systematic literature review. International Journal of Business Information Systems, 19(2), 159-179.

[5]Team, T. I. (2021, September 8). What is a microenterprise? Investopedia. Retrieved August 30, 2021, from https://www.investopedia.com/terms/m/microenterprise.asp

[6]Fuscaldo, D. (2020, October 12). Everything You Need to Know About E-Commerce. Business News Daily; businessnewsdaily.com. From: https://www.businessnewsdaily.com/15858-what-is-e-commerce.html

[7]Fuscaldo, D. (2021, November 20). What is e-commerce? Business News Daily. Retrieved Aug 30, 2021, from https://www.businessnewsdaily.com/15858-what-is-e-commerce.html

[8]Future of retail operations: Winning in a digital era. (2020, August). Retrieved August 30, 2021, from https://www.mckinsey.com/~/media/McKinsey/Industries/Retail/Our%20Insights/Future%20of%20retail%20operations%20Winning%20in%20a%20digital%20era/McK_Retail-Ops-2020_FullIssue-RGB-hyperlinks-011620.pdf

IEEESEM