

DIGITAL READINESS OF VEGETABLE FARMERS AND COMMUNITY DEVELOPMENT IN SELECTED AREAS IN THE CITY OF CALAMBA, LAGUNA, PHILIPPINES: EXPLORING THE NEXUS

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Abstract

Digital readiness plays a crucial role in enhancing the productivity and competitiveness of farmers, which on a wider scale can propel community development (CD). The study determined the relationship between digital readiness and the economic, social, and cultural dimensions of CD through an interview of 102 farmers in the vegetable farming communities in selected barangays in Calamba City, Laguna, Philippines. The methodologies used by Horrigan (2016) and Roberts and Hernandez (2019) were adapted to determine the level of digital readiness of the farmer-respondents, and classified them to: Unprepared, Traditional, Reluctant, Cautious Clicker, and Digitally Ready. Descriptive analysis was performed along with Pearson's product moment correlation analysis to evaluate the existence of relationship between digital readiness and the dimensions of CD. Fisher's Exact Probability test was done to determine the relationship between digital readiness and CD. Results revealed that the farmer-respondents are on the average 58 years old, dominated by women (58%), had average household size of 5, and average area cultivated of less than a hectare. Cautious Clickers accounted for 73.53% while those Digitally Ready were 10.78%, and none were Unprepared. Among the six elements of digital readiness, own ability was rated the lowest by the farmer-respondents. The self-rating on CD revealed an average of 3.77 (out of 5.0) with "crisis response" (3.94) as highest and "voicing own opinion" () as lowest. Low correlation was noted between digital readiness and the dimensions of CD but

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1. Introduction

Community development is both a process and an outcome for a society composed of people who are able to work together for their common good that radiates into a progressive environment of camaraderie and collectiveness, safety and forward looking. Disaggregating the two terms, community is referred to as people who live in the same location, share common interests and culture and usually common characteristics as well, and have mutual relations. Development on the other hand, is being able to realize the potential for growth that improves the effectivity of group effort to achieve the common goal of the community (Louisiana Community Network, n.d.). In order for individuals to pursue common goals for the community, they must first be able to attend to the basic needs and amenities of their families. However, without enough resources such requisites might not be achievable at all. This might be true among the communities of vegetable growers in selected areas in the City of Calamba, Laguna.

Although the City of Calamba, Laguna is considered as having a highly developed mixed economy owing to it being the house of many industrial parks and hubs, the area is still a food hub that supplies vegetables and other agricultural crops to its neighboring towns and to some extent to the National Capital Region as well. Within the city, several barangays continue to grow vegetables and other crops. Exploratory studies revealed that vegetable farmers continue to be challenged by the problem of marketing their produce due mainly to lack of access to market information and lack of ready markets which is consistent with the study of Hassan et al., 2021.

Marketing systems must be competitive, dynamic, and include ongoing changes and advancements. Digital strategy is becoming increasingly crucial. Marketing arrangements can be strengthened by digital marketing in an effort to address travel/face-to-face limits, low consumption, post-harvest losses, and information asymmetry. In order to create, communicate, and provide value to consumers and other stakeholders, digital marketing can be encouraged by actions, institutions, and processes that are made possible by digital technology (Kannan and Li, 2017). Products may be promoted through one or more electronic media channels with the proper use of information and communication technology (ICT). The open interchange of information through data analytics and management can reduce information asymmetry.

The traditional system of marketing, particularly for agricultural goods, raises the risk of information asymmetry, in which one side of the transaction knows more about the market than the other party. The one with the information advantage usually has the upper hand when it comes to negotiations about prices and buying and selling terms. Unfortunately, farmers are the ones who usually lack access to market data, and as a

result, transactions are biased in favor of those with whom they are connected. According to Aquino et al. (2015), due to the asymmetries in pertinent market information, such as product specifications, costs, and quality, upstream players have a difficult time negotiating favorable terms and face significant transaction costs.

Digital readiness is seen a crucial factor in enhancing the productivity and competitiveness of farmers, especially in the age of digital transformation. Recognizing the digital divide as a critical issue in the agricultural sector in the Philippines, ascertaining the level of digital readiness of vegetable farmers is seen as vital especially since they can also be a vehicle for enhanced community development. The City of Calamba in Laguna is a microcosm of a developing economy like the Philippines with highly industrializing areas and yet still laced with rural economies that continue to be significant in ensuring food security within the city and nearby communities but still wanting in terms of community development. Thus, answer to the general question on how the digital readiness of vegetable farmers contribute to community development in selected areas in the City is sought. Specifically, it characterized the vegetable farmers in the selected areas; determined the vegetable farmers' level of digital readiness; assessed the level of community development in the study areas in terms of social, economic, and cultural dimensions; and determined the relationship between digital readiness and these dimensions in the vegetable farming communities; and proposed courses of actions for enhancing community development in the selected areas.

Results of the study can be significant in addressing how the growing importance of digital technology in the agricultural sector in a developing country like the Philippines can help enhance market information and marketing practices. It can also contribute to the ongoing discourse on community development and the role of technology in promoting sustainable and inclusive development, aside from identifying how digital readiness can help farmers increase their income and improve their overall living conditions. The study can also serve as a basis for policymakers and development practitioners in designing programs and policies that can support the digital transformation of agriculture in the Philippines for enhanced community development.

2. Materials and methods

The explanatory design of research was utilized in this study. Due to limitations on accessibility in the upland areas and resources, primary data were collected through personal interviews of 102 vegetable farmers in the major vegetable growing areas in the city, who responded to the invitation by the City Agriculture Office for an interview in their regular meeting areas within the barangays: Bunggo, Hornalan, Kay-Anlog, and Looc. The first three are upland communities while Looc is an urban area situated alongside the Laguna Lake. Prior to administering the questionnaire, the researcher obtained permission from the Agriculture officers of Calamba City and the chairs of the respective barangays. During the actual individual survey using a structured questionnaire, the research objectives were thoroughly discussed with the respondents

using the Informed Consent Form (ICF), stressing that the proceedings and results of the study will be used for research purposes only and that whatever data collected from them will be treated with utmost confidentiality and kept for a maximum of two years after the approval of the manuscript, after which filled-up questionnaires will be shredded. The ICF was signed by the respondents before the data collection itself. Since the instrument used in the interviews included scaled measurements, Cronbach's alpha was computed to examine the reliability and internal consistency of multi-item scales, where a score of at least 0.70 was considered acceptable (DeVellis, 2005). This was applied to the indicator statements used for the indicator statements per sub-element in community development dimensions.

Descriptive analysis was used in the characterization of the farmer-respondents and their economic, social and cultural activities. Frequencies, percentages, means, and modes were utilized. Tables and charts were used whenever appropriate to facilitate better understanding. Level of digital readiness was determined by adapting the methodology of Horrigan (2016) and Roberts and Hernandez (2019) using six elements of digital readiness including availability, affordability, awareness, accessibility, ability, and attitude - enabling the classification of the farmer-respondents into: unprepared, traditional, reluctant, cautious clicker, and digitally ready. Similarly, community development scoring (5-point Likert scale) was performed by computing the corresponding points to the indicator statements for the social and cultural dimensions and taking the mean ratings. Also, correlation analysis between level of digital readiness and the indicators of community development was performed. In addition, Fisher's Exact Probability test was conducted to determine the relationship between the farmer-respondents' digital readiness and community development.

3. Results and Discussions

3.1. Socio-Economic and Farm Profile of the Farmer-Respondents

The average age of the farmer-respondents was 58 years, well within the 57 years average of Filipino farmers (19th Congress of the Senate of the Philippines 2024). The youngest was 32 years while the oldest was 82 years old but the highest number of them (31%) were found in the age bracket 53-62 years. By barangay, the oldest was in Hornalan with 62 years on the average, while the youngest was in Looc at 52 years. Aside from being quite old, in general, the farmer-respondents were dominated by females who were found to be 58 percent on the average. They were found to be highest in Hornalan at 78 percent. However, in Kay-Anlog, the males were the dominant, accounting for 58 percent. In vegetable farming, women labor are utilized for planting, weeding, harvesting, post-harvest handling including threshing, processing and marketing. On the other hand, men are engaged more in land preparation and other tasks that needing more strenuous work (FAO, n.d.). In terms of civil status, 95 percent of the farmer-respondents were married. Those single or who became single again due to being widowed or separated comprised 5 percent. This is suggestive that vegetable farming is a shared activity between husband and wife.

On the average, monthly household income was found to be PhP20,800, with the highest reported in Bunggo at PhP25,952 and the lowest in Looc at PhP16,222. The lowest monthly income range was at PhP2,000 – 14,250 as reported by 41 percent of all the respondents. Overall, there were two respondents who had higher than PhP61,250 per month (Table 1).

Table 1. Socio-economic profile, 102 vegetable and fruit growers in selected barangays in Calamba City, Laguna, 2025

Profile	Bunggo (n=21)		Hornalan (n=23)		Kay-Anlog (n=40)		Looc (n=18)		All (n=120)	
	No	%	No	%	No	%	No	%	No.	%
Age										
32-42	3	14	1	4	3	8	3	17	10	10
43-52	6	29	5	22	3	8	6	33	20	20
53-62	5	24	9	39	13	32	5	28	32	31
63-72	5	24	6	26	17	42	2	11	30	29
73-82	2	10	2	9	4	10	2	11	10	10
Average (Years)	55		58		62		52		58	
Sex										
Male	7	33	5	22	23	58	8	44	43	42
Female	14	67	18	78	17	42	10	56	59	58
Civil Status										
Single ^a	0	0	0	0	2	5	3	17	5	5
Married	21	100	23	100	38	95	15	83	97	95
Income (PhP/Month)										
2,000-14,250	7	33	15	65	11	28	9	50	42	41
14,251-24,500	8	38	2	9	12	30	6	33	28	27
24,501-36,750	1	5	4	17	12	30	3	107	20	20
36,751-49,000	1	5	0	0	3	8	0	0	4	4
49,001-61,250	3	14	1	4	2	5	0	0	6	6
≥ 61,251	1	5	1	4	0	0	0	0	2	2
Average (PhP)	25,952		17,426		22,095		16,222		20,800	

^aIncludes those who were separated/widowed

The farm profile of the respondents is shown in Table 2. They are composed of pure vegetable growers (85%) and those who plant both fruits and vegetables (15%). They cultivate an average of 9,524 square meters (sqm) for vegetables but the highest proportion of them had 1,000-5,000 sqm. Bunggo had the largest area planted to vegetables while Kay-Anlog had the smallest at an average of 8,085 sqm. For fruits, the average area planted was 4,687 and the largest was for Kay-Anlog at 4,893 and smallest was in Bunggo at 2,000 sqm. Looc had no reported area for fruits.

Among the vegetable farmer-respondents, 48 percent were land owners but 35 percent were tenants and the rest (17%) are renters only. Similarly, for fruits, the land owners dominated (60%) while tenants accounted for 27 percent and the renters 13 percent (Table 2).

Table 2. Farm profile, 102 vegetable and fruit growers in selected barangays in Calamba City, Laguna, 2025

FARM CHARACTERISTICS	Bunggo (n=21)		Hornalan (n=23)		Kay-Anlog (n=40)		Looc (n=18)		All (n=102)	
	No.	%	No.	%	No.	%	No.	%	No.	%
Type of Grower										
Vegetable	20	95	22	96	27	68	18	100	87	85
Fruit & Vegetables	1	5	1	4	13	32	0	0	15	15
Farm Size (sqm)										
Vegetables										
>1,000	0	0	0	0	2	5	1	6	3	3
1,000 - 5,000	2	10	14	61	22	55	4	22	42	41
5,001 - 10,000	15	71	5	22	6	15	7	39	33	32
10,001 - 15,000	2	10	2	9	5	12.5	2	11	11	11
<15,000	2	10	2	9	5	12.5	4	22	13	13
Total	21	100	23	100	40	100	18	100	102	100
Average	11,300		9,438		8,085		10,757		9,524	
Fruits										
>1,000	-	-	-	-	1	8	0	0	1	1
1,000 - 5,000	1	20	1	25	8	62	0	0	10	10
5,001 - 10,000	-	-	-	-	3	23	0	0	3	3
10,001 - 15,000	-	-	-	-	1	8	0	0	1	
Total	1	20	1	25	13	100	0	0	15	15
Average	2,000		4,692		4,893		0		4,687	
Land Ownership										
Vegetables										
Owner	13	62	13	57	19	48	4	22	49	48
Tenant	5	24	8	35	17	43	6	33	36	35
Renter	3	14	2	9	4	10	8	44	17	17
Fruits										
Owner	1	5	1	4	7	54	0	0	9	60
Tenant	0	0	0	0	4	31	0	0	4	27
Renter	0	0	0	0	2	15	0	0	2	13

3.2. Media Practice and Internet Connectivity

All the farmer-respondents used only cellphones when it comes to transacting with their input suppliers, buyers, and logistic providers (Table 3). These devices are the most accessible and affordable to them and easiest to use. According to them, if they have a buyer and they are unable to provide such requirement, they can easily text or call their co-farmers for additional supplies. This promotes camaraderie and cohesiveness and increases their income earning capacity and also of their fellow farmer. They said that their marketing network is getting bigger. These in a way further enhances community development through the social and economic components. This is in line with the findings of Xie et al. (2021) in China that smallholder farmers are increasingly embracing digital agricultural technology, and the government is mostly responsible for encouraging this trend. Numerous farmers use smartphone applications to receive data on crop pricing, weather forecasts, and pest management, among other things.

Table 3. Distribution of gadget used by 102 vegetable and fruit growers for communication in selected barangays in Calamba City, Laguna, 2025

Gadget Use	Bunggo (n=21)		Hornalan (n=23)		Kay-Anlog (n=40)		Looc (n=18)		All (n=102)	
	No.	%	No.	%	No.	%	No.	%	No.	%
Type of Gadgets Used										
Supplier										
Cellphone	21	100	23	100	39	97.5	18	100	101	99
Buyer										
Cellphone	19	90	23	100	37	93	18	100	97	95
Logistics Provider										
Cellphone	14	67	22	96	27	68	18	100	85	83

In terms of internet connectivity and usage, 91 percent of the farmer-respondents claimed to have internet access at home although there were those who still have none (9%). They are others who have more than two internet service providers in their area (97%) although the status of their internet access varied per barangay. While 50 percent of them reported that their internet connection is stable, only 30 percent of those in Hornalan and 78 percent of those in Looc claimed the same level of stability. About 23 and 21 percent stated that they had fair and unstable internet connectivity, respectively (Table 4).

Table 4. Internet provision for 102 vegetable and fruit growers in selected barangays in Calamba City, Laguna, 2025

Internet Provision/Status	Bunggo (n=21)		Hornalan (n=23)		Kay-Anlog (n=40)		Looc (n=18)	All (n=102)	
	No.	%	No.	%	No.	%	No.	%No.	%
Internet access at home									
Yes	19	90	19	83	37	93	18	193	91

								0	
								0	
No	2	10	4	17	3	8	0	0 9	9
Internet service providers in the area									
One	1	5	0	0	1	3	0	0 2	2
Two	0	0	0	0	1	3	0	0 1	1
								1 99	97
	20	95	23	100	38	95	18	0	
More than two								0	
Status of internet access									
Very stable	0	0	0	0	0	0	0	0 0	0
								7 51	50
Stable	11	52	14	61	12	30	14	8	
								2 23	23
Fair	5	24	5	22	9	23	4	2	
Unstable	4	19	1	4	16	40	0	0 21	21
Very unstable	0	0	0	0	0	0	0	0 0	0
No internet	1	5	3	13	3	8	0	0 7	7

Three internet sources were noted in the barangays covered by the study: home wifi, broadband/pocket wifi, and cellular data. Of these three, cellular data is being used by majority (56%) while the least was broadband (6%) which actually is only one in Bunggo. Home wifi usage was at 36%. Only Facebook as a social media platform is being used although they are transacting in three online selling platforms including Shopee (64%), Lazada (63%), and Tiktok (1%) (Table 5).

Table 5. Media used by 102 vegetable and fruit growers in selected barangays in Calamba City, Laguna, 2025

Media Use	Bunggo (n=21)		Hornalan (n=23)		Kay-Anlog (n=40)		Looc (n=18)		All (n=102)	
	No.	%	No.	%	No.	%	No.	%	No	%
Internet Sources/Connections										
Home Wi-fi	18	86	17	74	32	80	7	39	74	73
Broadband/Pocket Wi-fi	1	5	0	0	0	0	1	6	2	2
Cellular Data	2	10	5	22	6	15	10	56	23	23
Social media platforms used										
Facebook	21	100	22	96	38	95	17	94	99	97
Online selling platforms accessed										
Shopee	9	43	16	70	26	65	14	78	65	64
Lazada	12	57	16	70	22	55	14	78	64	63
Tiktok	1	5	0	0	0	0	0	0	1	1

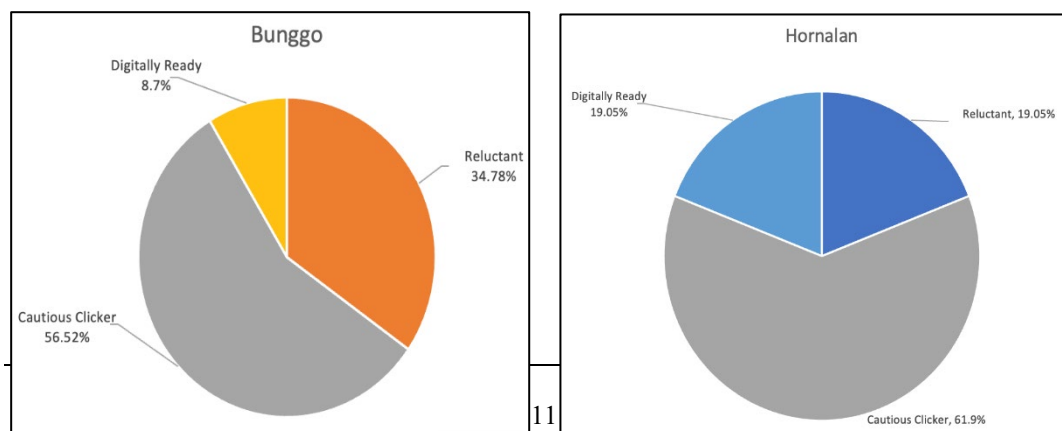
3.3. Digital Readiness

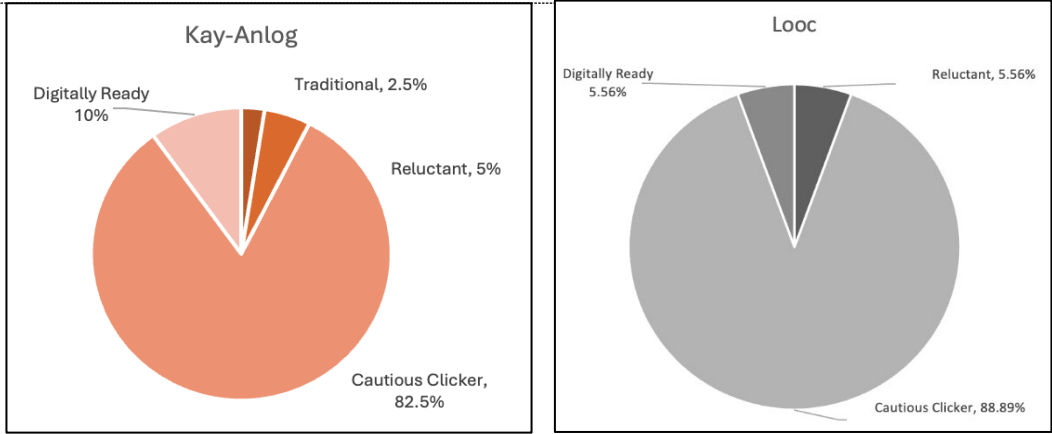
Figure 1 showcases the distribution of the farmer-respondents to different levels of digital readiness per barangay. It is obvious that in all the barangays, cautious clickers dominated with shares ranging from a low of 56.52 percent for those in Bunggo to as high as 88.89 percent in Looc. Barangay Kay-Anlog had the second highest percentage of cautious clickers at 82.50 percent. Similarly, Hornalan was also dominated by cautious clickers with 61.9 percent share. Cautious clickers are characterized by being mindful of potential risks such as online scams, phishing attempts, or malware and takes steps to ensure their digital security. This could involve being careful about the links they click, verifying the authenticity of websites, and being generally cautious about online interactions. This corresponds to a computed score of 91 to 120 points.

Those digitally ready had shares of 5.56 (Looc) to 19.05 percent (Hornalan). Having a higher percentage share of digitally ready farmer-respondents is the reason why it had the lowest share of cautious clickers. The respondents were classified as digitally ready if they are prepared and equipped to leverage digital technologies for various aspects of farming operations. Digital readiness in agriculture involves the adoption and effective use of digital tools, technologies, and data-driven approaches to enhance productivity, efficiency, and overall farm management. They have a computed score of 121 to 150 points.

The reluctant ones are those who exhibit hesitation, resistance, or unwillingness to embrace or engage with digital technologies. Digital readiness encompasses the ability and willingness to effectively use and adapt to digital tools, platforms, and processes. When someone is described as "reluctant" in this context, it implies a certain degree of apprehension or aversion towards incorporating digital elements into vegetable farming and marketing of produce. The computed score for reluctant is 61 to 90 points. The reluctant ones are highest in Bunggo at 34.78 percent but lowest in Kay-Anlog (5%). In Hornalan and Looc, the Reluctants were 19.05 and 5.56 percent, respectively. There were noted to be traditional farmers accounting for 2.5 percent in Kay-Anlog.

Figure 1. Distribution by level of digital readiness, selected barangays, Calamba City, Laguna



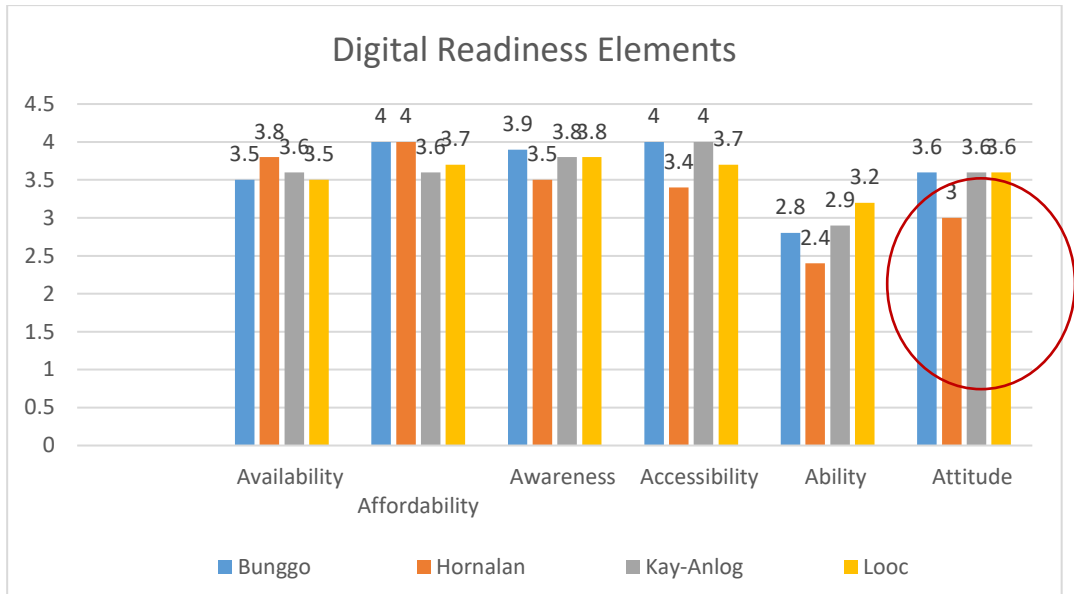


The traditional prefers in-person instruction and face-to-face interactions with people or peers and may be less accustomed to or comfortable with using digital tools, online platforms, and electronic resources for their learning needs.

It can be seen in Figure 2 that the barrier to digital readiness among the farmer-respondents in all the selected barangays was ability. As operationally defined, ability refers to the skills and competencies of the vegetable farmer to effectively use and leverage digital technologies. In the context of digital readiness, farmers need to have the appropriate abilities and proficiency to navigate, adapt to, and utilize digital tools and platforms for acquiring the necessary inputs and support for production and also for marketing their produce. In addition, while the farmers are moving towards greater efficiency, being members of a community, they also facilitate its development as the whole is as good as its part. In the end, digital readiness and community development are mutually reinforcing.

Among the barangays, the lowest rating for ability was at 2.4 in Hornalan while the highest was in Looc (3.2). Looc could have enjoyed the advantage of being an urban area in the heart of the city where facilities and opportunities to get information from are more plentiful. Overall, ability had a mean rating of only 2.8.

Figure 2. Elements of digital readiness, selected barangays, Calamba City, Laguna, 2025



Affordability was rated the same (4.0) in Bunggo and Hornalan. Also, a 4.0 rating was given to accessibility in Bunggo and Kay-Anlog. Along with awareness, these were the highest rated digital readiness elements with overall rating 3.8 each. Meanwhile, the second lowest was attitude with an average rating of 3.4 - ranging from 3.0 in Hornalan to 3.6 in the rest of the barangays. By definition, affordability refers to the extent to which the vegetable farmer can reasonably bear the costs associated with acquiring and utilizing digital technologies. It is a crucial element because it directly influences the accessibility and adoption of digital tools and services. Accessibility refers to the extent to which digital technologies are designed and implemented in a way that makes them easily accessible and usable by a broad range of users. This element emphasizes the importance of creating digital tools and platforms that are user-friendly, inclusive, and considerate of diverse needs and abilities. Awareness on the other hand, measures the level of understanding and familiarity that the vegetable farmer has regarding digital technologies. It involves having the necessary knowledge and awareness to effectively and confidently engage with digital tools and services. This aspect is crucial because it lays the foundation for individuals to make informed decisions, navigate digital platforms, and leverage technology for various purposes.

Meanwhile, attitude had also been rated lower with 3.4 for all the farmer-respondents but even lower at 3.0 for those in Hornalan. Attitude refers to the psychological and emotional disposition farmers and organizations have toward adopting and utilizing digital technologies. It encompasses the mindset, openness, and emotional readiness to embrace digital tools and navigate the challenges associated with technological advancements. The FGDs revealed the adamanance of the participants to adopt digital

platforms and other tools for fear of them being unable to cope. They are also wary of the online scams and some false information because they do not know how to distinguish fake news from authentic information. Many of them also claimed that they are too old for new technologies. This is supported by the fact that the average age in the study areas was 58 years.

3.4. Benefits of the Community from Using Digital Devices

3.4.1. Social Benefits

After computing for Cronbach's Alpha for reliability of scaled indicators, eight indicator statements related to benefits from using digital devices were retained, in which the respondents had to indicate their level of agreement/disagreement (1=strongly disagree to 5=strongly agree). Overall, the farmer-respondents gave these eight statements an average rating of 3.8 but the highest rating was 4.0 for the statements "Digital devices improve the crisis response in our community" and "Digital devices help me decrease feeling of hopelessness when faced with problems" (Table 6).

Per barangay, highest rating of 4.2 was noted in Hornalan for "Digital devices allow our community to set our common goals." In this barangay, the farmer-leader's house, which is strategically located, serves as the meeting place at the same venue for bringing the farmer-members freshly harvested produce for pick-up by the buyers. The second highest rate benefit with average rating of 4.1 was given to the "Digital devices help me decrease feeling of hopelessness when faced with problems." In Looc, the benefit statement "The digital devices improve the crisis response in our community" had the highest mean rating of 4.1 but the lowest was for "The digital devices facilitate the healing of community members who had misunderstanding" at 3.6. In Bunggo and in Kay-Anlog, this indicator statement had also the lowest mean rating of 3.1, and 3.6, respectively, in fact, it was the lowest among all the indicators in all the barangays covered (Table 8). During the FGDs it was specifically discussed that due to the habit of people of posting everything on Facebook, oftentimes, simple misunderstandings are being escalated in the social media. This according to them is the downside of social media but in terms of crisis response, digital devices particularly the use of cellphones are most helpful especially in the uplands where physical mobility is still a nagging problem particularly among those who do not have their own vehicle. With each barangay having its own ambulance and disaster response team, seeking assistance has become faster among community members.

Among all the benefits rated, it is notable that "Digital devices allow me to voice my own opinion on the concerns of the community" was given the lowest mean rating except in Looc (Table 6). This goes to show that in terms of community development process, these barangays are still lacking of more participative community engagement and democratic process of planning for collective community concerns.

3.4.2. Economic Benefits

In terms of economic benefits, it appears that currently, the economic benefits for digital devices are still not substantial as the reported net benefit per farmer-respondent per month was only Php355.25. This is in the form of savings from transportation cost net of their expenses on internet subscription or data cost for those who do not have post-paid contracts with internet providers. Kay-Anlog had the highest reported savings of Php686 per month since they are able to sell online using their own Facebook selling site (Table 7). More commonly, the farmers' children are doing this for them.

Table 6. Social benefits from using digital devices, 102 vegetable and fruit growers, selected barangays, Calamba City, Laguna, 2025

Benefits (Digital devices...)	Mean Rating				
	Bunggo (n=21)	Hornalan (n=23)	Kay-Anlog (n=40)	Looc (n=18)	All (n=102)
1. Allow me to participate in community activities	3.8	3.9	3.8	4.0	3.9
2. Allow me to voice my own opinion on the concerns of the community	3.2	3.4	3.6	3.8	3.5
3. Allow our community to set our common goals	3.1	4.2	3.7	3.8	3.7
4. Improve the crisis response in our community	3.9	3.9	3.9	4.1	4.0
5. Enable our community to be successful despite some problems	3.3	4.0	3.8	3.7	3.7
6. Facilitate the healing of community members who had misunderstanding	3.1	3.8	3.6	3.6	3.5
7. Help address critical needs in our community such as safety and order	3.6	4.0	3.9	4.0	3.9
8. Help me decrease feeling of hopelessness when faced with problems	3.9	4.1	3.9	3.9	4.0

Table 7. Savings generated in using digital device by 102 vegetable and fruit growers, selected barangays, Calamba City, Laguna, 2025

Item	Bunggo (n=21)	Hornalan (n=23)	Kay-Anlog (n=40)	Looc (n=18)	All (n=102)
Costs/Expenses (Daily)					
Internet Subscription/Data Cost	42	47	40	27	40.70
Mobile Depreciation	5	6	7	7	6.36
Sub-total	47	53	47	34	47.06
Savings					
Saved Cost from using digital devices					
Transportation Cost	200	200	733	162	402.31
Sub-total	200	200	733	162	402.31
Net Savings (Php/month)	153	147	686	128	355.25

3.5. Community Development

3.5.1. Social Development Score

Looking from the lens of the farmer-respondents, it can be seen in Table 10 that the majority (79%) of them regard their barangay as having high level of community development. Additionally, there were 14 percent who rated their community as within very high development level. In Kay-Anlog, 90 percent regarded their community as highly developed while 83 percent of those in Looc held the same opinion. Bunggo had the lowest proportion (62%) who claimed their community as highly developed but 19 percent of them considered their barangay as very highly developed (Table 8).

Table 8. Social development score, 102 vegetable and fruit growers, selected barangays, Calamba City, Laguna, 2025

Level of Social Development	Bunggo (n=21)		Hornalan (n=23)		Kay-Anlog (n=40)		Looc (n=18)		All (n=102)	
	No.	%	No.	%	No.	%	No.	%	No.	%
Very Low	0	0	0	0	0	0	0	0	0	0
Low	3	14	0	0	0	0	0	0	3	3
Moderate	1	5	1	4	2	5	0	0	4	4
High	13	62	17	74	36	90	15	83	81	79
Very High	4	19	5	22	2	5	3	17	14	14
Total	21	100	23	100	40	100	18	100	102	100

3.5.2. Cultural Development Score

For cultural development, eight indicators were used, all of which are related to how each of the barangays promote people interaction and preserve their traditional celebrations supposed to be for community unity and cohesion. A score of one is assigned if the given cultural development indicator is present in the barangay and the total score corresponds to the total number of indicators practiced/present in the area.

Table 9 shows that all the four barangays had a score of three each, but Looc had a unique way of preserving culture and promoting mutual support. It is implementing community wastes management games and its people are actively participating in the annual “Sayaw, Indak Street Dance Competition in the city. In Bunggo, a unique feature is the holding of annual summer sports league and the presence of private resorts and events venues which can be rented for special occasions and gatherings.

3.6. Correlation Between Digital Readiness and Community Development Indicators

Correlation analysis between digital readiness and community development indicators revealed weak relationships as evidenced by low correlation coefficients ranging from 0.07 to 0.29. The lowest was for “Participation in community activities” and “Facilitating settlement of misunderstanding among community members.” The highest although

still quite low was for “Enabling community to be successful despite some problems” (Table 10). This low coefficients could have been due to relatively small size of 102 and the high concentration of the farmer-respondents to the readiness level cautious clicker.

Table 9. Social development score, 102 vegetable and fruit growers, selected barangays, Calamba City, Laguna, 2025

Cultural Development Indicator	Bunggo (n=21)	Hornalan (n=23)	Kay-Anlog (n=23)	Looc (n=18)
1. Fiesta	√	√	√	√
2. Community outreach programs		√	√	
3. Religious gatherings espousing cohesion and social responsibility			√	
4. Cultural celebrations		√		√
5. Annual summer sports league	√			
6. Local resorts/events venues	√			
7. Community wastes management games				√
Score	3	3	3	3

Table 10. Correlation between digital readiness and community development elements, 102 vegetable and fruit growers, selected barangays, Calamba City, Laguna, 2025

Community Development Elements	Correlation Coefficient
1. Participation in community activities	0.07
2. Voicing my own opinion on the concerns of the community	0.16
3. Setting of common goals	0.15
4. Improving the crisis response in our community	0.20
5. Enabling community to be successful despite some problems	0.29
6. Facilitating settlement of misunderstanding among community members	0.07
7. Addressing critical needs in our community such as safety and order	0.22
8. Decreases feeling of hopelessness when faced with problems	0.14

While weak correlation between digital readiness and the elements of community development were found when individual correlation analyses were performed, the results of the Fisher’s Exact Probability Test revealed a highly significant relationship between the two as evidenced by the Fisher’s Exact value of 0.000 implying significance at one percent level of probability (Table 11). These results proved the positive relationship between digital readiness and community development.

Table 11. Results of Fisher’s Exact Probability Test between digital readiness and community development, 102 vegetable and fruit growers, selected barangays, Calamba City, Laguna, 2025

Digital Readiness	Community Development			
	Very Low	Low	Moderate	High
Traditional	0	0	1	0
Reluctant	1	14	0	0
Cautious Clicker	0	69	4	2
Digitally Ready	2	5	4	0
Total	3	88	9	2
Fisher’s Exact	0.000***			

4. Conclusions & Recommendations

The results of the study point to the following conclusions: the average age of the farmer-respondents was 58 years, they were dominated by females, majority were land-owners with an average area planted of more than 9,000 square meters. Their household income was Php20,800 per month. Cellphones were the only digital devices that they use but a small proportion of them are able to sell on Facebook and maintain online selling site. It can also be concluded that ability is the main barrier to digital readiness; the farmer-respondents are cautious clickers; generally the study areas have high level of community development but setting of common goals and voicing own opinions continue to be efforts to be pursued; and that digital readiness and community development are highly related. The

This study recommends the following courses of action that could first and foremost facilitate the digital readiness and hence community development in the study areas:

Implementation of Training Programs appropriate to the varying levels of digital readiness of the farmers and other community members. It was concluded that ability is the main barrier among the farmer-respondents towards getting digitally ready. The study also proved that community development is significantly and highly associated with the digital readiness of the farmer-respondents who themselves are active community stakeholders. It is therefore recommended that training programs be fitted to the existing level of digital readiness of the would-be participants. For operationalization, target participants' existing level of digital readiness should be determined first for appropriate grouping by readiness level.

Integration of values formation and social responsibility in all training modules. Respondents claimed that in terms of healing or resolution of issues within the community, the use of social media has the tendency to be aggravating rather than resolving disputes and amending relationships. On the other hand, in terms of crisis response and safety and order, digital access and use are much appreciated. These two are very important concerns in the pursuit of community development. Prosperous communities are cohesive and collaborative, but these traits are founded on trusts and mutual respects, thus warranting the inclusion of these in the digital readiness training modules. The Data Privacy Law and Cyber Law including their attendant provisions should also be carefully explained to encourage non-breach among community members.

Provision of relevant digital infrastructure to enhance connectivity. To support the use of digital devices and platforms stable internet connectivity is a must. In the study areas, only 50 percent reported having stable internet connectivity and 23 percent had fair. It was also shown that the social component of community development is largely benefitted by the use of digital devices. This implies that more stable internet connectivity can improve digital transaction among the community members and therefore the chance of enhancing community development is higher. The government

should therefore prioritize highly productive agricultural areas for the development of information and communication technology infrastructure.

Promote succession farming. The study found that the average of the farmer-respondents is 58 years implying the need for younger members of the community to assume some responsibilities in the farm for eventual succession in the future. The younger generation is more attuned to the use of digital devices and digital platforms. In the long-term, ensuring adequate internet infrastructure can help keep them in farming-related activities.

Establishment of more common areas for more relaxed social interactions. Common areas can have the dual purpose of being meeting or relaxation areas, depending on the amenities present. Then can also function as seasonal holding areas or showroom for fresh harvests, facilitating marketing.

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