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Organized by :

College of Social Communication Innovation, Faculty of Fine Arts,
Faculty of Humanities, Faculty of Social Sciences,
Institute of Culture and Arts,
Srinakharinwirot University - Thailand.





The International
Conference
Social Sciences
Arts ,Media
Digital Education

SSMIC 2022 @Bangkok, Thailand

November 10 – 11, 2022

**at Srinakharinwirot University
Bangkok, Thailand**

Organized by:

College of Social Communication Innovation,
Faculty of Fine Arts, Faculty of Humanities,
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In cooperation with:

China Cultural Center – Thailand
Council of Arts and Design Deans of Thailand - Thailand
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The 7th International Conference on Social Sciences, Arts and Media 2022 (SSAMIC 2022) scheduled on November 10th – 11th, 2022 at Bangkok (Thailand) is for the scholars, professionals and students from the universities all around the world to present ongoing research activities, and hence to foster research relations between the Universities and the society.

The conference is organized under the patronage of Srinakharinwirot University (Thailand) in collaboration with College of Social Communication Innovation, Faculty of Fine Arts, Faculty of Humanities, and Institute of Culture and Arts, Srinakharinwirot University in collaboration with China Cultural Center in Bangkok, Council of Arts and Design Deans of Thailand, Indonesia Institute of Art (Indonesia), University of Essex (UK), University of Malaya (Malaysia), Illinois State University (USA), are holding on in Bangkok, Thailand. This conference provides a place for academicians and professionals with cross-disciplinary interests related to social sciences, arts and media to exchange new ideas and application experiences face to face, to establish business or research relations and to find global partners for future collaboration. All the submitted conference papers of articles and creative arts will be peer reviewed by the academic committees of the conference. All accepted papers of the conference will be published in the printed conference proceedings with valid international ISBN number that will be registered at Bangkok, Thailand.

I am particularly indebted to the wonderful staff of SSAMIC committee and many colleagues across the institution who have been tireless in supporting this event. This conference is a credit to their many talents, passion for academic and dedication to ensuring all our delegates will have a memorable and enjoyable experience here.



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Comparison of Customer Segment Blocks in Business Model Canvas for Sustainability of Urban and Peri-urban Agriculture of Bangkok

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Abstract

In the midst of extreme climate change and rapid urbanization the vulnerable urban and peri-urban farms are struggling to survive. The farms need a better business model not only for their survival but also enable coping with climate change and rapid urbanization. Business Model Canvas (BMC) may prove to be a useful tool in this pursuit and also in ensure sustainability should the canvas be adapted. It requires block by block analysis, and this paper aims to share the findings of such a BMC block analysis of customer segment.

This file provides a template for writing papers for the conference. The conference proceedings will be published in an electronic format. The full paper file should be written in compliance with these instructions. The author is asked to submit the paper in MS-Word and PDF Format.

Key Words: Business Model Canvas, Customer Segment, Urban Agriculture, Sustainability

Introduction

Since the realization of climate change, the importance of green and environmentally friendly ways of life is gaining global momentum. As a result, apart from academia, entrepreneurs are also getting engaged in various ways to return greenery to the concrete dominating urban landscape. This phenomenon is also resonating in South East Asia (Salvá, 2021). Even though the growth of urban agriculture is observed in Bangkok (Raksaseri & Boonlert, 2020), there is another side to it being the rapid land use change in the urban and peri-urban agricultural (UPA) land, for instance in Thonburi district (Montrivade, 2019). The conversion of agricultural land to developed land has been systemic for past several decades as observed in depth by (Hinjiranan, Thadaniti, & Silapacharanan, 2006). This has been rather clearly visible in satellite images over four decades.



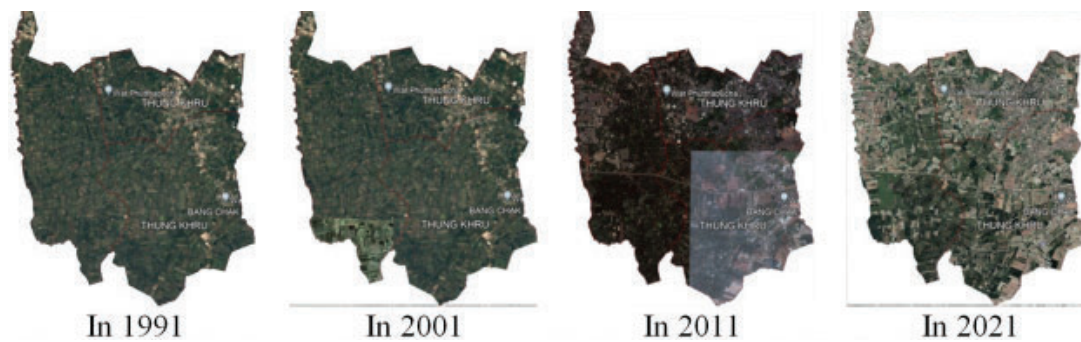


Figure 6: Satellite images of the area of interest (from Google Earth)

This problem has been examined by (Thaitakoo, McGrath, Srithan, & Palopakon, 2013) and found that the due to lower economic viability and eminent environmental challenges these farms are converted to other developed land-use primarily residential. This is true not only in the developing economies but also the case of many 1st world countries (Kizos, et al., 2011) highlighting this challenge.

The notion that farms need to be considered as any other business enterprise and needs to have better economic efficiency is not new. As early as three decades ago, (Heimlich, 1991) advocated that adaptive farms will survive the impact of urbanization. There have been many attempts to find a better business model for the UPA farms. Recently (Azizah & Handoko, 2020) had analysed a rabbit farm in Batu City, Java, Indonesia, where they analysed each block separately before coming to an overall understanding of the business of that farm. Similarly, (Partalidou , Paltaki, Lazaridou , Vieri , Lombardo, & Michailidis, 2021) had also analysed 5 different farms in Greece using Business Model Canvas (abbreviated as BMC).

The business models of the UPA farms can be categorized in these six categories: a) farm only FF, b) farm with a shop FS, c) farm with vending (FV), d) farm with processed products (FP), e) farm with restaurant and f) a combination of these.

Who are the customers of UPA farms in Bangmod, Thungkhru and Thakham area? Where are these customers? Are the farms following a B2C or B2B model?

Literature Review

The use of BMC in agriculture, especially in UPA has been quite visible in the recent past. In her Master's thesis on "Business Characteristics and Business Model Classification in Urban Agriculture" (Liu, 2015) also used the BMC (Polling, et al., 2017) had also summarized some more classifications in the Urban Agriculture Business Models in Southern and North East Spain, Eastern Germany and Central Italy. (Partalidou , Paltaki, Lazaridou , Vieri , Lombardo, & Michailidis, 2021) had also conducted a survey using focus groups to find the BMC of the following Greek farms implementing precision farming. All of these researches had used BMC as a tool to understand the business of farming. According to (Štefan & Richard, 2014) BMC is the most complex, analytical, flexible and general visualization tool for illustrating how a business any industry functions.

BMC was first introduced by (Osterwalder & Pigneur, 2009) as a tool to explain the various aspects of the business. They had arranged the aspects into blocks as shown below.

Table 2: Adapted from BMC by Osterwalder and Pigneur

Key Partnerships	Key Activities	Value Proposition	Customer Relationships	Customer Segment
	Key Resources		Channels	
Cost Structure		Revenue Streams		

After this canvas was published, there have been many attempts to alter it to enable studying the sustainability of the businesses. In 2012, Nancy Bocken presented a BMC for sustainability to circular economy workshop, which divided the value proposition block into: Society, Environment and Economy (Bocken, Rana, & Short, 2012). A couple of years later there more variations of the BMC. One such attempt was made by (Breuer & Lüdeke-Freund, 2014). (Jones & Upward, 2014) argued that sustainable business models are much more complex with 20 blocks overlapping interests between the three pillars of corporate sustainability. A later, (Fichter & Tiemann, 2015) proposed that sustainability specific information be presented in each block of the canvas by (Lewandowski, 2016) while looking at how circular economy principles work across the blocks of the BMC indicating that each block responds these principles differently. During these two years another concept of describing business model was proposed by Alexandre Joyce where he envisioned three layers of the Lean BMC each representing Economic, Environmental and Social models of the business (Joyce, Paquin, & Pigneur, 2015) (Moshood, et al., 2022) summarized that a sustainable business model canvas may more than 9 blocks and it was mainly based on the (Maurya, 2012) lean canvas. This again is bringing the discussion on using a simpler canvas with fewer blocks, like (Burkett, 2020) suggesting that Osterwader and Pigneurs canvas can also be used as for social enterprise. Contemporaneously, other various based on the original BMC were proposed where two additional blocks were added under the bottom line of cost structure and revenue streams (Bar, 2020)

Customers are the first and most important block of any business model canvas. Hence any typical BMC analysis will start with customer segment. As the name suggests, its aim is to do segmentation of the customers of the business. The BMC tool as described by (Strategyzer AG, 2019) primarily questions who are the customers and categorizes them in of the five types: 1) mass market, 2) niche market, 3) segmented, 4) diversified, and multi-sided (platform/market). Each of these categories has its characteristics, advantage and disadvantages. This block can further describe the customers in terms of their demographic, geographic and psychographic details as explained by (Pereira, 2020), depending upon the business, one can investigate and profile the customers into various suitable categories. Additionally, customers can also be segmented between B2B (Business to Business) and B2C (Business to Consumers) models (Gordon, 2022). This distinction may enable to establish the position of the business in a value chain.

In summary, BMC is now a widely used tool to provide a descriptive and holistic analysis of businesses across all sectors and industries of economy. Since 2009, BMC has also evolved however the core structure of blocks relatively remained the same usually beginning with the customer segment. This block primarily aims segment the customers, into categories: mass/niche/segmented/diversified and B2B/B2C apart from analyzing the demographic, geographic or psychographic profiles of the customer.

Methods

This research is an exploratory in nature because there was no previous research or publicly accessible similar data from the farms in the area of interest. Since the issues in this area are unique to its environment, society and economy, a pragmatic approach is chosen to understand issues to better adapt the inquiry process. Before the inception of this research, visual observations were made via, trips by road and boat coupled with analysis of satellite imagery as discussed earlier. Then a pilot study was conducted to see the relevance of questions, followed by a test run of the adapted questions before the final interviews.

Since access to the farmers were limited due to various constraints such as: access to the farms, farmers' availability for interview, etc. Therefore these 18 farms have been identified as samples after receiving their verbal consent on the written requests for their participation.



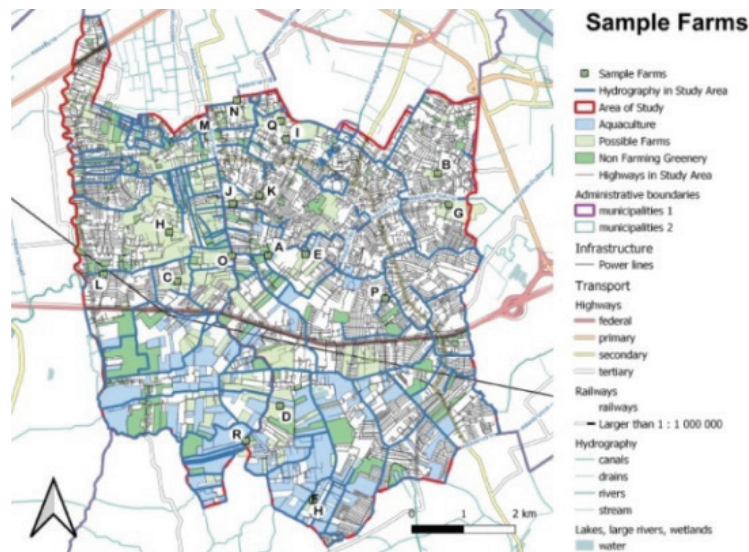


Figure 7: Participating farms in the area of interest (Sample)

General descriptions of the farms are listed in the table below.

Table 3: General Information about the participating farms

BM Type	Farm Code	Area SqM	Age	Land Ownership
FF	A	14,400	70	Self-Owned
FV	B	4,800	1	Rented On Annual Basis
FS	C	6,400	35	Self-Owned
FF	D	4,800	25	Self-Owned
FF	E	11,200	60	Self-Owned
FSR	F	16,000	50	Self-Owned
FV	G	4,800	70	Leased For Long Term
FP	H	12,800	70	Owner By Lease
FS	I	1,600	50	Self-Owned
FP	J	6,400	60	Self-Owned
FR	K	6,400	50	Self-Owned
FF	L	16,000	1	Rented On Annual Basis
FF	M	1,600	50	Self-Owned
FS	N	3,200	40	Self-Owned
FSP	O	32,000	100	Self-Owned
FRP	P	1,600	2	Leased For Long Term
FR	Q	4,800	30	Self-Owned
FP	R	4,800	3	Leased For Long Term

The BMC tool adapted for the research was based on the original BMC by (Osterwalder & Pigneur, 2009) with two additional blocks for environmental aspects and social capital of the farms. Each block is to be studied individually comparing all the farms.

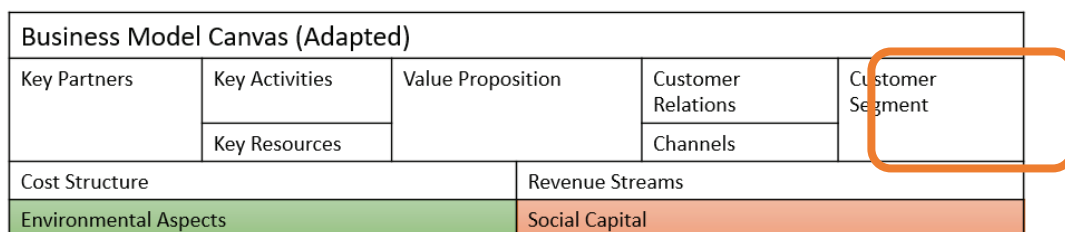


Figure 8: BMC adapted for sustainability



The questionnaire had 32 questions including 2-3 questions on each block of the BMC and 8 questions on general information. The questions on customer segment block were as follows: 1. Who are the customers of your products and services? 2. How far do your customers come from? 3. Are your customers the end user of your products and services or do they have their customers as the end user?

The data received in the interviews and questionnaire was processed to be a BMC with additional blocks and general information about the farm. The dataset was separated to each block of the BMC to enable further analysis. The descriptive data were analyzed using methods such as word clouds, word frequencies, word correlations using www.voyant-tools.org as a qualitative analysis tool. The quantitative data of these blocks are analyzed by pie charts, histograms, bar charts, and heat maps (using conditional formatting in MS Excel). There were some blocks where the detailed or descriptive information was coded to simplify for visual grasp.

After analyzing each block, the sustainability of the farms was determined based on Environmental, Social and Economic aspects with the help of equations. Based on the sustainability levels of the farms the top farms are considered as 'ideal farms' whose customer segmentation is also compared with the rest for understanding how sustainable farms cater their customers.

Results

The questionnaire data of 18 farms collected is rearranged to be the BMC for each farm as shown in the example below.

General																			
Farm Code	H		Business Model	FP	Age	70		Area	8		Land Ownership	Owner by lease							
Farm Area Composition																			
Aquaponic	0%	Raised Beds	0%	Green House	0%	Potted Plant	0%	Ditch and Dike	75%	Large Trees	0%	Ponds	25%	Cages/Shelters	0%	Barn/Storage	0%	House	5%
Other Skills than Farming																			
Electrical Engineering, Water Engineer.																			
Self Assessed Success																			
Yes																			
Business Model Canvas																			
Key Partners																			
Workforce Strength	4		Key Activities		Select the right		Value Proposition		Taste of the coconut		Customer Relations		Reachout to Customers word of mouth, referrals.		Customer Segment		Who are the ice cream maker.		
Supplier/Shops?	yes, near wat puttha		Key Resources		Weed cutter, Drainage		Customer Returns for		Outer look is smaller		Retain Customers by		Freebies, Prices		How far are they?		Within 2 KM		
How far?	Beyond 20 KM		Tools and Equipment		Species, Soil (Land)		Value Added		Newness, Design,		Distribution Channels		Distribution via self collection by		B2C or B2B?		No, my customers are		
			Most Important		Traditional Wisdom for		Key Products / Services		Coconut, Khanom (Thai		Channels Used		Telephone, LINE						
			Intellectual Resources								Preference for Local		T: yes;						
Cost Structure																			
Most Important Inherent Costs																			
Land and working capital																			
Breakdown																			
Weed Cutting 7000, Water Drainage and Intake by Pump, Electricity 30000, Fertilizer and Pesticides 3000, Fuel 12000, Pac																			
Environmental Aspect																			
Tested Not at all																			
Soil Enriched by Chemical Pesticides																			
Monitized? no.																			
Observed Bio Diversity																			
Bee, Insects, Termite, Ant, Bird																			
Revenue Streams																			
Streams of Revenue																			
Agricultural products production, Products processing, / Tourism, Sale of Khanom (Thai Snack)																			
Method/Strategies for Revenue																			
Price List.																			
Social Capital																			
Engagement: Yes																			
Reciprocity: Yes																			
Social Activities																			
Volunteering Activities, Educational Activities, Cultural Heritage, Social Gatherings																			

Figure 9: BMC of Farm coded as H

The analyses below show the keywords describing customers, distances to the farthest customers of each business, and if the businesses are of B2C or B2B model



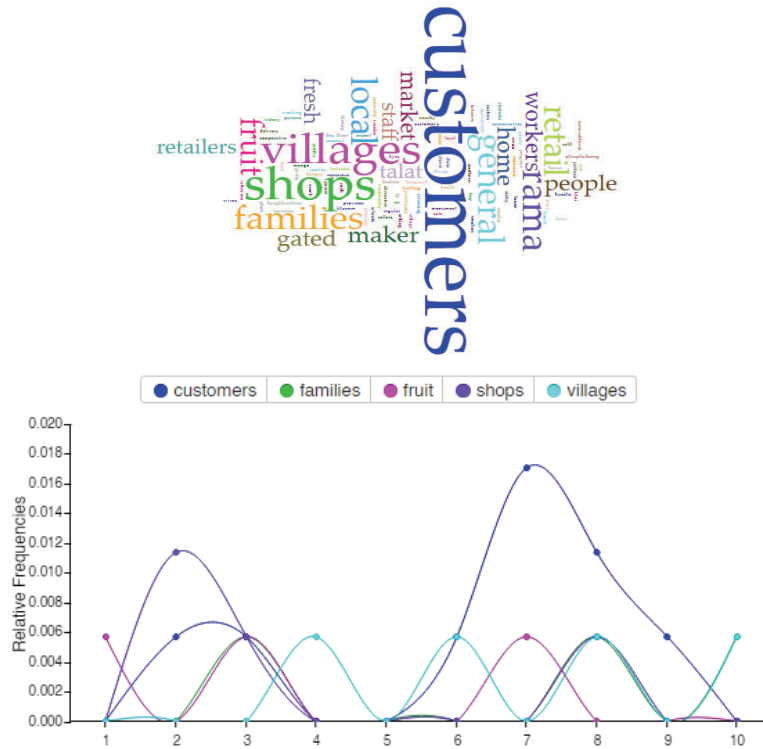


Figure 10: Word Cloud (Left) and Most Frequent Words (Right) in the Customer Segments

Figure 5 above shows the prominent customer types of these businesses collectively. Other than the general term 'customer', it shows that families, fruit, shops, villages (gated community or the communities) are the most prominent. Terms such as shops, market, 'talat', retail, retailers, makers are also synonymous to businesses as their customers. The word 'local' and 'rama' (Rama II Road) denotes the locations of the customers.

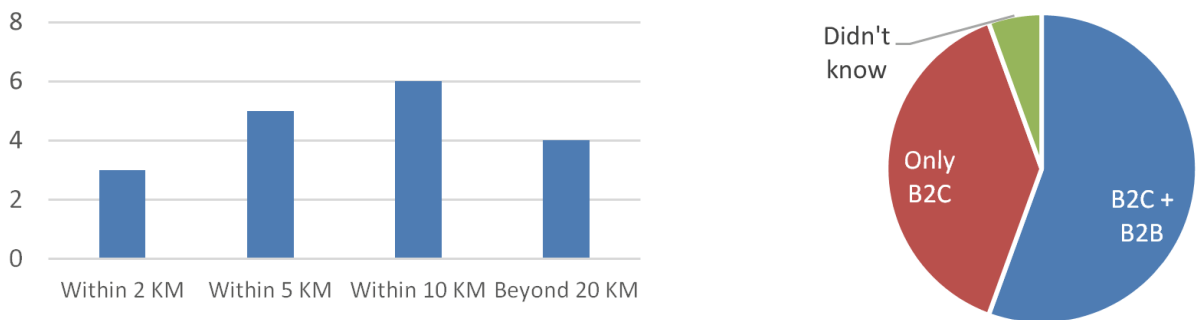


Figure 11: Customers' Geographical locations and B2C vs. B2B models

As shown in the Figure 6, most of the businesses have their customers within a distance of 10KM from their respective locations followed by those with customers within a range of 5KM. This indicates that most of their customers are local customers as mentioned in their description above. However there are 4 farms (coded as C, D, Q and R). Figure 22 also shows the most of the farms have a B2C model with majority having B2B as their customers too. Only farm coded as R didn't know if their customers were businesses.



Table 4: Customer Data Coded

BM Type	Farm Code	Who are the customers	Outreach KM	B2? C/B
FF	A	general , travelers, Staffs at KMUTT (Fruit Baskets)	10	C+B
FV	B	Factory Workers, Puttha Buccha Hi-Progress Kneating	10	C+B
FS	C	Village, Gated Communities, Sellers from Talat or Home Shops etc. Previously we sold in factories.	20	C+B
FF	D	Plant/Flower Shops in Talat, Customers from Southern Province come to buy.	20	C+B
FF	E	Fruit Shops, Direct Delivery at Customers Home,	5	C+B
FSR	F	Families, Passer byes, returning customers, they are quite regular	10	C
FV	G	in Community, Villages, Schools	2	C
FP	H	Ice cream maker, coconut milk makers, snack (Khanom Khai) maker	2	C+B
FS	I	Local fresh market vendors, no export, retail sale in front of farm	5	C+B
FP	J	Local Fresh Market Retail Vendor (Selling Mango with Sticky Rice)	5	C+B
FR	K	Customers from villages around here, workers near by	2	C
FF	L	Retailers from bangkhunthian agri cooperative	5	C+B
FF	M	No customers other than university staff, lecturers	5	C
FS	N	Fruit trees have customers from local people, decorative plants have customers from gated villages.	10	C
FSP	O	General (Retail) Customers and Reseller (Retailers)	10	C+B
FRP	P	General Customer, Families, House Wives, Food Shops	10	C
FR	Q	Loyal Customers from old restaurant, health conscious patrons, students from Rama 3, Victory Monument, Pathum Thani, Rama 2, PhraPhaDaeng, BangNa, Suvarnabhumi, Rama 5, Bangmod, Thungkru, Ratburana,	20	C
FP	R	Families in Villages, Working Class People in Condos	20	?

The Table 3 lists the responses to the 3 queries about the customer of each business as discussed above collectively. After processing the data and solving the equations for sustainability lead to the histogram below showing the overall sustainability of all the farms in the sample set.

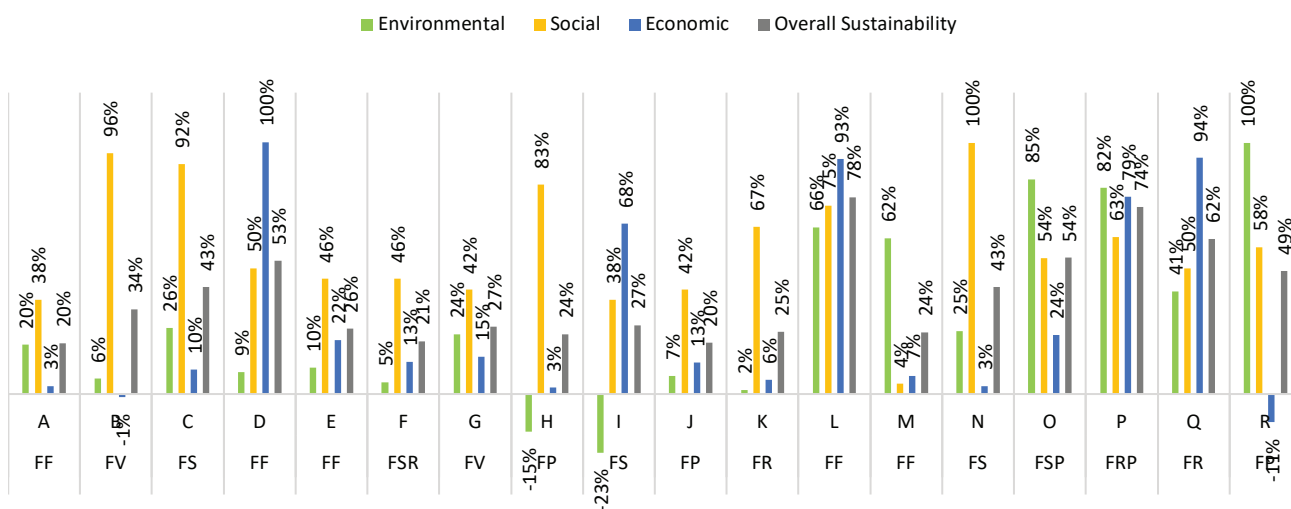


Figure 12: Rated Environmental, Economic, Social and Overall Sustainability of the farms

As shown in the Figure 7 above, the farms coded as D, N and R demonstrates highest levels of economic, social and environmental sustainability within the sample set. Farms L, P, Q, O, and D are the top five farms above the halfway mark in their overall sustainability. There are few farms having negative values for economic sustainability of farm B and R while



environmental sustainability in the case of farm H and I. By and large, 9 farms are having their economic sustainability below 20% of sample's maximum.

Customer segment as listed in Figure 5, 10 out of 18 farms' customer segments consist of end-users (customer) and businesses, 7 out of 18 have only end users as their customer while one farm is not sure. In terms of distance, 4 of 18 have their customers beyond 20KM, 6 of 18 have their customers within 10 KM, and 5 of 18 have their customers within 5 KM, while only 3 farms has its customers within 2KM. This indicates that majority of these ideal farms run as both as B2C and B2B enriching diversity in their customers who mostly are spread across within a larger area of a radius ranging from 5KM, 10KM and beyond 20KM opening their market to a larger customer base. It is clear to see that no farm has its customers within a radius of 20KM. therefore most of the customers of these farms are within the radius of 5KM, 10KM and some are catering beyond 20KM.

However if the best farms in terms of environmental, social and economic sustainability is selected based on Figure 36, then the ideal farms will be B, C, D, L, N, O, P, Q, and R to find the patterns if there are any in each of the customer segment block. 5 out of 9 farms' customer segments consist of end-users (customer) and businesses, 3 out of 9 have only end users as their customer while one farm is not sure. In terms of distance, 4 of 9 have their customers beyond 20KM and 4 of 9 have their customers within 10 KM, while only one farm has its customers within 5KM. This indicates that majority of these ideal farms run themselves both as B2C and B2B enriching diversity in their customers who mostly are spread across within a larger area of a radius ranging from 10KM and beyond 20KM opening their market to a larger customer base.

Conclusion

Demise of UPA farms in this area of interest can be reversed if the farms themselves have a sustainable and successful business model. BMC is an innovative, comprehensive yet flexible tool for understanding the business dynamics and can be used to improve the performance of every business model. Therefore it is necessary to examine the BMC blocks to find the most sustainable and successful case in the area of interest.

The main segmentation of the customers are, mostly local families in villages (or gated communities) and local resellers/retailers. Geographically the customer base is either within 10KM of radius from the farms or beyond 20KM. Most successful farms have diversity in the customer segmentations meaning they cater to both B2C and B2B models. Therefore the farms that better customer diversity and had a local niche market performed better.

Just like many empirical research, especially in the social and urban management studies, this research also had its limitations. The sample size was constricted to only 18 due to availability of participating farms, number of questions were limited to 2-4 questions on each block of the BMC of 11 blocks considering the difficulty of farmers answering themselves. Hence the semi structured interview process was selected against the self-administration of the questionnaires.

The UPA farms need to maintain their customer data to better segmentation and effective catering to the customers' demand. Future research may need to further investigate the demographics and psychographics of customer segment to examine the alignment with other blocks of the BMC. The bigger sample size may also enable statistical analysis for significance in the findings.



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