THE ROLE OF AGRICULTURAL EXTENSION AGENT
AND ANALYSIS OF BUSINESS MODEL CANVAS
IN IMPROVING SMALLHOLDER TEA INDUSTRY
OF FARMERS GROUP IN MARGAMULYA VILLAGE
AND CISONDARI VILLAGE, PASIR JAMBU
SUB-DISTRICT, BANDUNG REGENCY

Rd. Much. Jusup Nurgraha
Faculty of Business and Management, Universitas Widyatama

Abstract: This research is located in the community plantation of Margamulya village and
Cisondari Village, Pasirjambu District Bandung Regency is one of export quality tea pro-
ducer. The purpose of this research is to analyze the role of extension worker and knowl-
dge of canvas business model analysis (MBC) in an effort to increase the business of Tani
Teh Rakyat group by using descriptive and verification research method. The result of the
research shows that t-test of agricultural extension performance (X1) \( t_{\text{count}} (6,234) > t_{\text{table}} (1,675) \), while MBC (X2) \( t_{\text{count}} (1,777) > t_{\text{table}} (1,675) \), X1 and X2 have significant effect to
business group peasant tea (Y). Ftest results obtained \( F_{\text{count}} > F_{\text{table}} \) is 19.542 > 3.18. With the
limitations of this study, further research is needed to assess the development of compe-
tence of agriculture extension agents and farmers improvement strategies, especially for
areas that are still weak in assistance.

Keywords: The role of extension worker, canvas model business, tea farmer group busi-
ness.

In Indonesia, agricultural sec-
tor is one of sectors support-
ing national economy. The
provinces that produce the
most tea in Indonesia are
West Java (accounting for
around 70% of national tea
production), Central Java,
and North Sumatra. The
ownership of tea plantations
in Indonesia is divided into
three groups: smallholder
plantation, State-Owned En-
terprise (BUMN) plantation,
and Private Plantation. The
research question in this
study concerns on how the role of agricultural ex-
tension agent and analysis of current business model
canvas in improving smallholder tea industry of
farmer group in Bandung Regency, with the pur-
purpose of analyzing the role of extension agent per-
formance and analysis of current business model
canvas in improving smallholder tea industry of
farmer group in Bandung Regency.

LIMITATION OF THE PROBLEM

One of the existing plantations in West Java is
located in Margamulya Village and Cisondari Vil-
lage, Pasirjambu Sub-district, Bandung Regency.
This research was conducted in Margamulya Vil-
lage and Cisondari Village, Pasirjambu Sub-district,
Bandung Regency.
The table above shows that tea plantation area is decreasing every year because of the transfer of function to other plantations. The survey which was conducted by researchers at 2 (two) Gapoktan Tani Mulya with 25 farmers and Cisondari with 26 farmers found that the price of wet tea leaves per kilogram is very low, and minimal knowledge in analyzing the existing business currently is because the price is monopolized by the factory around the plantation, which collecting the results of farmer’s tea plantation.

Alexander Osterwalder & Yves Pigneur (2014,13) state that business model canvas consists of 9 (nine) building blocks: Customers Segments, Value Propositions, Channels, Customer Relationships, Revenue Streams, Key Resources, Key Activities, Key Partnerships, Cost Structure. The results of the survey and initial interviews done by the researchers to the Chairman of the Cooperative (Mr. T ABAERA)

Table 1   Mature Area and Tea Production by Province and Farming Category

<table>
<thead>
<tr>
<th>No.</th>
<th>Provinsi/Province</th>
<th>Tahun 2013</th>
<th>Tahun 2014</th>
<th>Tahun 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Smallholder</td>
<td>Smallholder</td>
<td>Smallholder</td>
</tr>
<tr>
<td></td>
<td>HULU GLUS</td>
<td>Luas/ Area (Ha)</td>
<td>Luas TM/ Matur (Ha)</td>
<td>Produksi Produksi</td>
</tr>
<tr>
<td>1</td>
<td>JAWA BARAT</td>
<td>48.455</td>
<td>32.424</td>
<td>42.453</td>
</tr>
<tr>
<td>2</td>
<td>JAWA TIMUR</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>JAWA BARAT</td>
<td>136</td>
<td>87</td>
<td>130</td>
</tr>
<tr>
<td>6</td>
<td>JAWA TIMUR</td>
<td>57</td>
<td>31</td>
<td>57</td>
</tr>
<tr>
<td>7</td>
<td>JAWA TENGAH</td>
<td>33.787</td>
<td>36.824</td>
<td>48.8</td>
</tr>
<tr>
<td>8</td>
<td>INDONESIA</td>
<td>56.002</td>
<td>56.078</td>
<td>51.737</td>
</tr>
</tbody>
</table>

| Source: | Directorate General of Estate Crops |
|         | Statistics Performance Indonesia Economy Tel 2013 - 2015 |

Table 2 Comparison between the sale price of wet tea leave and coffee bean

<table>
<thead>
<tr>
<th>Results of Production</th>
<th>Price Per Kilogram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet Tea Leave</td>
<td>2,300 rupiahs</td>
</tr>
<tr>
<td>Coffee Bean</td>
<td>5,000 rupiahs</td>
</tr>
</tbody>
</table>

The background that is very important above encourages researchers to evaluate the role of agricultural extension agent in accordance with the Law of the Republic of Indonesia No. 16 of 2006 which is directly related to the efforts in improving smallholder tea industry of farmer group in Margamulya Village and Cisondari Village, Pasirjambu Sub-district, Bandung Regency, namely the role of extension agent in facilitating the learning process, the role of extension agent in providing ease of access to business development, the role of extension agent to grow business organization, the role of extension worker in analyzing problems, solving problems, and responding to opportunities and challenges in managing the business. The integrity of an overall business can be assessed easily and effectively by combining classical analysis (SWOT) through business model canvas. Some indicators in determining the success of business according to Henry Faizal noor (2007: 397) are profitability, productivity and efficiency, competitiveness, competence and business ethics, and a good image.

Alexander Osterwalder & Yves Pigneur (2014,13) state that business model canvas consists of 9 (nine) building blocks: Customers Segments, Value Propositions, Channels, Customer Relationships, Revenue Streams, Key Resources, Key Activities, Key Partnerships, Cost Structure. The results of the survey and initial interviews done by the researchers to the Chairman of the Cooperative (Mr. T ABAERA).
Asek Bardja), Chairman of smallholder tea industry farmer group (Mrs. Tien Supartika and Mr. Bariyanto) in order to get the condition of smallholder tea industry farmer group in Margamulya Village and Cisondari Village, Pasirjambu Sub-district, Bandung Regency. It can be seen in picture 1 below:

![Figure 1 Analysis of business model canvas in tea plantation in Margamulya Village and Cisondari Village, Pasir Jambu Sub-district, Bandung Regency](image)

**METHOD**

The role of agricultural extension agent ($X_1$)

- Law of the Republic of Indonesia Number 16 of 2006
- Function of extension system
  - Facilitate learning process
  - Seek the ease of access to business development
  - Grow and develop the organization
  - Analyze and solve problems and respond to opportunities and challenges in business management

Analysis of Business Model Canvas ($X_2$)

Alexander Osterwalder & Yves Pigneur (2014: 13), Business Model Canvas is a common language to describe, visualize, rate, and change business model. Business model is describing the rationale of how an organization creates, delivers, and captures value. Business model canvas consists of the 9 (Nine) building blocks, showing how the company makes money.

![Figure 2 Conceptual Framework](image)

Henry Faizal Noor (2007:397)
- Profitability
- Productivity and Efficiency
- Competitiveness
- Competence and Business Ethics
- Good image
Type of Research Method

This research was conducted by using descriptive and verificative method.

Type and Source of Data

This research used quantitative and qualitative data. The data above was collected through two sources, namely primary data, collected in this study through observation, interview and questionnaire, and secondary data, obtained from internal sources, various internet websites, public libraries, and educational institutions and others.

Table 3 Variable Operation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variable Concept</th>
<th>Sub-Variable</th>
<th>Indicator</th>
<th>Scale</th>
</tr>
</thead>
</table>
| Performance of Agricultural Extension Agents (X₁) | Agricultural, fisheries, and forestry extension referred to counseling is a learning process for the main actors as well as business actors, so that they are willing, able to help, and organize themselves in accessing market information, technology, capital, and other resources in order to improve productivity, business efficiency, revenue, and welfare, and in order to raise awareness in the preservation of the functions of environment. | Facilitate learning process | - Increase in the sale results of tea farming business.  
- Knowledge of seeds and how to harvest.  
- Maintenance and fertilization  
- Process of tea harvest  
- Increase in the harvest results and the efficiency of tea business  
- Law of the Republic of Indonesia Number 16 of 2006 regarding Agricultural, Fishery and Forestry Extension System | Ordinal |
| Seek the ease of access to business development | | - adding venture capital  
- build partnership with consumers  
- the types of products produced from tea leaves  
- promotion of tea crops  
- improving agricultural industry | | Ordinal |
| Grow business organization | | - empowerment and independence of farmers  
- aligning work plans with farmers’ needs  
- information technology and production facilities  
- facilities/equipment and infrastructure  
- business strategy in the development of other products of tea leaves | | Ordinal |
| Analyze and solve problems, respond to opportunities and challenges in business management | | - business partnership between farmers and businessmen  
- business partnership with businessmen or certain institutions  
- ease in farming business  
- solution to problem  
- deliberation with extension agents to discuss problems faced in smallholder tea business | | Ordinal |
<table>
<thead>
<tr>
<th>Variable</th>
<th>Variable Concept</th>
<th>Sub-Variable</th>
<th>Indicator</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Model Canvas (X&lt;sub&gt;2&lt;/sub&gt;)</td>
<td>Business Model Canvas is a common language to describe, visualize, rate, and change business model. Business model is describing the rationale of how an organization creates, delivers, and captures value. Business model canvas consists of the 9 (Nine) building blocks, showing how the company makes money.</td>
<td>Value Propositions (VP)</td>
<td>- customer’s needs - strong network - strong strategy - customer satisfaction</td>
<td>Ordinal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Customers Segments – CS</td>
<td>- customer transfer - customer segmentation - get new customers</td>
<td>Ordinal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Channels – CH</td>
<td>- distribution channel - channel with economic scope</td>
<td>Ordinal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Customer Relationships</td>
<td>- Customer relationship - Communication channel</td>
<td>Ordinal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Revenue Streams</td>
<td>- Profit - Income can be predicted - Repeat purchase - Sustainable income - Paying production cost - Pricing</td>
<td>Ordinal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Key Resources</td>
<td>- The use of resources - Production activities</td>
<td>Ordinal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Key Activities</td>
<td>- Key activities - Quality of the implementation - Survey of taste</td>
<td>Ordinal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Key Partnerships</td>
<td>- Work partners - Work relationship</td>
<td>Ordinal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cost Structure</td>
<td>- Predicted cost - Cost structure - Efficient in cost - Profit from economic scale</td>
<td>Ordinal</td>
</tr>
<tr>
<td>Improvement of Smallholder Tea Industry of Farmer Group (Y)</td>
<td>Basically, in business, success is achieving the goals set.</td>
<td>Profitability</td>
<td>Production</td>
<td>Ordinal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Productivity and Efficiency</td>
<td>Cost efficiency</td>
<td>Ordinal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Competitiveness</td>
<td>Added value of the product</td>
<td>Ordinal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Competence and Business Ethics</td>
<td>Business Permission</td>
<td>Ordinal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Good image</td>
<td>Consumers</td>
<td>Ordinal</td>
</tr>
</tbody>
</table>
The Role of Agricultural Extension Agent and Analysis of Business Model Canvas

Population and Sample
Population is the same as sample, thus this study used saturated samples. There were 53 respondents in this research, consisting of the chairman and members of the group of smallholder tea farmers in Margamulya villages and Cisondari Village in Pasir Jambu Sub-district, Bandung Regency; the graduate of junior high school are 31 people, 12 graduate of senior high school, graduate of D3 are 2 people, and bachelor's degree are 8 people.

Measurement Scale
Score is measured by using Likert scale

RESULTS AND DISCUSSIONS
The interval of average criteria for measurement is as follows:

Table 4 Score Interpretation

<table>
<thead>
<tr>
<th>Average Score</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00 – 1.79</td>
<td>Very bad</td>
</tr>
<tr>
<td>1.80 – 2.59</td>
<td>Bad</td>
</tr>
<tr>
<td>2.60 – 3.39</td>
<td>Moderate</td>
</tr>
<tr>
<td>3.40 – 4.19</td>
<td>Good</td>
</tr>
<tr>
<td>4.20 – 5.00</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

Performance of Agricultural Extension Agent
Overall, it is in a bad condition with score of 2.43; this is because agricultural extension agents lack knowledge about the development of business, which can be seen in seeking easy access to business development, grow business organizations, analyze and solve problems, and respond to opportunities and challenges in managing the business who has a low score.

Business Model Canvas
Overall, it in bad condition with a score of 1.81; it is due to the lack of understanding of the farmers in analyzing the business they run. The researchers interviewed the respondents by making a series of simple questions in accordance with nine basic building blocks in business model canvas, to enable researchers to analyze the strengths, weaknesses, opportunities and threats, and then analyzed by using SWOT analysis before it is put into business model canvas to create new strategy.
**Rd. Much. Jusup Nurgraha**

<table>
<thead>
<tr>
<th>Internal</th>
<th>Strength (S)</th>
<th>Weakness (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business Management</strong></td>
<td>Strength (S)</td>
<td>- Raw material is derived from tea canvas&lt;br&gt;- Activities are conducted individually&lt;br&gt;- Partnership with farmer group</td>
</tr>
</tbody>
</table>

**External**

**Opportunity (O)**
- Designing products and packaging in accordance with consumer’s desire<br>- The location is close to recreation place of strawberry garden and white crater.

**Strength/ Opportunity**
- Expand the marketing area, both around the location and using information technology

**Weakness/ Opportunity**
- Keep and always upgrade design and value as customers want

**Threat (T)**
- Tight competition of design and price offered<br>- Competitor has a number of income flow<br>- Competitor has marketing personnel

**Strength/ Threat**
- Establish external business partnership<br>- Improve the partnership

**Weakness/ Threat**
- Maintain the quality of product

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**Figure 3** SWOT Analysis of Smallholder Tea Industry of Farmer Group in Margamulya Village and Cisondari Village
The Role of Agricultural Extension Agent and Analysis of Business Model Canvas

Osterwalder & Yves Pigneur (2014: 116) “Building external knowledge needs a particular activity that link external entity and internal business process.

Very strong customer relationship is good for open business model from outside to inside. That can improve the relationship of the existing customers by building the source of innovation from outside.”

Figure 4 New Business Model Canvas of Smallholder Tea Industry of Farmer Group in Margamulya Village and Cisondari Village

- Sell Innovation: Unexplored innovation has the potential to generate more revenue when it is sold.

Figure 5 Summary of Open Business Model Pattern of Smallholder Tea Industry of Farmer Group in Margamulya Village and Cisondari Village, Pasir Jambu Sub-district, Bandung Regency
Improvement of Smallholder Tea Industry of Farmer Group

Overall, this is very bad, with a score of 1.40. This means that the existing farmer group business has not been managed properly; therefore, it has not been able to help meet the economic needs of families currently.

Validity Test

Overall, with level of significance of 5% (0.05), value of $r_{table}$ obtained is 0.2706. Variable $X_1$, $X_2$ and $Y$ are valid because $r_{count} > r_{table}$

Reliability Test

Overall, $X_1$ (extension performance) is reliable; $r_{count} = 0.757 > 0.60$. Variable $X_2$ (business model canvas) $r_{count} = 0.718 > 0.60$. Variable $Y$ (improvement of farming business) $r_{count} = 0.765 > 0.60$.

Normality Test

Table 6  Results of Data Normality Test

<table>
<thead>
<tr>
<th></th>
<th>Performance of Agriculture Extension Agent</th>
<th>Business Model Canvas</th>
<th>Improvement of Farming Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>53</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Normal Parameters$^{ab}$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>61.4340</td>
<td>56.0755</td>
<td>26.6981</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>6.38360</td>
<td>5.47670</td>
<td>2.94556</td>
</tr>
<tr>
<td>Most Extreme Differences</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absolute</td>
<td>.148</td>
<td>.082</td>
<td>.227</td>
</tr>
<tr>
<td>Positive</td>
<td>.142</td>
<td>.082</td>
<td>.133</td>
</tr>
<tr>
<td>Negative</td>
<td>-.148</td>
<td>-.070</td>
<td>-.227</td>
</tr>
<tr>
<td>Test Statistic</td>
<td>.148</td>
<td>.082</td>
<td>.227</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.005$^c$</td>
<td>.200$^d$</td>
<td>.000$^e$</td>
</tr>
</tbody>
</table>

Source: Data processed by SPSS 23.0
Multiple Correlation Test

Table 7  Results of Multiple Correlation Test

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficientsa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unstandardized Coefficients</td>
</tr>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>1.740</td>
</tr>
<tr>
<td>The role of agricultural extension agent</td>
<td>.312</td>
</tr>
<tr>
<td>Business Model Canvas</td>
<td>.104</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Improvement of Farming Business

Source: Data processed by SPSS 23.0

Analysis of Determinant Coefficient

Table 8  Results of Determinant Coefficient

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>R Square Change</th>
<th>F Change</th>
<th>df1</th>
<th>df2</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.662a</td>
<td>.439</td>
<td>.416</td>
<td>2.25045</td>
<td>.439</td>
<td>19.542</td>
<td>2</td>
<td>50</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Business Model Canvas, performance of agricultural extension agent
b. Dependent Variable: Improvement of Farming Business

Source: Data processed by SPSS 23.0

Regression Analysis

It can be formulated a regression equation as follows:

\[ Y = 1.740 + 0.312X_1 + 0.104X_2 \]
Partial Hypothesis Test (t-test)

Table 9  Results of t-test

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>Performance of agricultural extension agent</td>
<td>.312</td>
<td>.050</td>
<td>.676</td>
<td>6.234</td>
</tr>
<tr>
<td>Business Model Canvas</td>
<td>.104</td>
<td>.058</td>
<td>.193</td>
<td>1.777</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Improvement of Farming Business

Source: Data processed by SPSS 23.0

Simultaneous Hypothesis Test (F-test)

Table 10  Results of F-test

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>dF</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>197,943</td>
<td>2</td>
<td>98,971</td>
<td>19.542</td>
<td>.000</td>
</tr>
<tr>
<td>Residual</td>
<td>253,227</td>
<td>50</td>
<td>5.065</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>451,170</td>
<td>52</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Data processed by SPSS 23.0

CONCLUSIONS

The role of agricultural extension agent is in bad category, with a score of 2.43. The low score is broadly due to the role of agricultural extension agent in facilitating farmers and business people and developing their business.

Analysis of business model canvas is in bad category, with score of 1.81. The low score is due to the lack of knowledge about analyzing the business run by the farmer group.

The increase in smallholder tea business of farmer group is very bad, with score of 1.40. The low score is because the farmer groups sells and develops the crops of tea plantation.

The role of agricultural extension agent (X1), t value (6.234)> t table (1.675), is significant on improvement of smallholder tea business of farmer group (Y). Business model canvas (X2), t value count (1.777)> t table (1.675), is significant on the improvement of smallholder tea business of farmer group (Y). Based on the results of F-test (simultaneous), it can be seen that F arithmetic> F table is 19.542> 3.18.

Suggestions

Based on the analysis results of the performance of extension agents currently, supervision and monitor from related institutions is necessary in order to improve the performance of extension agents, thus they can be facilitators in developing smallholder tea business of farmer group in Margamulya Village and Cisondari Village, Pasir Jambu Sub-district, Bandung Regency; therefore, the economy of farmers in the research site can be improved, and
the farmers do not transfer the existing tea land into coffee field.

Knowledge of analysis of smallholder tea business of farmer group in Margamulya Village and Cisondari Village, Pasir Jambu Sub-district, Bandung Regency, needs to be improved by giving knowledge of business analysis that is easy to understand with business model canvas to farmer group by buying innovation. Buying innovation is building a particular activity connecting external entities with internal business process. Strong customer relationship is perfect for business which is open from outside to inside. That can improve existing customer relationship by building sources of innovation from outside.

In supporting the efforts above, the assistance of agricultural extension agents is necessary, in accordance with the Law of the Republic of Indonesia Number 16 of 2006 in order to further improve knowledge in viewing the strength, weakness, opportunities and threats to the business they run. It aims to make the products they produce competitive in such a tight competition so as to improve the farmers’ standard of living nowadays.

Given this research is just the initial stage, further research is required to obtain more comprehensive information, including:

(1) Examine the development of the competence of agricultural extension agents; and

(2) Examine the strategy to improve farming business, especially for areas that are still weak in assistance.

REFERENCES


