Model Strengthening the Role of Agricultural Startup an Agent of Change in the Era of Industrial Revolution 4.0 During the Covid 19 Outbreak

Wahyu Windari*
Doctoral Program, Agricultural Extension and Communication, Faculty of Agriculture, Brawijaya University, Malang, Indonesia.
E-mail: wahyu_windari@yahoo.com

Keppi Sukesi
Faculty of Agriculture, University of Brawijaya, Malang, Indonesia.

Sugiyanto
Faculty of Agriculture, University of Brawijaya, Malang, Indonesia.

Kliwon Hidayat
Faculty of Agriculture, University of Brawijaya, Malang, Indonesia.

Received March 12, 2021; Accepted June 28, 2021
ISSN: 1735-188X
DOI: 10.14704/WEB/V18SI04/WEB18137

Abstract

Since the covid-19 outbreak lurks throughout the world economy is no exception to the Indonesian agricultural sector. Small farmers began to have difficulty in marketing the products grown, emerging agricultural startup institutions that utilize technology to maintain farmers' economic sustainability. Agricultural startups in Indonesia have not been able to have a model that strengthens actors in it; the actor is a reformer agent. in this study, we wanted to create a new model in strengthening reforming agents at agricultural startups. We surveyed two different ways: (a) meet directly with respondents and use health protocols who can be found; and (c) by charging via online Google form to respondents who cannot be found. In total, we conducted 144 surveys out of the actors we initially identified as relevant. The study reveals to know variable support of internal factors, external factors, and the role of reforming agents have a real and positive effect on strengthening the institutional capacity of agricultural startups in the agricultural industry 4.0 era. The model of strengthening the role of reforming agents in startups in the agricultural industry 4.0 era is necessary for looking at the state of startups, internal and external factors of reforming agents, the role of reforming agents, and their influence on strengthening capacity occurring in startups to produce strategies in strengthening agent of change. The findings will guide the agriculture startup in achieving its vision of creating the perfect strategy for agent of change.
Keywords


**JEL:** Q10, Q16, Q18, Q28, R11.

Introduction

A nation's existence will be fragile if the government is unable to provide food by involving and moving the people, moreover food becomes the deciding factor in the development of community nutrition and the development of the country (Tontisirin, Nantel, and Bhattacharjee 2002). Data compiled by LPME FEB UI (2020) shows that Indonesia's population is 39.68 million people or 31.86% of the total population working in the agricultural sector, while the Gross Domestic Product (GDP) of the 2014 until 20119 of the agricultural sector contributed around 13.1%. Simultaneously, the population is projected to continue to increase from 238.5 million in 2010 to 305.6 million in 2035. It means that the agricultural sector's contribution to Indonesia in the food supply is still relatively low and tends to decrease while the population is growing and increasing. Food is a basic need of the Indonesian people; thus, the food supply problem needs to be seriously addressed by Indonesia. In the agriculture revolution industry 4.0 marketing of agricultural products becomes one form of the powerlessness of farmers. One of the development systems of the agricultural marketing and technology process is agricultural startups (Spadoni et al. 2019).

![Fig. 1 Google's "Vegetable Online" Word Search Trend (November-July 2020)](http://google.com)

Source: Google Trends Indonesia (2020)

One critical meal undertaking is that meal availability is connected to manufacturing. The first critical factor is the supply of meals assets associated with agriculture and different helping sectors (Yan et al. 2020). Food manufacturing with inside the agricultural area relies upon the overall performance of farmers.
Therefore we want regulations that stimulate the passion for farming, subsidies, and the safety of agriculture (Ahumada and Villalobos 2011). Second, the affordability or cap potential of humans to get admission to meals. Affordability is defined as easy, cheap, and quality. Easy has that means of the network capable of getting an approach that procurement from the distribution network, transportation, warehouses, and others has to be well-systemized. The production of infrastructure, mainly roads, will become an essential part of strengthening food security (Timmer 2011).

On the other hand, the covid-19 outbreak can change all food distribution and supply systems for the world community globally; these changes can strengthen and weaken the marketing system during this time in modern, developing, and poor countries. Labor-intensive “traditional” value chains (mostly in poor countries) are more affected than capital-intensive “modern” food value chains (mostly in high-income countries or in more affluent parts of low- and middle-income countries). For example, in Ethiopia, which has poorly developed infrastructure and mostly relies on traditional distribution networks, the supply of vegetables has been affected by disruptions in transport and crucial farm inputs (Laborde et al. 2020).

This is certainly different from the developing countries of Indonesia. In Indonesia, the government is a very anticipating food supply for its people, especially during the covid-19 outbreak, in addition to the absence of agricultural startups as an institution that innovates in making it easier to supply food to consumers through it’s partner farmers directly also has a significant role to play in meeting food security during the covid-19 outbreak. As information and communication technology intensifies, people begin to look for alternatives in meeting their food needs amid pandemics by utilizing the internet (World Bank 2020). When viewed from Google Trends Indonesia data in Figure 1, searches of groceries on the internet with keywords such as "vegetable online" increased significantly in March 2020 compared to the previous months in 2020. Besides, it was also found that the search trend is higher in Malang than in other cities in Indonesia. This indicates that Malang’s interest in online food supply services surged during the Covid-19 pandemic.

Nevertheless, the role of e-commerce services to meet food needs, especially when pandemics still need to be proven, given the possibility of changes in people's consumption patterns and supply chain disruptions that occurred during the Covid-19 pandemic, and not all people can reach food needs online. Sujita et al., (2020) and Ozor & Cynthia, (2011) agree that limiting social distances and activity, enforcing self-isolation, and travel bans it is caused many people to losted their jobs. So, the food supply has
become uncertain due to panic buying. So that various foods in some stores have been sold out so that people start looking for food needs through the internet and vegetable provider applications such as TaniHub, Abang Sayur Organik and MSMB Indonesia. Learning from Vietnam suspends new rice export contract, and Thailand has banned the export of egg’s chicken (Ahmad 2020). So, that local food products have a selling value to consumers and are more trusted to adequately fulfill family food.

Agriculture has been one of the sectors most affected by the pandemic Covid-19 (Wang, Shao, and Kim 2020). The industry is important for food security, which means the pandemic has also affected food security more generally. Startup’s agriculture agencies have a essential role to play in terms of food security in the region. The role of agricultural startups is also supported by the agent of change in it, the reformer agent at the startup should be able to run a more complex system in the covid-19 pandemic and how to factors agent of change startup can have an impact. So, we should know about it.

Material and Methods

Study Design

A path analysis design was used in this study from June 2020 until September 2020. We used purposive random sampling; we make data for a total of 144 actors related to case study agriculture startup. The Involved an actor survey of 144 actors who makes Tanihub, Among Tani, Abang Sayur Organik, and MSMB Indonesia application that can help various activities in meeting food needs and food marketing in farmers and consumers. Google form link is given to participants through a link spread through Twitter, Instagram and WhatsApp applications.

The Participant

The social-demographic properties of the participants includes gender, age, years of experience, and education are presented in Table 1. participation is chosen based on the origin of the area where he lives, namely in Malang district, Malang city, and Batu city. participation is given kuisioener via google form link with the aim of making it easier to fill through android. there are 144 participation people who fill out questionnaires sent links.
Table 1 Demographic features for startup user

<table>
<thead>
<tr>
<th>Features</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>66.7</td>
</tr>
<tr>
<td>Male</td>
<td>33.3</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>13.89</td>
</tr>
<tr>
<td>30-39</td>
<td>20.83</td>
</tr>
<tr>
<td>40-49</td>
<td>37.50</td>
</tr>
<tr>
<td>50-59</td>
<td>20.83</td>
</tr>
<tr>
<td>&gt;60</td>
<td>6.94</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Basic (non formal school)</td>
<td>0.00</td>
</tr>
<tr>
<td>Primary school</td>
<td>9.27</td>
</tr>
<tr>
<td>Secondary</td>
<td>67.36</td>
</tr>
<tr>
<td>University</td>
<td>22.91</td>
</tr>
<tr>
<td>Experience user</td>
<td></td>
</tr>
<tr>
<td>1-3 years</td>
<td>86.81</td>
</tr>
<tr>
<td>4-6 years</td>
<td>8.33</td>
</tr>
<tr>
<td>&gt;6 years</td>
<td>4.86</td>
</tr>
</tbody>
</table>

Factor of Agent of Change Questionnaire

The study targeted all user application agriculture startup in Malang Raya, Indonesia. The questionnaire was written in Indonesian language and categorized into three parts. Part one was specialized to collect data about the participants' demographic features as gender, age, level of education and the level of an experienced user. Part two specified for internal factors from an agent of change, the latent variable of internal in the agent of change include self-efficacy, motivation, education, social capital. And part three specified for external factors from an agent of change, latent variable include the environment, social institute, facilities, and opportunity. And part four specified for role of agent of change at farmer, consumer and institution. At last is five part specified for effectiveness of institutional strengthening. In this part all questions, we make five-point scale questions were tested randomly by 40-selected farmer's user of application startup agriculture (tani Hub, MSMB Indonesia, Abang Sayur Organik, Among Tani) to manage the time of testing and check the clearance and understanding the questions we make.

To measure the validity and reliability of questionnaires we analyze with smartPLS, as for the first stage of questionnaires that have a loading factor value below the validity requirement of 0.7 must be eliminated because it has an impact on ave values that are low below 0.5. All indicators that have a loading factor of less than 0.7 can be removed to be tested for validity in the next execution stage. This process is expected to successfully raise the AVE value of all latent variables that previously had a value of less than 0.5. The total number of indicators that must be removed from the model is 28 indicators after which 40 indicators are removed to obtain good AVE value and model reliability, as in Figure 2.
Based on Figure 3 several indicators have a loading factor with a value below the validity requirement of 0.7, contributing to a low AVE value below 0.5, over some latent variables that became the construct of the model in the study, the overall factor indicates that the variable used is valid.

![Fig. 2 AVE results before processing](image1)

While the realities of the model based on composite reliability test results of the first stage of SmartPLS execution, already showed that the model is reliable. This is because each latent variable already has a value above 0.7, as shown in the following Figure 3 graph.

![Fig. 3 AVE results after processing](image2)

Statistical Analysis

Data was analyzed using Excel and then imported into Smart PLS Version 3.2.9 (SmartPLS GmbH) for analysis. We used path analysis for this research to create a new model of strengthening the role of agent of change. Before doing path analysis, there are several that must be met as the main requirements that are measuring reflective models of
path analysis and structural model testing. The analysis is seen in Table 2 measuring reflective models.

### Table 2 Measuring reflective models

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composite reliability (pc)</td>
<td>Measurement results are consistent internally with a $\geq$ of 0.6</td>
</tr>
<tr>
<td>Indicator reliability</td>
<td>Result of outer absolute default loading with a value $&gt; 0.7$</td>
</tr>
<tr>
<td>AVE (Average Variance Extracted)</td>
<td>The average result of extract variants with a value of $&gt; 0.5$ is used as a convergent variable determinant</td>
</tr>
<tr>
<td>Fornell-Lacker Criteria</td>
<td>The AVE value for each latent variable is higher than R2 with all other latent variables.</td>
</tr>
</tbody>
</table>

Inner model assessment, which can be assessed and evaluated using bootstrapping calculation execution, followed by an analysis of path coefficient, R-square, and total effects values. Bootstrapping test execution can determine the t-statistical value of a valid model construct. The results of the bootstrapping test execution on the model can be seen in the Fig 4.

![Fig. 4 Path analysis strengthening the role of agents of change](http://www.webology.org)
Results and Discussion

Demographic Features

The demographic characteristics of 144 user startup agriculture application are summarized in Table 1. The participants age was ranged from 20-60 years. Around 37.50% between 40 and 49 years; most of the user were female (66.7%). The educational levels were not satisfied. Only 67.36% of user had secondary level. Around 86.81% of them had experienced years below 3 years.

Path Analysis strengthening the Role of Agent of Change

After the path of analysis in Figure 4 is known, the next step is to test the hypothesis. The hypothesis was tested based on a value obtained based on the output of a coefficient path. In measuring how well the observation value is generated by the model and also the estimation of its parameters can be used with Q-Square predictive relevance for structural models. The calculation used using the formula.

\[
Q^2 = 1 - (1 - R1^2)(1 - R2^2)(1 - R3^2)(1 - R4^2)
\]

\[
= 1 - (1 - 0.895)(1 - 0.256)(0.401)(0.154)
\]

\[
= 1 - (0.105)(0.744)(0.599)(0.834)
\]

\[
= 1 - 0.039
\]

\[
= 0.96
\]

So the value of Q-Square predictive relevance obtained is 96% and already in the category is very good. From these results can be known the significance of influence between constructs. The overall effect of exogenous variables on endogenous variables in the path analysis model can be seen in the image. Seen in Figure 4, each variable is symbolized by the name of a blue circle variable. The numbers contained in the circle indicate the magnitude of the coefficient of determination (R^2) of the influence of all exogenous variables on the endogenous variables concerned. The arrow in the picture shows the direction of influence, and the number around the arrow shows the amount of influence. In contrast, the positive /negative sign in front of the number indicates the nature of influence, namely positive or negative influence.

In figure 4 it can be seen that in the circle of "reformer agent performance" there is several 0.164 that indicates the coefficient of determination (R^2) of the overall influence of internal factor variables, external factors, roles in farmers, roles in consumers, and roles in startups to the performance of agent of change by 16%. In comparison, the remaining 84% is influenced by other variables outside the model. The coefficient value of
determination ($R^2$) in the circle of "institutional capacity strengthening" of 0.093 means that overall the influence of internal factor variables, external factors, roles in farmers, roles in consumers, and the role of startups towards institutional capacity strengthening by 9.3% while the other 90.7% is influenced by variables that are outside the model.

The coefficient value of determination ($R^2$) in the circle of "role in farmers" of 0.894 means that the overall influence of internal factor variables, external factors, on the role of farmers is 89.4%. In contrast, the other 10.6% is influenced by variables that are outside the model. The coefficient value of determination ($R^2$) in the circle of "roles in consumers" of 0.256 means that the overall influence of internal factor variables, external factors, on roles in consumers is 25.6%. In comparison, the other 74.4% is influenced by variables that are outside the model.

<table>
<thead>
<tr>
<th>Variables that affect</th>
<th>Variables that influence</th>
<th>Path coefficient</th>
<th>Probability value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Factors</td>
<td>The role of reformers on farmers</td>
<td>0.713</td>
<td>0.005</td>
</tr>
<tr>
<td>Internal Factors</td>
<td>The role of reformers in consumers</td>
<td>0.589</td>
<td>0.002</td>
</tr>
<tr>
<td>External factors</td>
<td>Effectiveness of institutional capacity strengthening</td>
<td>0.189</td>
<td>0.015</td>
</tr>
<tr>
<td>The role of agent of change on farmers</td>
<td>Effectiveness of institutional capacity strengthening</td>
<td>0.630</td>
<td>0.005</td>
</tr>
<tr>
<td>The role of agent of change on consumers</td>
<td>Effectiveness of institutional capacity strengthening</td>
<td>0.491</td>
<td>0.002</td>
</tr>
<tr>
<td>The role of agent of change on startups</td>
<td>Effectiveness of institutional capacity strengthening</td>
<td>0.610</td>
<td>0.005</td>
</tr>
</tbody>
</table>

The coefficient of determination ($R^2$) in the "role at startup" circle of 0.401 means that the overall influence of internal factor variables, external factors, on roles in startups is 40.1%. In comparison, the other 59.9% is influenced by variables that are outside the model.

The shape and amount of influence of each exogenous variable on endogenous variables on the structure of the path analysis model can be seen in the tables and tables. In the table can be seen the direct influence of exogenous variables on endogenous variables, while in the table can be seen the influence indirectly of exogenous variables on endogenous variables in the path analysis model.
Direct Influence of Exogenous Variables on Endogenous Variables on Path Analysis Models in Strengthening the Role of an Agents of Change on Agricultural Startups

Based on table 3, it can be known that internal factors affect an agent of change in farmers by 0.713, meaning that each increase of one unit of internal factor score will be able to increase the 0.713 unit score of the role of the reformer agent in farmers. The following description will explain why internal factors positively affect the role of an agent of change on farmers.

Internal factors can be demonstrated through the motivation and self-efficacy of an agent of change. The motivations possessed by an agent of change are existence, relatedness, and growth. Existence in the agent of change agricultural startup in the Malang Area has appeared when the reforming agent performs its role on farmers, an agent of change need to earn income through fulfilling work targets that are empowering at the farmer level and farmer groups of startup partners. One of these needs is realized by the commission's result of the bonus of achieving the agent of change in accompanying production at the farmer level. Relatedness in the reformer agent is formed because of the need for agent of change in attracting all the clients also needed by the reformer agent. The wider the network of relationships carried out by agricultural startup agent of change, the higher the income earned. During the covid-19 pandemic, many farmers joined agricultural startups to become their farming partners. The lack of marketing due to regional restrictions and farmers' movement makes startups one of the alternatives for farmers in marketing their products. The alternative is realized through the help of an agent of change to gain consumer trust.

Self-efficacy in the agent of change is formed in the role given to consumers. Three variables can describe agent of change' self-efficacy in their consumer role, namely generality, strength, and magnitude. Generality that already exists in the reforming agency related to time management in finding and building relationships with consumers, an agent of change has a good persuasion ability to sign joint employment contracts with hotels and restaurants to absorb agricultural products produced by farmers. Good management of his work in farmers, as well as startups. The schedule that has been prepared to accompany farmers is very considered by the reforming agency so that the schedule extension has been very efficient to maximize its role. So that the activities in the office and on farmers there are no constraints. Magnitude in the reformer agent is the handling of an agent of change against various activities that are quite difficult. Significantly affects its role in farmers, when farmers face obstacles related to diseases or pests in their horticultural crops, the reformer agent must solve the problem. MSMB
Indonesia reformer agent becomes one of the agents of change that can solve the problem of fertilizer usage costs by utilizing drones as a means of fertilization efficiency. This is following research conducted by Wuepper and Sauer (2016) where agents of change will perform an action when their self-efficacy is high; self-efficacy is obtained from education and training obtained by an agent of change so that the value of self-efficacy influences the role of an agent of change in farmers.

Based on the table, it can be known that internal factors affect the role of an agent of change in consumers by 0.589, meaning that each increase of one unit of internal factor score will be able to increase the 0.589 unit score of the role of the reformer agent in the consumer. The following description will explain why internal factors have a positive effect on the role of an agent of change on consumers.

Internal factors can be demonstrated through the motivation and self-efficacy of an agent of change. The motivations possessed by an agent of change are existence, relatedness, and growth. Existence in agricultural startup agent of change is used as a role in consumers. This role is outrageous to meet the needs of consumers in meeting household food. In addition to household consumers, an agent of change also have a role in meeting the needs of business consumers. Consumers with a business purpose to process agricultural production materials into ready-to-consume foodstuffs such as chips, crackers, and canned food, and ready meals. The food is produced to meet household consumers’ needs who have limited time in processing fresh ingredients. This form of cooperation was agreed upon with several letters of approval between startups with restaurants and factories and the household industry. The higher the role of the reformer agent in meeting consumers' needs, the higher the need for the existence of agent of change.

Relatedness in the reformer agent is formed because of the need for agent of change in attracting consumers both at the household level and at the business consumer-level also needed by the agent of change, the more comprehensive the network of relationships carried out by agricultural startup agent of change will be the higher the achievement of agricultural startup consumer targets. During the covid-19 pandemic, many consumers began to use startups as providers of their kitchen raw materials. The existence of regional-scale social restrictions also makes consumers more aware of the raw materials used. Suppose the products produced through agricultural startups have gone through a grading process and a fair food safety process. The need for existence in the reforming agent to form a personal reformer agent is getting more vital in finding consumers who will buy farmers' products; the need to self-existent is what causes agent of change'
participation rate to be excellent in the search for consumers. Consumers become one aspect of success in building a business. The more consumers and consumer trust to become loyal customers of startups, the higher the need for a change agent.

The rise of business by basing on increasing the value of trust is also used by an agent of change in strengthening their role in consumers; this trust will cause consumers to be loyal and become more prioritize startups to support their needs; Tanigrup is currently a permanent supplier for consumers in large restaurants and public figures, the need for the existence of agent of change in the startup membrane has been successful. Self-efficacy agents of change influence the role of an agent of change. Generality that already exists in the reforming agency related to time management in finding and building relationships with consumers, an agent of change has a good persuasion ability to sign joint employment contracts with hotels and restaurants to absorb agricultural products produced by farmers. The products produced by farmers are not wasted. The reforming agent must communicate persuasion in carrying out its role. Agents of change can conduct various exhibition activities in several events such as gebyar Tani, Malang City Anniversary, and various other exhibition activities. This is an example of the implementation of activities that are quite difficult in carrying out agricultural activities. The activity is a description of the magnitude owned by the reforming agent. With this, self-efficacy maximizing will increase the role of an agent of change in strengthening the value of consumption at agricultural startups in the Malang Area.

Based on table 3, it can be known that external factors of an agent of change, be it social capital, opportunities, and facilities, have a real influence on strengthening institutional capacity. The strengthening of external factors by 0.189 units means that when the role of external factors of an agent of change increases by one unit, it will strengthen the institutional capacity of 0.189 units. Institutional capacity will be strengthened when an institution can obtain capital from within the institution and outside the institution. The capital structure still rests within the institutional 60% of the capital owned by agricultural startups in the Malang Area is still its capital. When compared to startups in other business fields, agricultural startups are still far away. This weakness makes the injection of funds that have been less influential on strengthening institutional capacity.

Also, what can strengthen startups’ institutional capacity is the company's profitability and sound risk management. Agent of change can still manage risks in agricultural startups because the company's risks are still small compared to the risks that exist in startups engaged in the marketplace. The limitation of profitability is a weakness that must be
resolved immediately by the reforming agent, considering that the capital that has been used is 60% capital derived from the company itself.

From the table above, it can be known that the influence of the role of an agent of change on farmers to strengthen the institutional capacity of 0.630 means that with each increase in one unit of the score, the role of an agent of change on farmers will be able to increase 0.630 units of institutional capacity strengthening units. The following description will explain why the role of an agent of change in farmers is positive towards strengthening the institutional capacity of agricultural startups in the Malang Area.

The role of an agent of change on farmers includes organizing, ensuring funds or capital, and catalysts. The organizing activities carried out by an agent of change where many considerations must be considered carefully. Responsibility to superiors and colleagues must also be considered. Agents of change have a responsibility to partner farmers and consumers. Such responsibility is a burden that must be carried out as possible by the reforming agent. The burden carried by an agent of change, for example, is among tani activities to conduct organizations in equating planting types in one potential area. Agents of change should carry out this task as best they can, even with diverse farmers' thoughts. Another role is to ensure funds or capital, and capital becomes one of the elements that can support the production process in agricultural startup institutions. The capital is used in empowerment, production, and marketing activities in farmers. Farmers can access capital by using proposals to submit capital to an agent of change; the agent of change provide ease of submission of proposals to startups so that business capital can be given quickly to farmers.

The role of an agent of change on farmers is a catalyst. Agent of change becomes one of the actors in delivering changes in agricultural startups. Agricultural startup institutions in the Malang area is one of the institutions with many and diverse catalysts. Agricultural startups today have many catalysts and agents of change with technology that develops to change the pattern of old or traditional agriculture with new or modern agricultural patterns.

Based on table 3, it can be known that the role of reforming agents on consumers has a real influence on strengthening the institutional capacity of 0.491 units or if the role of agents in consumers will increase by 0.491 on one unit. This is because reforming agents in consumers is an activity to meet consumers' food needs. In meeting these food needs through social media platforms reforming agents with consumers through social learning, such as the role of farmers, strengthens their role as a reference of agricultural science and
innovation in consumers with the impact of strengthening institutional capacity in agricultural startups.

Institutional capacity, according to (Ruhimat 2017), depends on the support of various parties. This support is indispensable in the process of strengthening institutional capacities such as policy support, partnerships, costs, science and technology, and companion personnel. The role of consumers by reforming agencies has been able to support policy support, partnerships, costs, science and technology, and companion personnel. The role of reforming agents in consumers provides foodstuffs from farmers' production and provides solution knowledge that can be done by consumers such as excellent and correct storage of vegetables and meat.

Table 4 Indirect Influence of Reforming Agent Factors on Institutional Capacity Strengthening

<table>
<thead>
<tr>
<th>Intermediate variables</th>
<th>The amount of influence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internal factors</strong></td>
<td></td>
</tr>
<tr>
<td>The role of reforming agents on farmers</td>
<td>0.333</td>
</tr>
<tr>
<td>The role of reforming agents on consumers</td>
<td>0.259</td>
</tr>
<tr>
<td>The role of reforming agents on startups</td>
<td>0.317</td>
</tr>
<tr>
<td><strong>External factors</strong></td>
<td></td>
</tr>
<tr>
<td>The role of reforming agents on farmers</td>
<td>0.286</td>
</tr>
<tr>
<td>The role of reforming agents on consumers</td>
<td>0.453</td>
</tr>
<tr>
<td>The role of reforming agents on startups</td>
<td>0.339</td>
</tr>
</tbody>
</table>

From the Table 3, it can be known that the influence of the role of reforming agents on farmers to strengthen the institutional capacity of 0.610 means that each increase of one unit of external factor score will be able to increase the 0.610 unit score of the role of the reformer agent at the startup. The following description will explain why external factors have a positive effect on strengthening the institutional capacity of agricultural startups in the Greater Malang Area. The role of reforming agents on farmers includes organizing, ensuring funds or capital, and catalysts.

Reforming agents conduct institutional organizing activities. Many activities are carried out in the form of structuring the organizational structure. The arrangement is adjusted according to the ability of colleagues in agricultural startups in the Greater Malang Area. The organizational system in its work makes reforming agents increasingly provide strengthening to institutional capacity. Organizing within Tanigrup provides strengthening of these startups compared to other startups outside of agricultural startups.
Ensuring funds or venture capital at startups becomes one of the roles of reforming agents. The reforming agent becomes the actor responsible for the construction of the venture capital. In this capital raising, the reforming agent conducts a release of financial statements that have been compiled by the company's financial team if the funds owned by less reforming agents can network cooperation with various parties to obtain an injection of funds either through exhibitions or the submission of cooperation agreements.

Reforming agencies also have a role in startup catalysts. The development of agricultural startups in the Greater Malang Area is very rapid in the use of technology. The technology is approached by reforming agents by developing startup technology in other countries such as the U.S., which has implemented agriculture with modern systems. The technology was adopted by reforming agencies to support agricultural startups in Indonesia.

Indirect Influence of Exogenous Variables on Endogenous Variables

Table 4 shows that the internal factors of reforming agents have a direct and positive effect (0.529) on strengthening institutional capacity, and the role of reforming agents on farmers has a positive effect (0.630). Therefore, internal factors indirectly positively influenced institutional capacity by 0.333 (obtained from the multiplication result of 0.529 to 0.630). The indirect influence of internal factors can increase the strengthening of institutional capacity. Therefore, it needs to be pursued to improve the internal factors that exist within the reforming agent.

The existence of this influence can indicate that internal factors can encourage an increase in institutional capacity strengthening and performance in startup agent of change. Reforming agents who have internal factors in the form of motivation, self-efficacy, education, and adequate social capital will carry out their roles following the achievement of goals in startups so that startups' needs in achieving targets can be appropriately met. A right role in reforming agents is also able to trigger an update of creative ideas tailored to farmers' needs in the empowerment process.

The creative forms provided by agricultural reforming agents as the application of this form of role is the provision of ease of capital lending development through the company's website that can be accessed by farmers who want to partner with startups. The empowerment that goes well will trigger good production, increasing farmers' production will provide opportunities to increase sales in agricultural startups so that it will make it easier for startups to increase business capital as institutional development, also through
the profits obtained it can also expand the reach of partner farmers who want to join by providing easy access to capital. This ease of access will also trigger agricultural startups' development by having many farming partners produce materials in the form of vegetables, food, and other food needs in the future.

Such influence can indicate that internal factors can encourage reforming agents to play a useful role in farmers to strengthen the institutional capacity of agricultural startups so that indirectly the internal factors of reforming agents also influence the strengthening of institutional startup capacity.

The table shows that the role of reforming agents in consumers has a direct and positive effect on strengthening institutional capacity by 0.491, meaning that each role of reforming agents in consumers will increase institutional capacity strengthening by 0.491 units of score or vice versa. In the process of strengthening agricultural startup institutions in the era of industrial revolution 4.0, consumers become a source of investment in farmers and a source of capital playback in institutional. A decisive role will increase consumer confidence to participate in strengthening startup institutions.

Consumers are currently in an order that prioritizes social impacts in institutions such as startups that have a social impact in strengthening the value of farmers to increase profits and the economy. Any social impact can facilitate the ease of introducing institutions to the broader community to strengthen the institutional capacity of agricultural startups. The table shows that internal factors directly and positively influenced the strengthening of institutional capacity by 0.529. Thus, it can be interpreted that institutional capacity strengthening will increase by 0.529 units in each unit. The influence is well-formed by reforming agents through motivation, education, self-efficacy, and social capital to influence the performance of reforming agents is getting stronger.

Thus, the internal factor of reforming agents has an indirect influence on institutional capacity strengthening through reforming agents' role in consumers of 0.259 (multiplication results of 0.491 to 0.529). The existence of this influence can show that the internal factors of reforming agents can potentially encourage institutional strengthening through the performance of reforming agents in carrying out each role because the role indirectly becomes a strengthening of the reformer agent to achieve the vision of the mission of agricultural startups that contributes to the strengthening and empowerment of farmers in Indonesia so that indirectly the internal factors of reforming agents will be able to increase the institutional capacity of agricultural startups in the era of industrial revolution 4.0.
The table shows that the role of reforming agents in startups has a direct and positive effect on strengthening institutional capacity by 0.610, meaning that any increase in the role of reforming agents in startups of one unit of the score will be able to increase institutional capacity strengthening by 0.610 units of score or vice versa. The role of reforming agents in startups is one of them as actors who can do chief disruption in building startups. This ability is the ability to destroy old trading systems and bring new trading model systems closer together. In this role from the four agricultural startups in the Greater Malang Area, the reforming agents disposed of the old trading system that took too long to run production, but through a new system with a technological approach increasingly makes the production process too long to be shorter. The reformer agent's role will strengthen the institutional capacity of startups so that agricultural startups with the role of reforming agents are getting stronger and more prominent in the future.

The table shows that internal factors have a direct and positive effect on the role of reforming agents in startups by 0.529, meaning that each internal factor of the reforming agent, namely motivation, self-efficacy, education, social capital, will increase by one unit the score will be able to increase the role of the reformer agent in the startup by 0.529 units of the score. This means that the reforming agent's internal factor has an indirect influence on the strengthening of institutional capacity through the role of reforming agents in startups of 0.317 (multiplication results of 0.610 to 0.529). The existence of this influence can indicate that the internal factors of reforming agents can increase the institutional capacity of agricultural startups so that reforming agents in increasing their role will be faster in strengthening the institutional capacity of agricultural startups in the era of agricultural industrial revolution 4.0.

The table shows that the role of reforming agents in farmers has a direct and positive effect on strengthening the institutional capacity of 0.630, meaning that any increase in the role of the reformer agent by one unit of the score will be able to increase external factors by 0.630 units of score or vice versa. The role of reforming agents in farmers is now the benchmark of startup success in becoming an increasingly powerful institution. The direct role of farmers makes the development of food crop production and technology institutional. The faster the process of growing startups, agricultural startups are effortless to assess developments from the development of equity value, capital, and liabilities. These three values will be resolved more quickly if the reforming agent can increase production in partner farmers so that the goods produced by startups will be more powerful and have a fair price value faster.
The table shows that reforming agents' external factors directly and positively affect the role of reforming agents in farmers by 0.454, meaning that each internal factor increases by one score will increase the role of reforming agents in farmers by 0.454 units of the score. The table also shows that the role of reforming agents on farmers has a direct and positive effect on strengthening institutional capacity by 0.630. This means that reforming agents' external factors have an indirect influence on strengthening institutional capacity through the role of reforming agents on farmers by 0.286 (multiplication yield of 0.630 to 0.454). This influence can indicate that external factors of reforming agents can increase institutional capacity strengthening so that the institutional strengthening process will be more quickly achieved by the vision of agricultural startup missions in the agricultural industry 4.0 era.

The table shows that the role of reforming agents in consumers has a direct and positive effect on strengthening institutional capacity by 0.491, meaning that any increase in the role of reforming agents in consumers buy one unit of the score will increase the value of institutional capacity strengthening by 0.491 units of score or vice versa. The role of reforming agents on consumers is one form of efforts made by reforming agents to increase sales of various products in agricultural startups. One form of such efforts is a variety of activities to add consumers through exhibition activities, social media such as Instagram, Facebook, youtube, and websites. Social media as advertising media to get consumers is the easiest thing to introduce agricultural startups to the broader community. In this research, institutional capacity strengthening is demonstrated by disseminating agricultural startup news in various magazines, newspapers, and media. The stronger the coverage in the mass media, the stronger the institutional startup agriculture.

The table shows that external factors of reforming agents have a direct and positive effect on the role of reforming agents in consumers by 0.923, meaning that each external factor of the reforming agent increases by one unit the score will be able to increase the role of the reformer agent in the consumer by 0.923 units of the score. The table also shows that reforming agents in consumers has a direct and positive effect on strengthening institutional capacity by 0.491. Thus, external factors indirectly influence institutional capacity strengthening through the role of reforming agents in consumers of 0.453 (multiplication result of 0.491 to 0.923). The existence of this influence can indicate that external factors can encourage institutional capacity strengthening to be further enhanced so that the role of reforming agents in consumers takes place better.

The table points out that the role of reforming agents in startups has a direct and positive effect on strengthening institutional capacity by 0.610, meaning that any increase in the
role of reforming agents in startups by one unit of the score will be able to increase institutional capacity strengthening by 0.610 units of score or vice versa. The role of reforming agents in startups required in startups include creativity and innovation developers, organizers, strategists, and leaders. With this role, reforming agents can strengthen the role of reforming agents so that the acceleration of institutional strengthening is faster.

The table shows that the external factor of the reformer agent to the role of the reformer agent at startup is 0.556, meaning that each external factor of the reformer agent increases by one unit, the score will be able to increase the role of the reformer agent on the startup by 0.556 one unit score. The strengthening of motivation, self-efficacy, education, and social capital will increase individuals' strength in carrying out all their activities and roles.
in startups. This means that external factors of reforming agents have an indirect influence on strengthening institutional capacity through reforming agents in startups of 0.339 (multiplication results of 0.610 to 0.556). The existence of this influence indicates that external factors can increase the role of agent of change in startups so that the process of strengthening the institutional capacity of agricultural startups in the era of industrial revolution 4.0 can take place faster and faster.

Model Strengthens the Role of an Agent of Change at Startups in the Agricultural Industry Era 4.0

Reforming agents are currently one of the best assets in a company both in multinational companies and startups, especially in the current covid-19 outbreak. The development of startups today is also very rapid. The ups and downs of institutional startup activities are also very fast to assess whether the startup can survive in the era of rapid technology-based business competition and survive the economic collapse due to the covid-19 outbreak. Agricultural startups become one of the business innovations that will become a reference for agricultural businesses in the future. In its journey from standing up to growing, agricultural startups have actors who run all the business processes. In carrying out the task, the role of reforming agents is needed in the context of agent of change' work to mediate three actors, namely startups, farmers, and consumers.

The current reformer agent character, who is already literate in digital literacy, makes it easier to develop agricultural startups. The role carried out by reforming agents is based not only on personal experience but also through the use of knowledge obtained from the education bench and literature studies on the business development of agricultural startups abroad. The ability to analyze various opportunities and strengths makes the reforming agent one of the most important actors and agricultural startup assets in the agricultural 4.0 era.

The covid-19 pandemic situation makes a new habit in transacting and doing business; of course, reforming agents must be able to master the most basic standards of business needs by using technology, the number of emerging new agricultural startups but not strong enough to survive because the ability of agricultural startup agent of change is not by the potential state of the region and social psychology reforming agents. Reforming agents can be seen as one of the elements of a system that serves as a transfer of innovation from startups, capital from investors, production of startup systems, and information to farmers and facilities. On the contrary, each other element also plays a role
in serving the interests of farmers, consumers, and startups in addition to their communication to form a targeted innovation system.

The absence of a model of strengthening the role of reforming agents is one of the challenges to be reviewed further so that it is expected to be a reference in selecting reformers agents with various essential criteria that must be owned by the reformer agent. According to Carnall (2007), reforming agents are at least based on their role in leading, namely through the ability to delegating, participating, selling, and telling the lack of a specific role for agricultural agent of change in consumers, startups, and farmers to be one of the shortcomings that reforming agents are still judged to be limited to leaders or employees who have leadership spirit even though the coverage carried out by agricultural agent of change in the Greater Malang Area has led to the provision of social impact on these three startup business actors. Thus, a model of strengthening the role of agricultural startup agent of change is formed relevant in the era of industrial revolution 4.0, which can be seen in figure.

The model of strengthening the role of reforming agents is arranged based on the state of agricultural startups in the Malang Area, namely Malang City, Malang Regency, and Batu, the startup situation is adjusted to the type of agricultural startups, and the focus of agricultural startup production is the type of ownership by the local government, and private sector, as well as the focus of products in the form of agricultural technology tools and food products. The circumstances seen in the startup are a consideration of how the maintenance agent's character in it. Although the vision of the mission is the same, it is oriented towards the development of agriculture and farmers. The existence of communication that occurs in this startup is a rejection of the traditional point of communication theory put forward by Robert Craig (1999) where the occurrence of communication in a startup institution is a complex system, where elements in it interact and influence each other. In this case, four main elements play a role in developing agricultural startups: farmers (farmer groups), agent of change (TPP, CEOs, and Founders), consumers, and the Regional Agriculture Office. Each element plays a role, and its role is complementary and dependent on each other. Communication between them can be understood as a system that affects each other and at the same time supervise the character of the whole system in order to achieve dynamic balance. Such a dynamic can be realized if one element has a significant influence to form an effective communication integration, in this case, the reforming agent.

They were referring to the institutional system that brings innovation in the development process put forward by Rusaw (2005). In order, the reforming agents have the task of
accompanying leaders, giving a meaning, providing continuous learning, and a principled integrator. The reformer agent must be an actor who can provide information intensively so that it can perform appropriate role-taking by the needs of each related element, especially in carrying out activities at agricultural startups. Agent of change and startups must have common goals to be able to improve the effectiveness of their roles.

Internal factors that affect reforming agents are motivation, self-efficacy, education, and social capital that will influence reforming agents' role in agricultural startups. On the contrary, external factors that affect reforming agents are opportunities, facilities, institutions, as well as the environment. The high level of internal and external factors of reforming agents will affect reforming agents' role in carrying out activities in startups, both playing a role in farmers, consumers, and startups themselves. These factors are carried out interconnected with each other, where each of these factors influences the formation of the character of the reforming agent.

There are 14 roles performed by reforming agents performed in startups, where those roles can be seen virtually in reforming agents. The results showed that reforming agents have effectively played their role in farmers, consumers, and startups with a figure above 70%. The reforming agent gives the role by the purpose and job description owned. The practical value carried out through its role shows that in carrying out the tasks that exist in agricultural startups are by the needs of a startup as it should be, reforming agents have been able to apply organizational communication well, namely providing information with each other with their roles widely to actors of other startup actors.

The role performed will impact strengthening institutional capacity and the internal and external factors of the reforming agent and contribute to the strengthening of the role of reforming agents. The reforming agent's role will be more effective if each indicator in the role of the reformer agent has a value above 70%. Simultaneously, the effectiveness of institutional strengthening startups will give a final assessment that reforming agents' role also has a significant impact and influence. Since the emergence of agricultural startups in Indonesia, new standards have been set for how the form, implementation model, and human resources must be met so that many agricultural startups have to roll mats because they do not meet the standards of one of which is the standard of human resources owned. This human resource is related to the reforming agent. The reforming agent becomes one of the actors who must be known his role so that in establishing a startup, human resources in the form of reforming agents must have standards in strengthening his role. The absence of reference in strengthening the role makes its obstacles in developing
agricultural startups and existing reforming agents still cannot match technology, and the world of agriculture and communication skills owned relatively lower.

The low effectiveness of strengthening institutional capacity that has occurred so far has caused the absence of development of agricultural startups that ultimately require companies to suffer losses. This model's existence can overcome the fundamental problems of this to produce strategies that can be followed up by reforming agencies to strengthen agricultural startup institutions by strengthening the role of reforming agents.

**Conclusion**

This research is the first research in Indonesia which known factor in agent of change, and agent of change role strengthening that in the future can giving impact in small farmer’s Indonesia agriculture. As for Good performance, improved human resource quality, maximum service and strengthening the welfare of farmers through the role of an agent of change. Variable support of internal factors, external factors, and the role of reforming agents have a real and positive effect on strengthening the institutional capacity of agricultural startups in the agricultural industry 4.0 era, to directly affecting internal factors and external factors also affect indirectly through: (a) The role of reforming agents on farmers, (b) the role of reforming agents to consumers, (c) the role of reforming agents to startups.

The model of strengthening the role of reforming agents in startups in the agricultural industry 4.0 era is necessary for looking at the state of startups, internal and external factors of reforming agents, the role of reforming agents, and their influence on strengthening capacity occurring in startups to produce strategies in strengthening agent of change.

**Acknowledgements**

The authors would like to thank all those who agreed to be respondent.

**Suggestion**

Based on the findings of the model of strengthening the role of agent of change, the role of reforming agents is necessary so far is the role of scientists or academics to conduct scientific research, so it seems as if actors who can make changes are academic only. Therefore, this research can show that the concept can strengthen the role of reforming agents in agricultural startups in the industrial 4.0 era outside of academics and scientists.
as reforming agents. This reforming agent connects farmers, sources of innovation, and sources of capital; this kind of condition will strengthen the value of power in farmers because of reforming agents' presence. Also, this reforming agent's presence will lead to the possibility that farmers will always get a variety of innovations that can facilitate it in the production process.

References


