

# TTI's E-COMMERCE MOTIVATES FARMERS TO PERFORM AT THEIR BEST

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**Abstract.** *Toko Tani Indonesia (TTI)* has implemented e-commerce to market products to a greater extent. In 2018, a preliminary study was to examine TTI's implementation of e-commerce, and a subsequent desk study in 2019. The data were collected through interviews with the Food Security Agency, *Bumi Pangan Digdaya Agro*, *TTI*, and *LUPM*. The studies' findings are the following: 1) E-commerce results in several benefits, especially social benefits such as trust, which motivates farmers to do their best in their work for TTI. 2) The number of *TTI* and *LUPM* customers who make rice transactions through e-commerce platforms, as well as the volume of rice transactions, increased. In conclusion, the expansion of TTI's e-commerce to other areas should be accomplished through adequate communication and an in-depth study of the targeted areas' potential. This will lead to optimal results. This strategy is critical in promoting agricultural development, especially during the coming new era.

**Keywords:** e-Commerce, social benefits, farmer, transaction, marketing

## 1 Introduction

*Toko Tani Indonesia (TTI)*, also known as Indonesian Farmers Shop was founded in 2016 to keep prices stable and provide people with quality staples foods at lower costs than market prices. TTI was also founded to make food easily accessible by shortening the market chain from seven to three actors. These three actors are 1) farmers or producers who are members of farmer groups (*Kelompok Tani*), farmer group unions (*Gabungan Kelompok Tani*), or *Gapoktan*, 2) the community's food institution, or *Lembaga Pangan Masyarakat (LUPM)*, which is the *Kelompok Tani* or *Gapoktan* that received the Community Food Business Program or *Program Usaha Pangan Masyarakat (PUPM)* and TTI that directly sell the product to consumers [1].

Since March 2018, TTI E-Commerce has applied to help TTI actors carry out their responsibility, such as TTI can get the rice at anytime they need, and LUPM respond to the request directly. Especially the implementation of E-Commerce at TTI also aims at helping BKP's main tasks and function in: (1) Providing and distributing rice effectively in specific periods; (2) Monitoring the status of staple food availability; (3) Simplifying the process of payment transactions; (4) Establishment of a database and reporting system that is very important for the policy strategy.

This paper presents the results of the implementation of E-Commerce in TTI management and the benefits as well as obstacles encountered. The study will use as a basis for policy in massively developing the implementation of E-Commerce to achieve food security.

## 2 Literature Review

The implementation of TTI reported by [2] is helping consumers. Unfortunately, [3] claimed that the amount of rice allocated by the TTI program was very low compared to the Indonesian people's consumption needs. This amount was only 0.07%, 0.139% in 2017, and 0.137 % in 2018, which suggests that the Ministry of Agriculture increase TTI's number and existence.. Based on this finding, the number of *Gapoktan* and TTIs was gradually increased by The Food Security Agency or *Badan Ketahanan Pangan* [4]. There were 492 PUPM and 1,320 TTIs in 2016 plus 406 *Gapoktan* and 1,113 TTIs in 2017 and another 500 *Gapoktan* with 1000 TTIs in 2018, for a total of 1398 *Gapoktan*

and 3433 TTI spread 7 (seven) provinces of rice centers (South Sumatra, Lampung, Banten, West Java, Central Java, East Java, and West Nusa Tenggara). in 2019 there were 898 PUPMs and 2,433 TTIs spread across 32 provinces.

These conditions require professional TTI management therefore the [5], implemented e-commerce in TTI management. According to [6], e-commerce is a process of buying, selling, or exchanging products and services efficiently.. Hence, this paper aims to examine the benefits of and obstacles to TTI e-commerce implementation.

### **3 Methodology**

#### **3.1 Source of Data**

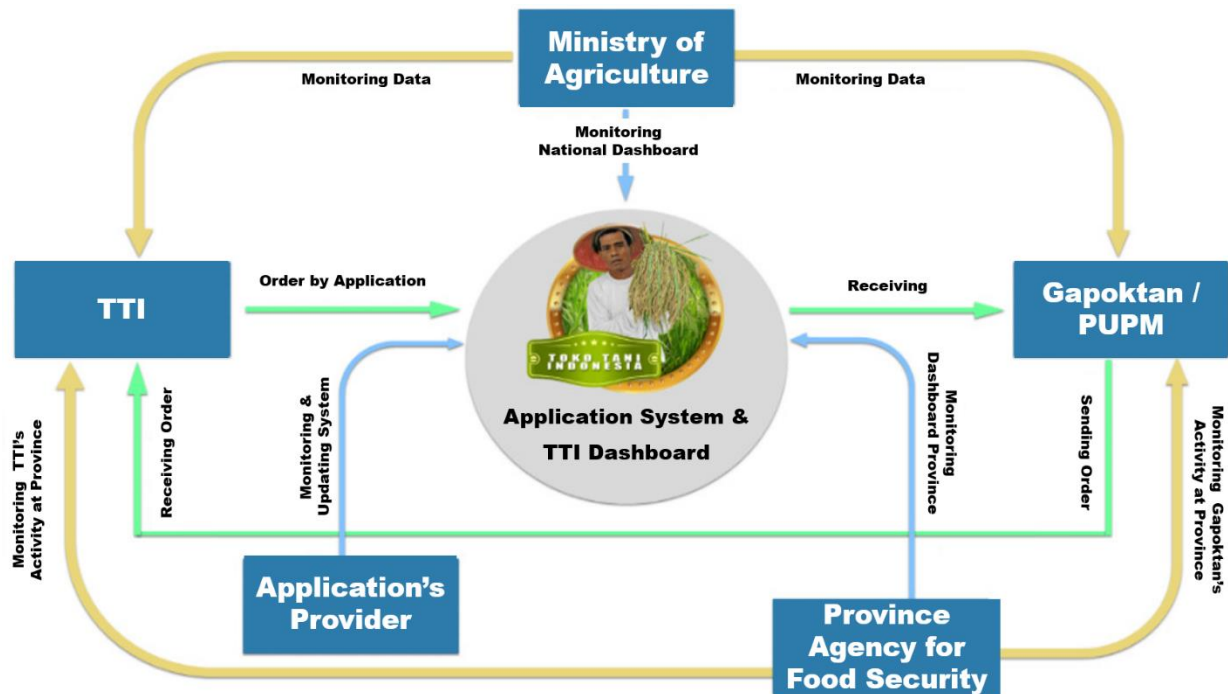
The study was conducted in two steps: 1) Preliminary study after six months of e-Commerce implementation in 2018 with the respondent the initiator of TTI e- Commerce namely the Food Security Agency or *Badan Ketahanan Pangan (BKP)*, *Bumi Pangan Digdaya Agro (BPD)* as TTI partners in operating e-Commerce applications, TTI Center, TTI who sell the product and LUPM for rice commodity entrepreneurs. Data will collect through the interview based on a structural questionnaire on how LUPM and TTI perceived TTI E-Com's implementation includes its benefits and obstacles and the prospect of TTI E-Com. The second step is doing a desk study on data obtained from BPD during 2018 and 2019.

#### **3.2. Data analysis**

Data and information were analyzed qualitatively based on the “Theory Acceptance Model” (TAM) refer to [7]. Qualitative data were classified into two main objects, which are the benefits and the obstacle of the implementation of TTI E-commerce, then presented descriptively.

### **4 Research Result and Discussion**

The implementation of E-Commerce in the management of TTI [8] includes LUPM/ Gapoktan, TTI and TTIC as the liaison that will bring together suppliers and TTI information data system that is handled by the TTI Costumer Team as data manager and application (Figure 1).



Source: [8]

Figure 1. The mechanism of TTI E-Commerce

### 1. Benefits of TTI E-Commerce

Results from the preliminary survey found some benefits of implementing TTI E-Com (Table 1). Technically, both LUPM and TTI were not dependent on the program's assistant to help them in doing the transaction during the conventional system. They need to fill in the available application as preferred and they could expand their marketing network and monitored the transaction automatically at any time they want.

Table 1. Benefits of TTI E-Com Applications Compare to TTI Conventional

No	TTI Conventional	TTI E-Commerce
<b>Technically</b>		
1	A transaction must be through an assistant	Download the application in Handphone
2	Networking under an agreement between TTI and Gapoktan/LUPM	respond directly to the TTI order
3	Transaction reported manually	LUPM could monitor the transaction through HP
4	Payment system under an agreement	Payment transferred or Cash on delivery (COD)
<b>Economically</b>		
5	Payments often not according to agreement	No worries on payment
<b>Socially</b>		
6	TTI determines the fate of LUPM	Both LUPM and TTI try to be trusted

Source: [9]

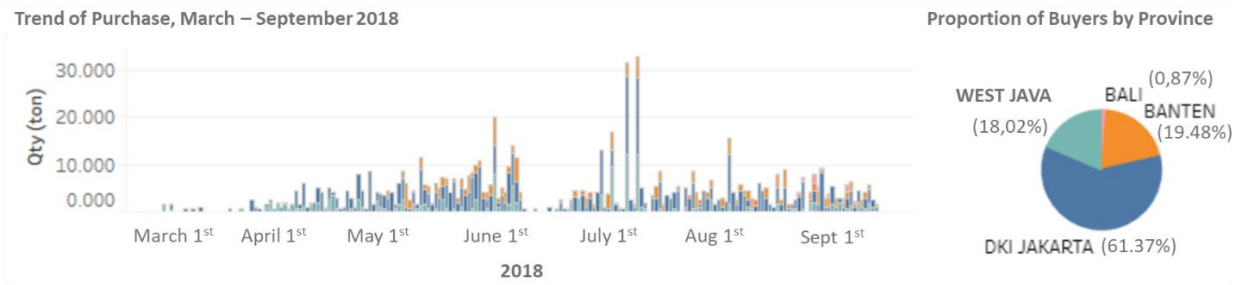
Economically, LUPM has no worries that payment will be delayed or unpaid since the application system option was transferred or cash on delivery (COD). In a conventional system, payments are often not under the agreement, especially when faced by facts that rice has not been sold out yet and LUPM could see piles of rice displayed in the shop. The social benefit reported was "mutual trust" between LUPM and TTI that had been regarded as precious social

capital [10] that could be found again through TTI E-Com. The transaction will not be made if there is still doubt by either LUPM or TTI. This trust was to motivate both LUPM and TTI to maintain the sustainability of their cooperation. UPM must be trusted in preserving the rice quality and the quantity according to demand by considering the loss of weight during transportation..

## 2. Obstacles of TTI E-Commerce

During the preliminary study LUPM and TTI reported some technical obstacles such as the ability to operate the application and low signal for LUPM which have not been reached by the internet. Economically, most farmers have limited money to buy a cellphone that could access the E-Com application. These two limitations are ultimately related to the social status where the higher social status of farmers, these two obstacles will not be encountered. The limited volume of rice that could be accessed through the E-Com application somehow made the LUPM find ways to efficiently streamline the delivery process, namely by collecting several orders according to the vehicle's capacity to deliver the rice..

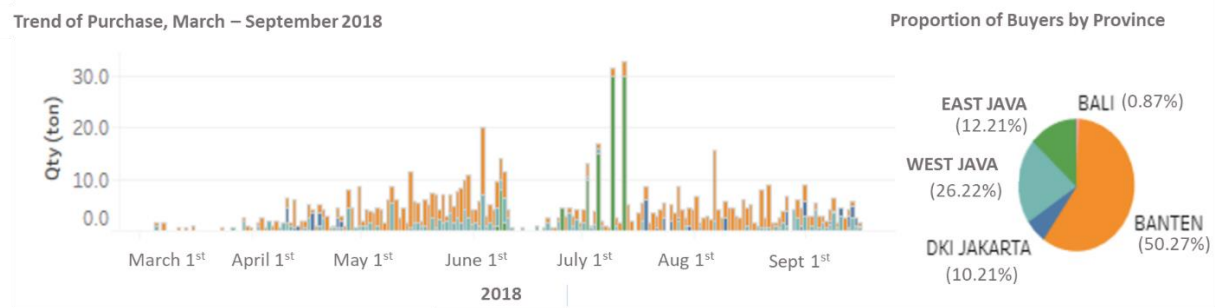
Under the above obstacles and limitations, TTI E-Com has been utilized by TTI (Figure 2). The figure illustrates the TTI transaction and describing the location of the TTI. There are five provinces utilized TTI E-Commerce, in which DKI Jakarta ordered the most (61.37%); other TTI found are Banten 19.48%, West Java 18.02%, Bali 0.87% and TTI Lampung Province 0.26% (not shown).



Source: [8]

Figure 2. The Utilization of E-Commerce by TTI (March 5, 2018 to September 27, 2018)

Figure 3 illustrates the transaction and the location of LUPM who used the TTI E-Com to service TTI, the most were from LUPM Banten 50.27%. Others from West Java 26.22%, East Java 12.21%, DKI Jakarta 10.21%, Bali 0.87%, and Lampung 0.25% (not shown).



Source: [8]

Figure 3. The Transaction through TTI E-Commerce done by LUPM (March 5, 2018 to September 27, 2018)

## 3. Farmers' Performance in TTI E-Commerce

Based on some benefits from TTI E-Com, many LUPM and TTI were interested in the rice transaction involvement. Table 2 illustrates that compare to data from the preliminary study showed higher rice transactions. This progress proved that farmers who hold trust would give the best services with an average of 5 times increase by the end of

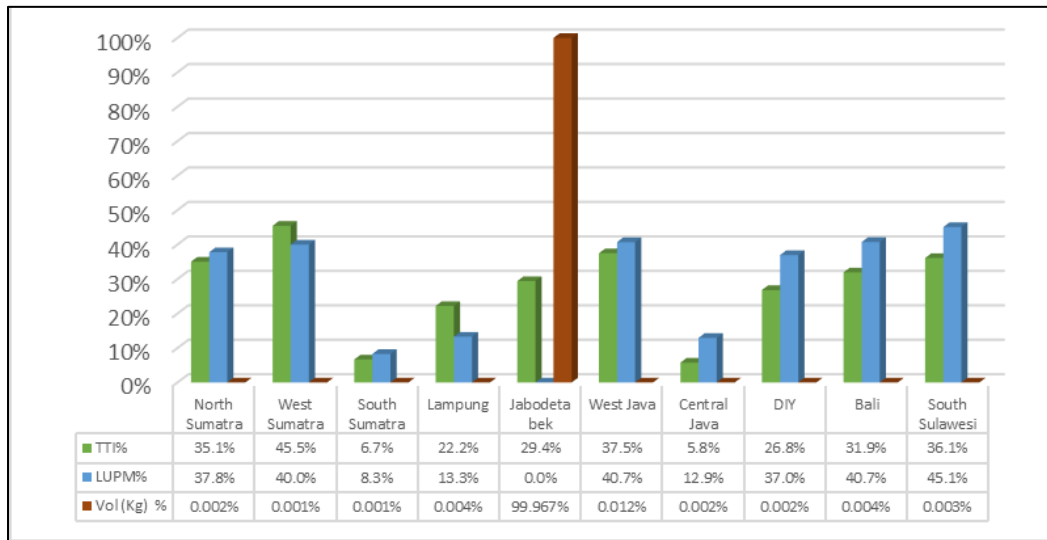
2019.. That “trust” was significantly had positive correlation for industrial development was reported by [11] while [12] reported that trust is social capital which create bonds between Gapoktan members. Based on these findings, TTI E-Com was a very appropriated technology for TTI management.

Tabel 2. The Increase of Transaction Through TTI E-Commerce (24 Oct 2018) – (31 Dec 2019)

No	Description	Unit	24 Oct 2018 <sup>1)</sup>	31 Dec 2019 <sup>2)</sup>	Increase (times)
1	The total volume of rice transaction from LUPM to TTI	Ton	863.350	3.228.490	3.739
2	Number of TTI registered in the E-Commerce system	Unit	989	4.133	4.2
3	Number of TTI accessed E-Commerce	Unit	148	844	5.7
4	Number of LUPM registered in the E-Commerce system	Unit	291	1.294	4.5
5	Number of LUPM access E-Commerce	Unit	67	245	3.7
6	Total transaction value	IDR	7.231.163.900	56,062,672,400	7.7
Average					5.1

Source: <sup>1)</sup>[13] ; <sup>2)</sup>[14]

In 2018 TTI only did the rice transaction by 15%,it might because they were mainly unable to pay the amount of money under the total price of the volume they ordered.Through the conventional system, TTI was able to pay for the rice they order in stages upon agreement between TTI and LUPM. The payment system is also the reason for rejecting orders that are deemed incompatible with the contract. Through the E-Commerce system, TTI is required to have the capital to purchase the rice and who do not have a transaction card (ATM) have to go to the bank to transfer the money. It takes time and effort to do. Meanwhile, LUPM who have transaction through E-Commerce application has only 23% of the total LUPM registered in E-commerce. The reason is that the PUPM found difficulty accessing the internet from the village and not utilizing the E-Com application. Even LUPMs who have cellphones cannot access the E-Commerce application yet.Regardless of the TTI and LUPM obstacles, data at the end of December 2019 (Table 2) showed the increasing number of TTI and LUPM caused by the province's increment that active using transaction through TTI E-Com (Figure 4). Besides illustrated the percentage of the active TTI and LUPM, Figure 4 also showed the total volume of the transaction from each province, with DKI Jakarta order the most of the rice.



Source : [8]

Figure 4. The Percentage of Active TTI/LUPM in Rice Transaction Through E-Com and The Volume of Rice delivered in Each Province.

## 5 Conclusion

E-com has provided benefits for both LUPM and TTI technically, economically and socially. The benefits motivate farmers done their best services as shown by the increasing number of LUPM and TTI from more provinces which made a transaction through E-Com as five times compared to the first semester of the TTI E-Com implementation. The increase of the transaction followed the increment of the total volume of rice.

## 6 Implications

The progress of transactions through E-Com is considered a success story that should inform another LUPM and TTI in all provinces. Due to the new era during the Covid 19 pandemic situation, the online system for farmers and TTI activity is pivotal. The government should facilitate farmers and TTI with technical assistance and guidance in the capacity of TTI E-Com. This effort must be followed by holistic data about the target areas' potential, where the facilitation would conduct. It is also essential to conduct regular monitoring and evaluation under the global situation with respondents who can represent the number and location of the spread of TTI and LUPM.

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