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HOW TO DESIGN AND PLAN THE SUSTAINABLE SUPPLY CHAIN OF TEFA AGRIMART POLIJE?

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ASBTRACT
Teaching Factory (TEFA) Agrimart which will be engaged in marketing services or retail business must be more responsive in understanding consumer desires, because retail position is the closest position to consumers in a supply chain management system. The specific objectives of this research are to identify and plan supply chain management. This research is a type of qualitative approach research using a mixed sequential exploratory method, which was carried out purposively at the Department of Agribusiness Management at the Politeknik Negeri Jember. Tefa Agrimart supply chain identification is carried out starting from demand and supply planning (plan), input sources (source), product transformation (make), distribution and warehousing (deliver), and information systems, payments, to product approach services (return). Qualitative data will be analyzed by Milles and Huberman analysis approach which consists of data reduction, data display and data conclusion/verification. The results of the research are the supply chain of product flow, information flow, and financial flow that can be offered to pioneers of Tefa Agrimart, namely from suppliers to Tefa Agrimart and continued to consumers.

KEY WORDS
Teaching factory, supply chain, management, Agrimart.

Politeknik Negeri Jember is one of the vocational universities that apply the development / innovation of learning with the concept of Teaching Factory (TEFA) in the process of teaching and learning activities, to produce graduates/human resources who are superior, skilled, and more able to compete in the industrial world. This is in accordance with the vision of the Politeknik Negeri Jember, which is to become the Superior State Polytechnic in Asia in 2035, with one of its missions being to improve applied education that is innovative and competitive. TEFA can bridge the competency gap between the knowledge provided and the actual needs of the industry, as well as to develop the character and work ethic that is needed by the business world and the industrial world today, so that skilled human resources can be produced.

The Department of Agribusiness Management is one of the majors at the Politeknik Negeri Jember which is currently initiating the Teaching Factory (TEFA) pilot to support learning activities, so that it can provide industry-based learning facilities and standardized hands-on practices and according to industry needs. The TEFA pilot that will be initiated by the Agribusiness Management Department is Tefa Agrimart with a focus on marketing services (retail business). The Tefa Agrimart Masterplan has been studied previously, where there are several aspects that need to be developed in planning a teaching factory, both from the aspect of learning patterns, relations with industry, governance management, supporting facilities, teaching factory HR, products/services and marketing (Malika, et al., 2012).

In relation to these aspects, it can be seen that Agrimart's teaching factory does not only function as a learning tool related to students, but also as a provider of products/services and marketing (retail) which will also be in direct contact with consumers. There are significant functional differences between the two, both in terms of concept and purpose. Especially in the current industrial 4.0 era, where the two concepts should be integrated in a digital platform. Therefore, it is necessary to conduct a separate study related to the function of Tefa Agrimart which focuses on the field of marketing services in the form of a retail business, especially regarding product supply planning and marketing flows that will be applied to Tefa Agrimart through the Supply Chain Management 4.0 approach.

Supply Chain Management is a method of creating products to be delivered to the final user, which includes various components, namely the suppliers of raw materials, the manufacturing units, warehauses, transporters, retailers, and finally selling. In general, the application of the concept of Supply Chain Management in the company will provide benefits, namely customer satisfaction, increasing revenue, decreasing costs, increasing asset utilization, increasing profits, and getting bigger companies. 1. Customer satisfaction. Consumers or product users are the main targets of the production process activities of each product produced by the company. Consumers or users referred to in this context are certainly loyal consumers in the long term. To make customers loyal, consumers must first be satisfied with the services provided by the company. 2. Increase income. The more loyal consumers and partners of the company, it means that they will also increase the company's income, so that the products produced by the company will not be 'wasted' in vain, because they are in demand by consumers. 3. Lower costs. The integration of the product flow from the company to the final consumer also means reducing costs in the distribution channel. 4. Asset utilization is getting higher. Assets, especially human factors, will be more trained and skilled both in terms of knowledge and skills. Human workers will be able to empower the use of high technology as required in the implementation of Supply Chain Management. 5. Increase in profit. With the increasing number of loyal consumers and users of the product, this in turn will increase the company's profits. 6. The company is getting bigger. Companies that benefit from the distribution process of their products will gradually become bigger, and grow stronger (Sucahyowati, 2011).

Supply chain management is theoretically strengthened from the theory according to Martono (2021) which includes demand and supply planning, input sources (source), product transformation (make), distribution and warehousing (deliver), information systems, payments, and product return services. (Sucahyowati, et al., 2020). Demand and supply planning is needed in supply chain management, as Uday Venkatadri has reviewed through his article A Model for Demand Planning in Supply Chains with Congestion Effects (Venkatadri, et al., 2021). Sources of input are also needed in a supply chain management system as stated by Agung Terminanto through the Implementation of Open Source System Resource Planning in Sustainable Supply Chain Management of Small and Medium Enterprise (Terminanto, et al., 2020). Likewise, distribution and warehousing (deliver), information systems, payments, and product return services are also needed in supply chain management planning as developed by Peng He in his research Buy-online-and-deliver-from-store strategy for a dual -channel supply chain considering retailer's location advantage, and Guo Li with his research on Return Strategy and Pricing in a Dual-Channel Supply Chain (Li, et al*.,* 2020). Furthermore, the preparation of supply chain management planning is also carried out with an article approach from Harto Maret Wijaya through his research on Supply Chain Management (SCM) Planning Analysis at PT Kylo Kopi (Wijaya, et al., 2021). Miles and Huberman analysis that will be used in this study is the result of an empirical study of M Chairul B Umanailo through his research on Agricultural Land Conversion and the Influence of the Food Supply Chain (Umanailo, et al*.,* 2021) and Julius Cancer Zain through his research on The Implementation of Halal Supply Chain with Private Blockchain in Indonesia (Nugraha, et al., 2018).

The specific objectives of this study include planning for supply chain management at the teaching factory Agrimart, Department of Agribusiness Management, Politeknik Negeri Jember. This is very much needed by Tefa Agrimart who will be engaged in marketing

services or retail business, because in its development a retail business must be more responsive in understanding consumer desires, because the retail position is the position closest to consumers in a supply chain management system. According to Martono (2021:4), the supply chain system starts from every point of sending raw materials to manufacturers to be processed into finished products, then distributed until they are finally accepted by consumers with an emphasis on production that is focused on demand driven. Therefore, the supply chain concept is very useful for the development of a teaching factory in an effort to create quality services for consumers (Martono, 2021).

METHODS OF RESEARCH

This study includes several articles from both national and international journals from previous research related to teaching factories, supply chain management: demand and supply planning, input sources (source), product transformation (make), distribution and warehousing (deliver), information systems, payment, and product return services, with miles and huberman analysis methods. Studies related to teaching factories, especially Tefa Agrimart, were reviewed directly from the results of previous research by Malika who examined teaching factory planning: concepts and strategies for higher vocational education majoring in agribusiness management (Malika, et al. 2022). This research discusses the concept of teaching factory in the pioneering Tefa Agribusiness Management of Politeknik Negeri Jember (Malika, et al., 2022). The taching factory concept is also strengthened by research by Dimitris Mavrikios who explains about The Teaching Factory Network: A new collaboration paradigm for manufacturing education (Mavrikios, et al., 2019), and Sintha Wahjusaputi who also explains about the Teaching Factory Model for Increasing the Competency of Vocational Secondary Education in Indonesia Territory (Wahjusaputri, et al., 2020).

This research was conducted based on the results of a research study that had been carried out previously in 2021 on the "Tefa Agrimart Masterplan of the Politeknik Negeri Jember", where there are several aspects that need to be studied more deeply, one of which is related to product and marketing aspects. Tefa Agrimart as a pioneering Tefa which is also engaged as a retail business really needs to do good planning on every product flow until it reaches consumers, so that it can operate according to its function and provide maximum service to consumers. Efforts to identify Tefa Agrimart product flow plans can be done by approaching the concept of Supply Chain Management, in this case starting from demand and supply planning (plan), input sources (source), product transformation (make), distribution and warehousing (deliver), and information systems, payments, to product return services, which will then be interpreted in each supply chain flow. Identification was carried out through Focus Group Discussion (FGD), followed by qualitative analysis using Miles & Huberman analysis to obtain an interpretation in the form of Tefa Agrimart supply chain planning.

This research is a type of research with a qualitative and quantitative approach (mix method), using an exploratory sequential mixed method which was carried out purposively at the Department of Agribusiness Management, Politeknik Negeri Jember (Creswell, 2016). The types of data used are primary and secondary data. Primary data were obtained through direct interviews and Focus Group Discussions (FGD) with the managers of the Agribusiness Management Department, the Head of the Politeknik Negeri Jember, the Teaching Factory Leaders at the Politeknik Negeri Jember, industrial partners in agriculture and retail. Furthermore, secondary data was obtained from data and documentation contained at the Politeknik Negeri Jember which could support this research. So that from this activity stage, it can produce a Supply Chain Management plan at the Teaching Factory "Agrimart" pioneering Agribusiness Management Department, Politeknik Negeri Jember.

Qualitative data will be analyzed using Milles and Huberman's analytical approach, where activities in qualitative data analysis are carried out interactively and take place continuously until complete. Activities in the analysis consist of data reduction, data display and conclusion drawing/verification data. So that the results of data analysis about plan,

source, make, deliver, return can be described and integrated into a supply chain management planning concept at Tefa Agrimart.

RESULTS AND DISCUSSION

The Agribusiness Management Department has started to initiate Teaching Factory (Tefa) Agrimart since 2021. The concept of Tefa Agrimart is based on marketing services from agricultural products produced by several Tefa in the Politeknik Negeri Jember environment. Malika (2022) states that there are several aspects contained in the initiation of Tefa Agrimart including: (1) Learning and practicum patterns; (2) Relations with industry; (3) Governance Management; (4) Products/services; (5) Supporting HR; (6) Supporting Facilities; and (7) Marketing.

Table 1 – Identification of Tefa Supply Chain Management (SCM) at Politeknik Negeri Jember

TEFA	Plan	Source	Make	Delivery	Return
Coffee and Bakery	Start applying supply and concept demand in process production	Have report data purchase of raw materials	Have SOP process production	The distribution process conducted: a. Outlet b. Resellers	Product returns can be done before time expired
Canning	Production quantity based on capacity machine, not yet apply concept supply and demand in the process production	Have report data purchase of raw materials	Have SOP process production	The distribution process conducted: a. Outlet b.Direct Consumers	Do not accept return service product
Packaged Drinks	Haven't applied supply and concept full demand in production process	Have report data purchase of raw materials	Have SOP process production	The distribution process conducted: a. Outlet b. Resellers	Do not accept return service product
Seed Center	Haven't applied supply and concept full demand in production process	Have report data purchase of raw materials	Have SOP process production	The distribution process conducted: a. Outlet b. Resellers	Do not accept return service product
Smart Green House	Haven't applied supply and concept full demand in production process	Have report data purchase of raw materials	Have SOP process production	The distribution process conducted: a. Supplier b.Direct Consumers	Do not accept return service product
Nursery and Cut Flower	Haven't applied supply and concept full demand in production process	Have report data purchase of raw materials	Have SOP process production	The distribution process conducted: a. Supplier b.Direct Consumers	Do not accept return service product
Animal feed	Haven't applied supply and concept full demand in production process	Have report data purchase of raw materials	Have SOP process production	The distribution process conducted: a. Supplier b.Direct Consumers	Do not accept return service product
Broiler Close House	Haven't applied supply and concept full demand in production process	Have report data purchase of raw materials	Have SOP process production	The distribution process conducted: a. Supplier b.Direct Consumers	Do not accept return service product
Dairy cows	Haven't applied supply and concept full demand in production process	Have report data purchase of raw materials	Have SOP process production	The distribution process conducted: a. Supplier b.Direct Consumers	Do not accept return service product
Coffee Product Processing	Haven't applied supply and concept full demand in production process	Have report data purchase of raw materials	Have SOP process production	The distribution process conducted: a. Outlet b.Direct Consumers	Do not accept return service product
Orchid and Ornamental Plant Tissue Culture	Haven't applied supply and concept full demand in production process	Have report data purchase of raw materials	Have SOP process production	The distribution process conducted: a.Direct Consumers	Do not accept return service product
Mold	Haven't applied supply and concept full demand in production process	Have report data purchase of raw materials	Have SOP process production	The distribution process conducted: a.Direct Consumers	Do not accept return service product
Healthy Rice Polije	Haven't applied supply and concept full demand in production process	Have report data purchase of raw materials	Have SOP process production	The distribution process conducted: a. Reseller b. Direct Consumers	Do not accept return service product

Source: primary data processed, 2022.

The Teaching Factory (Tefa) pilot Agrimart Polije is one of the Tefa initiated by the Department of Agribusiness Management at the Politeknik Negeri Jember (Polije). Tefa is engaged in the marketing of Teaching Factory products at the Politeknik Negeri Jember, and a Supply Chain Management (SCM) plan will be carried out from TEFA Agrimart Polije.

Respondents in this study include, the leaders and managers of the Department of Agribusiness Management of the Politeknik Negeri Jember, suppliers/suppliers which in this case are several teaching factories based on agricultural products in the Politeknik Negeri Jember, and the final consumers of the products to be marketed through Tefa Agrimart Polytechnic.

The resource persons in this study include: (a) the Head of the Agribusiness Management Department (Mr. Taufik Hidayat) who will initiate the Tefa Agrimart; (b) the Head of the Integrated Agriculture UPA along with the Tefa manager who is under his auspices; (c) Head of UPA Processing and Packaging of Food Products and Tefa managers who are under his auspices; and (d) the Head of the Department of Agricultural Production and the Tefa manager who is under his auspices. These resource persons are managers of teaching factories in the Politeknik Negeri Jember that produce agricultural products and have the potential to be marketed through Tefa Agrimart.

SCM identification of TEFA Agrimart Polije is carried out by planning for demand and supply (plan), input sources (source), product transformation (make), warehousing distribution (deliver) and payment information systems to product return services (return). Based on observations, the Politeknik Negeri Jember has approximately twenty-two teaching factories under the auspices of the Academic Implementing Unit (UPA) and several departments.

Based on the results of the identification of supply chain model that can be offered at TEFA Agrimart as shown in Figure 1. The supply chain that TEFA Agrimart can build is by implementing the Just in Time (JIT) process at the distribution center. Through the application of this method, no storage is carried out in the TEFA Agrimart warehouse, so there is also no product that is degraded / left behind.

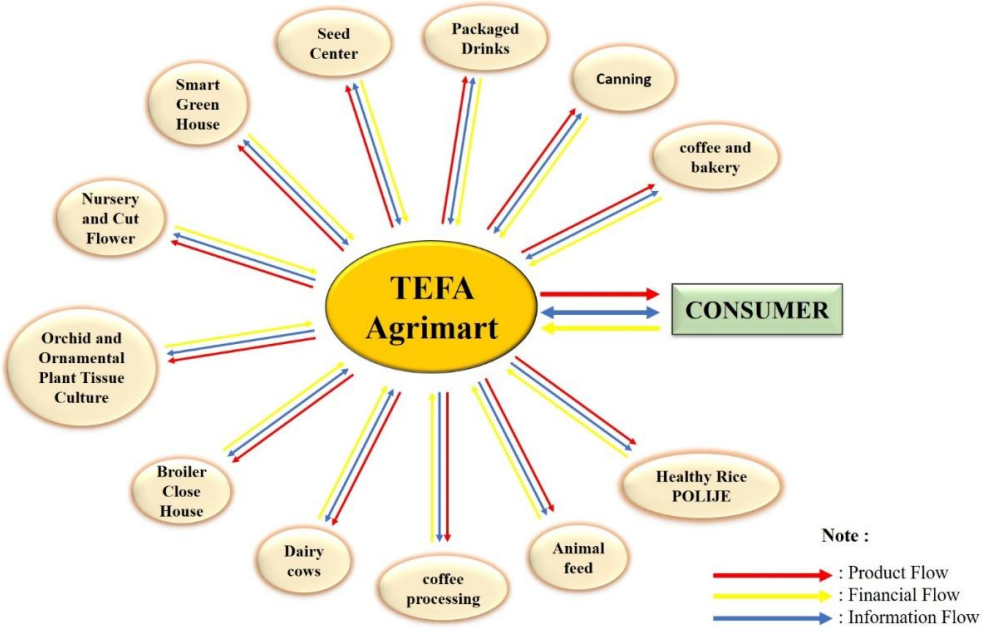

Figure 1 – Supply Chain System of TEFA Agrimart (Source: primary data processed, 2022)

The supply chain system that will be developed by TEFA Agrimart is not only based on the physical movement of products, but also pays attention to the flow of finance and information. The results showed that supply chain management at TEFA Agrimart could be formed by involving suppliers from each TEFA unit in the Politeknik Negeri Jember as producers, outsiders as retailers, to final consumers. TEFA Agrimart supply chain actors should develop a pattern of cooperative relationships between supply chains, and carry out innovative developments in terms of production procedures and facilities, so as to develop the supply chain structure by expanding the potential market area.

CONCLUSION

It was identified that there were thirteen Teaching Factory (Tefa) in Agriculture in the Politeknik Negeri Jember that had the potential to become suppliers of the Tefa Agrimart Pioneer of Agribusiness Management, including Tefa Coffee and Bakery, Canning, Packaged Drinks, Seed Center, Smart Green House, Nursery. and Cut Flowers, Animal Feed, Close House Broilers, Dairy Cattle, Processing of Coffee Products, Tissue Culture of Orchids and Ornamental Plants, Mushrooms, and Healthy Polije Rice.

The supply chain models that can be offered at the Tefa Agrimart Pioneer are from suppliers to Tefa Agrimart and continued to consumers.

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