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Marketing Strategies Arabica Coffee with Information Technology in Kintamani District Bangli

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Abstract

Indonesian coffee commodity is a non-oil export commodity contributing to the increase in foreign exchange. The coffee agribusiness development efforts have been made by the government, but there are still many obstacles, especially in terms of marketing. Marketing use of information technology will provide great benefits for the market chain will be shortened. Information technology can change the way a variety of competing businesses. The main role of information systems in business applications is to provide effective support for the strategy of the company to gain a competitive advantage. The role of information systems strategy involves the use of information technology to develop a range of products, services, and capabilities that give the company a big advantage over the competitive pressures in the global market. This research is the development of the results of previous studies in which information technology is a very potential market strategy to penetrate international markets. The results showed that the Arabica coffee marketing in the district of Kintamani, Bangli regency through information technology has the potential to be developed.

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1. Introduction

Arabica coffee is a plantation product that has good development prospects. Data from the Ministry of Trade of the Republic of Indonesia show that the volume of world arabica coffee trade from year to year keeps increasing. In the period 2008 to 2012, the world's arabica coffee trade increased by 8.2 percent. Arabica coffee is one of the potential plantation products in Bangli Regency. The area of Arabica coffee plantation in Bangli regency in 2011 up to 2012 increased by 92.21 percent to 9,113 Ha. In 2011 up to 2012 the amount of Arabica coffee production in Bangli regency decreased by 20.52 percent, to 1,696.00 tons. Data of land area and production of Arabica coffee in Bangli Regency 2010 until with years 2014 (Bali Central Bureau of Statistics, 2015). Commodities coffee is

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Indonesia non-oil exports are contributing to an increase in foreign exchange, hence the need for policies and strategies for the development of the coffee in Indonesia to continue to compete. The coffee agribusiness development efforts have been made by the government, but there are still many obstacles, especially in maintaining the quality of products that meet the standards of the international market as well as the continuity of production in accordance with market demand and to support a downstream industry of agricultural production.

Coffee is one of the leading commodity than 40 national commodities including commodities and the top seed in the province of Bali. Bali Provincial Statistics data showed an increase in plantation area of Arabica coffee plantations in the period covering 8,205 hectares in 2009 increased to 13,155 hectares in 2014 (Bali Central Bureau of Statistics, 2015). With increased plantation area, the number of Arabica coffee production also increased in 2009 which amounted to 3,135.750 tons and increased to 4183.924 tons in 2014. Bangli District is a district that has the highest number of coffee production as compared to other districts in the province of Bali, Total production of coffee in Bangli regency in 2014 that is equal to 2,476.541 tons (Disbun, 2015). Further stated that Bangli Regency has agro-climate suitable for growing Arabica coffee plant (Coffea arabica), which requires the area with an altitude of 900 meters above sea level - 1700 meters above sea level, and temperatures between $160C^{O}$ - $200C^{O}$. Kintamani has the most suitable agro-climatic with arabica coffee growing requirement among four districts in Bangli. In 2014 the total production of Arabica coffee produced in Bangli district amounted to 2,476 tons and 93.46% (2,314 tons) is produced in the district of Kintamani. The processing unit is a facility formed by Subak Abian as a place for farmers that Subak members to process the coffee are held so as to establish the added value. Processing unit which is in the district of Kintamani including in the area of Geographical Indication Protection Society (MPIG) on December 5, 2008, the main requirement to do post-harvest processing wet coffee at Kintamani area Atmaja *et al.,* (2015) in marketing of agricultural products including coffee products, the implementation of competitive strategies Development Market Necessary captured hearts states that A Company hearts competitive strategy development checklists Verify BY competitors to seize market review, the Company Must perform different marketing strategy development through marketing field which served its goal of achieving Marketing and Sales Company (Vanesha *et al.,* 2016).

Role of Information The technology (IT) in business strategy, namely:

1) Serve as a conservative to support the organization. The company chose to use IT technology that is proven and mature.
2) Holding a critical and important role in the organization. The company opted to use and invest in the latest IT technology.
3) Acting as an innovator in business. The company is competing in the business world are highly dependent on technology and use IT as a tool in competing (competitive weapon)Information technology can be defined as a combination of computer and telecommunications technology with other technologies such as hardware, software, database, network technology, and other telecommunications equipment. Furthermore, the use of information technology within an organization's information systems to provide information for the users in the decision-making process. Information technology arose as a result of the increasingly widespread globalization of organizational life, the rigors of a competitive business, increasingly short life cycle of goods and services offered, as well increasing demands consumer appetite for products and services offered. As an example of the success of the enterprise information technology is Amazon.com, which depends on their Internet Web sites to attract, sell, and serve many of their customers. The company depends on information technology to empower many of the basic processes of their business, from office accounting systems, warehouse inventory system, up to a system of direct sales and support to customers (Millet and Mauhenney, 1992). Information technology provides many benefits for the company, as can relieve business activity and produce information that is reliable, relevant, timely, complete, understandable, and tested in the context of planning, control and management decision making. So that the company can survive in the information age and able to face the global market competition. The main objectives to be achieved through the use of technology and information systems are 1). improvement of the quality of products and services, 2). accelerate and streamline the company's business processes, and 3). improve efficiency (Santoso, 2011).

2. Materials and Methods

This study was preceded by collecting and processing the data based on the needs of the system and are classified as follows:

a) The preliminary phase includes the study of literature and resources that can support the implementation of research, field surveys and expert surveys. At this stage, the system analysis includes identification of needs, formulation of problems and identification systems. Book study is focused on acquiring acreage of Arabica coffee production as raw material, the production conditions of raw materials, factors affecting the production of raw materials, the potential for the production of raw materials, handling of harvest and post-harvest technology processing and the quality of processed products and the market demand for the product. Field surveys and expert surveys conducted to obtain primary data, especially the main data is not obtained from the literature.

b) Primary data collection will be done by way of discussions, interviews, focus group discussions and questionnaires at study sites to achieve the objectives that have been set previously. Experts involved in data collection is an expert in his field that Bangli District Government, Department of Industry and Trade, Plantation Office of Bali Province, Arabica Coffee Company and Universities. A collection of field data obtained through interviews with farmers Arabica coffee in Bangli Regency and related institutions.

c) SWOT Analysis

This stage aims to analyze the internal and external conditions that influence the development of clusters of coffee in Bangli, including strengths, weaknesses, opportunities, and threats. The steps are performed at this stage include:

- Exploration of factors strengths, weaknesses, opportunities, and threats associated with the development of clusters of coffee in Bangli. The method is carried out literature studies and interviews with experts.
- Each of the SWOT factors using the justification and expert opinion.
- At this stage can be generated descriptive strategy of cluster development of coffee in Bangli.

d) Analytical Hierarchy Process (AHP)

The principle that must be understood in solving problems by using AHP technique is: decomposition is a problem that the whole process breaks down into several elements in order to obtain some level (hierarchy) of the issues studied; comparative judgment is the process in relation to the above; synthesis of priority is the procedure to synthesize and differ according to the form of hierarchy; Logical consistency, grouping and level of relationship between objects based on existing criteria (Marimin, 2004).

f) Needs analysis

Needs analysis is a step or early stage that must be done in the assessment of a system (Eriyatno, 1999). At this stage demanded prudence because it must really be able to identify and accommodate all interests based on the needs of each of its components in the system so as to create a system that can harmonize all the components involved. The components of the actors involved in the model of industrial clusters in Bangli Arabica coffee are as follows: 1) Association of Kintamani coffee farmers, 2) Farmers Arabica coffee, 3) Farmers Group, 4) Agro-industry of coffee, 5) Buyers, 6) Cooperative, 7) Production facilities providers, 8) The service provider distribution and transportation, 9) The Government, 10) Local communities, 11) These financial institutions.

g) Formulation Problems

The problem is the gap between the goals set based on a needs analysis with fulfillment capability due to lack of resources. To perform troubleshooting the various gaps need to be formulated so that a definitive level (Marimin, 2005). The problem faced by the coffee agro-industry actors associated with Arabica coffee industry clusters, namely: 1) The existence of variations and limitations of quantity, quality and continuity of raw material production as a result of reliance on the agricultural sector so that fluctuating raw material prices, raw material quality is not standard and its availability is not continuous. Many agro-industry companies producing below installed capacity or even stopped due to the factors of raw materials that do not meet the needs. 2) The presence of process variations that impact the quality variation of agro-products produced which affect the quality and safety of products. The diversity of the quality of the resulting impact on the performance marketing industry cluster. 3) The marketing risks caused less precise marketing programs were implemented, so the impact on the financial performance of the coffee agro-industry company. 4) The high level of financial risk due to factors speculative interest rates, inflation and so on. 5) The existence of institutional social problems between farmers, local communities, local government and relevant agencies with coffee agro-industry companies. 6) There is a growing awareness of association and cooperatives among farmers in improving the standard of living and bargaining institutionally. 7) Support infrastructure is inadequate for the development of agricultural production and agro-industry. 8) Do not proportional distribution between agricultural productions with agro-businesses. Farmers are facing risks and

uncertainties greater effort due to natural disasters, weather, pests, and diseases as well as production facilities such as the scarcity of fertilizers and quality seeds. 9) Lack of capital to develop the business due to the difficulty in obtaining commercial loans. This condition causes the role of financial institutions to support the development of agro-industry is not optimal coffee. 10) Lack of human resources (HR) who have skills in the field of technology and business management agroindustry coffee.

h) Identification Systems

Identification system basically aims to provide an overview of the system being studied. The identification system can then be presented in the form of an input-output diagram. Basically the most important in identification systems is continuing interpretation of the concept diagram circumference into the dark box (Black Box). Subject needed to prepare dark box is the type of information that is categorized in three groups, namely: (1) the input variables, (2) variable output, (3) The parameters that limit the structure of the system. Therefore, in engineering the system, absolutely necessary input to be transformed into outputs. Input consists of two groups: inputs that come from outside the system often called the environmental input and the input that comes from within the system. Similarly, output, divided into two groups: the desired output and the output is not desired by the system. The desired output is obtained from the fulfillment of the requirements specified at the time of the analysis stage while the output needs unwanted is a byproduct or the impact caused by the system. If the system produces an output that is not desired, then the controllable inputs can be reviewed via the controls. After knowing the needs of the cluster system components table Arabica coffee Bangli as mentioned above, the analysis of the causes and consequences of Arabica coffee marketing system in the form of a diagram. The causal diagram information technology Arabica coffee marketing system can be seen in Figure 1.

Arabica coffee marketing system sustained giving primary attention to the dimensions which became the starting point of an ongoing, covering the economic, social and environmental Economic sustainability is driven by the increasing advantage because it can produce a quality product at a competitive price (premium price). Social sustainability is achieved by increasing the level of employment involved in the cluster. Meanwhile, the environmental sustainability can be achieved by overcoming the potential for environmental contamination caused by agro-industry waste Arabica coffee. That the mechanism of the marketing system can run properly, the role of government is needed to facilitate the collaboration among market participants

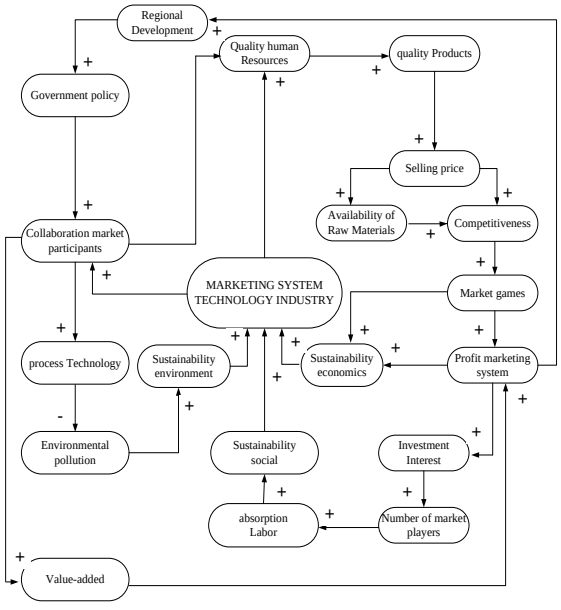

Figure 1. The causal diagram information technology Arabica coffee marketing system

Location and Time of The Study
This research was conducted in Bangli district in August 2016

3. Results and Discussions

3.1 Infrastructure

Facilities and infrastructure (infrastructure) which affect the smooth running of farming systems in arid lands include inter-village roads, farm roads, irrigation and drinking water, electricity, market, credit facilities, information systems and other supporting institutions. The general condition of the streets of the village and farm roads in the district of Kintamani including still need to be upgraded or developed in number, most of the village was paved roads, farm roads while some are still not paved or still a gravel/gelada. Almost the entire territory of the district of Kintamani already Tera li RI electricity grid, but the condition of the access road that still needs to be improved quality and development makes progress slow market, means credit is still considered difficult by the farmer, the information system (prices) are still inadequate (only from fellow farmer or just of collectors village level) and weak institutional support. All this makes it increasingly does not free farmers to take decisions in the management and development of farming. Its territory is hilly, but no isolated villages. Unavailability of adequate farm roads is very difficult for farmers to transport their crops to market, even if there are transporters, of course, the cost is very expensive. Moreover, the nature of the farming results voluminous. Most farmers transporting their products to be sold into the market with a motorcycle or instead there is just a bear. This is where brokers and middlemen take on the role and advantages in transporting and selling the agricultural produce of farmers.

Problems discharge excess water during the rainy season and drought in the dry season needs to be a major concern, to be carried water reservoir during the rainy season for use during the dry season. Irrigation channels, wells pump water that is still less should be prioritized development to support the water needs of agriculture. The availability of water in the dry season is very dependent on the above-mentioned infrastructure.

3.2 Socio-Economic Conditions Arabica Coffee Farmers Kintamani

The factor of socio-economic conditions is actually going to be able to influence any decision-making of farmers in the management and development of farming. Generally, agricultural development in dry land is still very limited and it is still a lot of efforts to confront the socio-economic constraints of the local community. Inadequate infrastructure resulting in the limited involvement of farmers to gain access to markets, information, credit, business partnership, transport and household enterprises. In general low land productivity correlated with low levels of income, the level of ownership of capital and capability of farmers in managing their land is generally not oriented to the needs of the market (market oriented) or not entrepreneurial. Socio-economic conditions of farmer's responder will be: (a) the age of the farmer, (b) education, (c) the number of family members, (d) the area of arable land and land ownership, (e) the experience of farmers to farm Arabica coffee, and (f) membership in a group. The total number of respondents in this regard, as many as 59 people Bangli Kintamani Arabica coffee growers were selected purposively sampled take techniques combined with snowball technique (Sugiyono, 1999). Purposive sampling is a sampling technique with a certain consideration. In this case, the farmer group chairman / Subak Abian considered as an informant who understand the intricacies of the coffee Arabica in the district of Kintamani, Bangli which can also act as a gatekeeper, meaning that as the first to be targeted informant researcher at the location of the object of study and at the same time give instructions about who can be interviewed or observed further in order to obtain information about the object of research. Then proceed from the gatekeeper is like a snowball rolling snowball enlarged in order to obtain information on the chain of Bangli Kintamani Arabica coffee marketing, which makes stakeholder institutions Bangli Kintamani Arabica coffee marketing as a source of information.

3.3 Marketing channels Arabica coffee Kintamani

Bangli Kintamani Arabica coffee growers usually sell their products to the market through a channel intermediaries/marketing (middlemen) in the hope to facilitate the process of price control and distribution. Products

Arabica coffee they sold in the form of logs wet and always get a cash payment, but pricing is not done by the farmers but by the institutions of marketing on it (collectors village/district/county, wholesalers or companies), which are still very relatively fewer compared with the number of farmers. This condition indicates that a relatively weak bargaining position of farmers because farmers are recipients of the price (price taker) without bargaining power. Besides information about prices obtained by farmers in general only from fellow farmers, or at least from the collectors at the village or the nearby market. Very rarely farmer claiming to seek/obtain price information from official channels (the government), newspaper, radio, television, website/the internet or from marketing agencies the final level (exporters which in this case can act as a price leader because of the ownership of capital and control technology coffee processing). It reflects the price of the products Arabica coffee farmers receive tends to be asymmetrical, meaning that the transmission of the price of the consumer market (in this case the exporter) to farmers unacceptable farmers completely, so that the market structure of Arabica coffee Kintamani Bangli tend not profitable for farmers, it means the position bargaining power of farmers is relatively weak because of various limitations on them, such as entrepreneurial spirit and skills of post-harvest are relatively inadequate, so the ability of market domination, control equipment and technologies of post-harvest still very modest even almost absence of facilities such as a storage area, coffee/warehousing, drying floor which clean, conveyance/transport adequate, or other post-harvest equipment. In addition, the topography of the farm where they were mountainous and hilly with road infrastructure that still needs to be improved so that smooth transportation of transport to places of product sales farmers become more smooth and safe. If this condition is not mutually beneficial for organic Arabica farmers can result will be the transition to non-organic systems are more oriented to increase production quantities, but do not have the quality of organic products into consumer demand (Kotler, 1998).

3.4 Market Participants and Its Role in Marketing Systems

Market participants in the marketing system Bangli Kintamani Arabica coffee can be identified as follows [11]:

(1) The farmer, the farmer's role in the marketing chain Bangli Kintamani Arabica coffee is a producer. The products produced in the form of quotation of a red and green quotation.

(2) Subak Abian/Tanik Group/cooperatives, the role of farmer groups/Subak Abian/cooperative is to organize members in making coffee production and network with various government agencies to enhance the capacity of farmers. For Kintamani region, there are several farmers' groups which have a cooperative business unit that processes logs into a dry red horn (hard skin) which is a coffee bean rice produced from the wet process (wet process). From some of these cooperatives were equipped with equipment for processing into coffee OSE (original seed export) are ready for export. Processing of coffee done centrally to maintain the quality of the coffee produced. The equipment came from the Department of Agriculture, Plantation and Forestry Bangli regency and the province of Bali. Subak Abian/farmer groups/cooperatives perform the processing of wet and toasted (just as an example), as stakeholders Kintamani Arabica coffee supply chain if wet, have SOP (Standard Operating Procedure) as a reference for the processing of coffee from members. Besides the cooperative also has a division of Quality Supervision Unit who exercise control from harvest until the cup tester to maintain the quality of the coffee produced.

(3) Collectors. The collectors in this region are divided into several levels. The existence of these collectors from the village level up to the district traffic. They build networks of cooperation between the collectors at the village level, so as to reduce the price at the farm level. The distribution of collectors in several villages of Arabica coffee production centers there are at least 1-5 collectors to buy the coffee farmers. To get the raw material they usually get around to the villages. At the district level, there are collectors who organized/receive products from wholesaler's village level. Zoning no rules in detail for each of the collectors. But collector's district level have strong links to the villages in the district and outside the district. Forms a bond created is to make capital investments to collector's village. Purchased copies of this district collectors distributed to district collectors or directly sold to the exporter or the company, but the numbers are still limited. Collectors of the district receive the results of coffee purchases from wholesaler's districts and villages. They have agents in each area to accommodate the coffee purchases from wholesalers and growers. Purchased copies are distributed to various companies-exporters in Bali and outside the island. Coffee wholesaler's center of the region Bangli is in Buleleng. Most of the agent's exporter company. They spread their agents to collect the purchase of coffee from various regions. The district collector has some equipment for processing. Coffee purchases from the results received are all products of coffee from farmers.

(4) Top Buyer (Buyer). There are several large companies, such as PT. Tri Agung Mulia, the company is engaged in export marketing plantation crops. The company is cooperating with the Bangli district government for the management of the processing plant in Batukaang, Kintamani District. Maximum capacity up to hundreds of tons/day. Work area covers the entire territory of the province of Bali. To maintain continuity of products, the company also holds a product from outside Bali.

(5) Office / Associated Institutions. The role of the district agriculture department is quite large, as well as provincial level. Their role is to improve the technical capability to cultivation and post-harvest crop management through counseling and training, establishing cooperation with various companies-exporters and research institutions to solve problems-technical problem it also facilitates to involve coffee farmers do exhibitions if the opportunity arises. Besides, it also copies the product is introduced through the medium of publication (print and electronic).

(6) Other parties involved in the capacity building of farmers is the Coffee and Cocoa Research Center Indonesia (PPKKI) Jember and CIRAD France. Its role is to conduct technical assistance, market network and conduct research to solve the problems of farmers. Facilitating the establishment of networks with the various parties involved. Looking at the conditions mentioned above, the experts presume judgment that sub-district area Kintamani Bangli District feasible to develop a marketing system with information technology Arabica coffee based on the dimensions of the sustainable development of the prerequisites of ecology, a prerequisite economy, a prerequisite of social and prerequisites institutional.

Results of analysis developed through the justification by experts of strategy SWOT analysis as mentioned above, an outline of the necessary three important elements as priorities to be taken as a policy in the cluster development in the marketing Arabica coffee in the district of Kintamani, Bangli Regency are:

1) Traditional Marketing System
2) Modern Marketing System
3) Marketing System Information Technology

From the three elements need to be considered where the most important element to be done in advance so that other elements supporting the other factors. To select the essential elements that must be implemented first used hierarchy analysis process (AHP). AHP analysis results indicate that the marketing system of information technology as an alternative to the first of policies that must be implemented for the next consecutive defend legality Arabica Kintamani coffee products and the development of the coffee crop area to be developed (Manetsch and Park, 1977).

4. Conclusion

1. Application Bangli arabica marketing system model using information technology systems when it will be implemented, need to be adjusted a few variables in the model that is characteristic of the area plantations and coffee processing plant location, human resources and local natural resource
2. The results of the implementation of the model showed that the model was able to simulate and generate behavior in accordance with the actual system. It shows the model can already be implemented and can provide recommendations for decision makers in the marketing industry sustainable Arabica coffee.
3. The design of the development model of arabica coffee marketing system focused on a vision to improve the quality of products from upstream to downstream as the main parameter that determines the quality of the final product. To achieve the shared vision that [9] there should be collaboration and cooperation between businesses and intensively involved in the marketing system through institutional mechanisms that are designed based on the structure of its role in the cluster, which in turn can lead to process innovation.
4. The results of the implementation of the model show that the marketing of information technology systems arabica coffee leverage increased profit businesses that are involved in the system by increasing the quality of products produced.
5. System information technology marketing arabica coffee is not only beneficial to businesses but also to provide benefits to the region financially with the contributions made by agro-industry arabica coffee to the region through the mechanism of local taxes. Information technology marketing system arabica coffee is also able to encourage an increase in the number of workers absorbed inside the arabica coffee industry Bangli especially on labor in the cultivation of Arabica coffee. This indicates the future will be the achievement of

sustainability in economic and social aspects in the development of information technology marketing system arabica coffee.

6. In the implementation of information technology marketing system arabica coffee MPIG indispensable role as an organization that will hold all proceeds from the coffee farmer groups for subsequent sale to a core industry arabica coffee.

Conflict of interest statement and funding sources

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Statement of authorship

The author(s) have a responsibility for the conception and design of the study. The author(s) have approved the final article.

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