~ Keynote Speaker ~

Big Data Ecosystem in the Upstream of Palm Value Chain

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Abstratct

Increasing value-add in the value chain of oil palm industry has been set as one of the national policies in several palm produced countries. In the downstream of palm value chain, most palm oil factories desire high quality crude palm oil (CPO) product. One of the key qualities to justify CPO quality; apart from free fatty acid, mositure in oil and dirt in oil; is oil extration rate (OER). To obtain CPO with high OER, CPO factory owner who is one of the key players in the middle stream require fresh palm bunches (FFBs) with high OER. To achieve this, most factorys set a process and manage their resource to secure quality FFBs. From this process, the factories must have enough resource to establish sophisciated laboratory and tools to test OER of FFBs. To probe the CPO and FFBs quality, the standard method called Soxhlet is applied to test the OER. Some CPO factories have also build history record of palm sellers (palm yard owners, middlemen and palm farmers). With this record in their database, it will secure their good supply for manufacturing good quality palm oil product.

In the upstream of the palm value chain, middle man and palm farmers are the key players who supply good quality FFBs to produce high OER CPO. Factors affecting FFB quality are several and can be effectively controlled in the upstream activities. One of the ways to reduce risks from these factors, farmers should utilize good crop practices in their activities, from pre- to postharvest. In such a case, they should be well trained to have good crop management.

On the other hand, there is another key factor which is controlled by the stakeholders in the upstream. Palm farmers earns money by selling FFB product to palm yard owners, middlemen or CPO fatories. Uufortunately pricing of FFB product is justified by middlemen or experienced experts who are hired by the palm yard owners or CPO factories. Obviously, fair pricing mechanism in the upstream is disputable. The fair pricing problem in the upstream has been settled for decades and has yet been solved though policy maker who already realized the root cause. To solve these issues, the policy maker need to have information before making the right decision. Certainly, big palm data in the upstream is required.

In this paper, we propose two key technology tools designed for farmers, palm yard owners and CPO factory owners. The first tool is a mobile application called “PalmApp” developing for crop management. The mobile application will facilitate and train palm farmers to have good palm practice during preharvest. Log data and history of individual mobile application users will be gathered at the palm data center. Trading activities of the farmers will also be

recorded by the automatic system for grading FFBs, the second tool, which is proposed to install at the palm yard market and CPO factory. The automatic grading system developed from deep learning technique is designed to collect sell history data of individual farmers and transfering it to the palm data center. Big data for oil palm from these two tools will be formed for the policy maker.

Keywords Big data, deep learning, quality grading, mobile application