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INTRODUCTION OF THE TRACEABILITY SERVICE SYSTEM TO AGRICULTURE CONSOLIDATORS AND PRODUCERS

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Abstract

Agriculture and specifically digitalization of agriculture is a high priority sector in Albania. Different technological companies are looking forward to introduce the Traceability Service as one of the core Digital Transformation of Agriculture consultancy services in the medium to long- term. The introduction of this service and technology thereof, if welcomed and adopted by exporters and the agricultural sector as a whole, has the power to not only boost agriculture exports to the Western European markets but also improve food quality and safety standards adoption throughout the whole supply chain. At the inception phase, a comprehensive market entry strategy with a marketing plan should be developed in order to ensure the effective service introduction and adoption. The proposed service aimed at large consolidators and exporters of agricultural produce that would render local agribusinesses more competitive and export larger volumes of produce and increase the transparency of the entire agricultural supply chain in Albania. The objective of this paper is to propose a traceability system for the agriculture supply chain of fruit and vegetables in Albania. Traceability software is identified as an immediate need that the Albania agricultural market has for the food safety standards and tracing as well as comprehensive record keeping. This system will be able to trace the products through the

collection points (exporters) to individual farmers who supply them. Each farmer will have their unique farmer ID linked to the information on specific plots of land as well as specific products harvested. The system will ensure the transparency of the entire supply chain by being able to trace every box or any other food container in a unique way. Traceability systems help make relationships between farmers, collection points and buyers smoother and more automatized, at the same time increasing the value (including the selling value) of the products produced in accordance with the specific standards, and in accordance with the requirements of specific high-value markets.

Keywords: Traceability, Agriculture, Digital transformation, Food safety, Covid-19

INTRODUCTION

Agriculture constitutes one of the main economic sectors in Albania. The country is dotted with over 400,000 farms (average farm size: 1 ha). Data from INSTAT show that half of the population is employed in the sector ("Employment grouped by sectors |", 2022) and agriculture contributes roughly 22% of the national GDP. The use of e-commerce and IT has still not seen widespread use in the agricultural sector in Albania. The reasons for this are manifold. On the demand side, the average farmer utilizes little or no technology and sees modern technology as an unnecessary cost rather than an efficiency-boosting tool that would help increase profits. On the supply side, existing IT firms have persistently failed to find the right sales channels to land their products at the hands of 400,000+ farmers. With that said, COVID has proven that bridging the gaps between the agricultural sector and technology and introducing digital solutions to improve business processes is a pressing need.

With high-quality fruit, vegetables and medicinal and aromatic plants already being exported from Albania to EU and even USA, the export potential of Albanian agricultural produce is not realized fully, partially due to the lack of food quality standards and the lack of responsibility at the level of individual farmers in providing quality products.

European Council (EC) regulation No. 178 defines traceability as “the ability to trace and follow a food, feed, food-producing animal or substance intended to be, or expected to be incorporated into a food or feed, through all stages of production, processing and distribution” ("Employment grouped by sectors |", 2022). Traceability or a digitalized system to track a product from production to consumption is a critical tool when it comes to increasing transparency across food supply chains (Olsen & Borit, 2013). Traceability systems help implement food safety standards and certifications such as GlobalG.A.P. and Organic more effectively, as traceability is a key element of product safety. Implementing a food traceability

system implies safer products. Such a system enables the tracing back through the food chain process (Vukatana & Sevrani & Hoxha, 2016). Concerning the ISO (International Organization for Standardization) standards, ISO 22000 ("Technical Committee ISO/TC 34. ISO 22000 |", 2015) specifies requirements for a food safety management system, where an organization in the food chain needs to demonstrate its ability to control food safety hazards, in order to ensure that food is safe at the time of human consumption.

An observation that is interesting to note is the fact that even those consolidated agribusinesses in the country and the region that are currently exporting directly to the high-value Western European or North American markets, are not fully digitalized and therefore rely mostly on 1-1 contacts and communication with potential buyers. And even though, they do possess the group food safety certifications, often are unable to trace bad product to individual farmers and/or argue that the product supplied with 100% certainty adheres to the standards and therefore often have to bear full financial responsibility for any defected products. Traceability systems help to eliminate this problem.

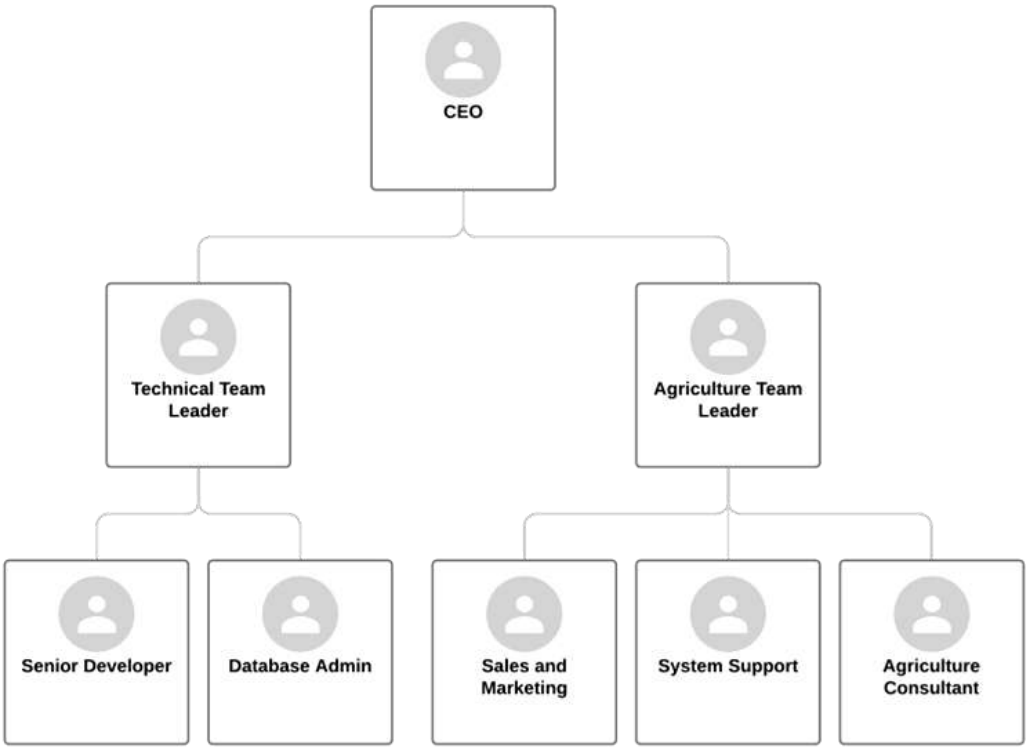
Additional benefits that the exporter could earn from applying traceability software system is:

1. Traceability eliminates the situation when the buyer could ask for refund to exporter for certain amount of goods in case the goods are not provided from the exporter. In this scenario are eliminated fraud situation and different liability situations.
2. Exporters in case of return of goods from the buyer are able to identify the farmers with the problematic product and based on the contract could ask for refund.
3. Better staff performance management and better supply planning.
4. Compliance with the EU best practices in order to fulfill the contractual obligation with EU Companies
5. Better process planning and managing of the client request.
6. In the EU market, traceability is a must.

From our initial research and assessment, the exporter of fresh fruit and vegetables in Albania (who operate both in the domestic wholesale market as well as export abroad market) are interested to adopt our traceability system and see an added value in it. As per validation that we held with these exporters, the main reason for their interest is the fact that traceability is required in the EU and there is an increased control over the proof of origin and specifics. Whereas at the moment it’s done in a manual way, automation of the process would solve time and make the process more efficient. Technological companies are looking for funds from different donors that would support a proof-of-concept phase so that the overwhelming adoption of the product among the exporters operating in Albania will be enabled in the future. Currently,

there are no agricultural product traceability systems implemented in Albania or the Western Balkans. The main competitors are Agrivi that offers comprehensive digital agriculture technologies (based in London, UK) and other platforms that offer software-based traceability services for other (non-agri) products. Albanian Exporters are planning to discuss the potential introduction of such traceability expenses as part of IPARD financing. Other Balkan countries, more specifically Serbia does finance investments in strengthening the agri-food sector competitiveness by investing in modernization for the purpose of traceability in the food chain as part of the measures financed under IPARD. At the moment, traceability systems are not an explicit primary focus of the Ministry of Agriculture, although it has been mentioned in the IPARD Ex-Ante Evaluation of The Albanian Rural Development Programme 2021-2027 under Instrument for Pre-Accession Assistance (IPA). Normally the technological companies should create permanent structure for the Agri Business services in addition to the existing IT services teams currently in place. A proposed basic organization structure to be created is illustrated in figure 1:

Figure 1: Organization Structure



The team that should be involved in the traceability project normally should have as previews experience participation in numerous trainings and seminars in agriculture, access to finance, digital innovation, etc. An advantage should be the development of a networking relationships with Albanian municipalities, public institutions as well as private companies in Albania and abroad.

PROPOSED SOLUTION

The proposed service aimed at large consolidators and exporters of agricultural produce that would render local agribusinesses more competitive and export larger volumes of produce and increase the transparency of the entire agricultural supply chain in Albania.

The objective of this support is to create a traceability system for the agriculture supply chain of fruit and vegetables in Albania. This system will be able to trace the products through the collection points (exporters) to individual farmers who supply them. Each farmer will have their unique farmer ID linked to the information on specific plots of land as well as specific products harvested. With the implementation of packaging level traceability, the system will ensure the transparency of the entire supply chain. While scrutinizing each step in a supply chain, which is crucial for promoting food safety and combating food quality fraud, the responsibility that each individual farmer carries will become larger.

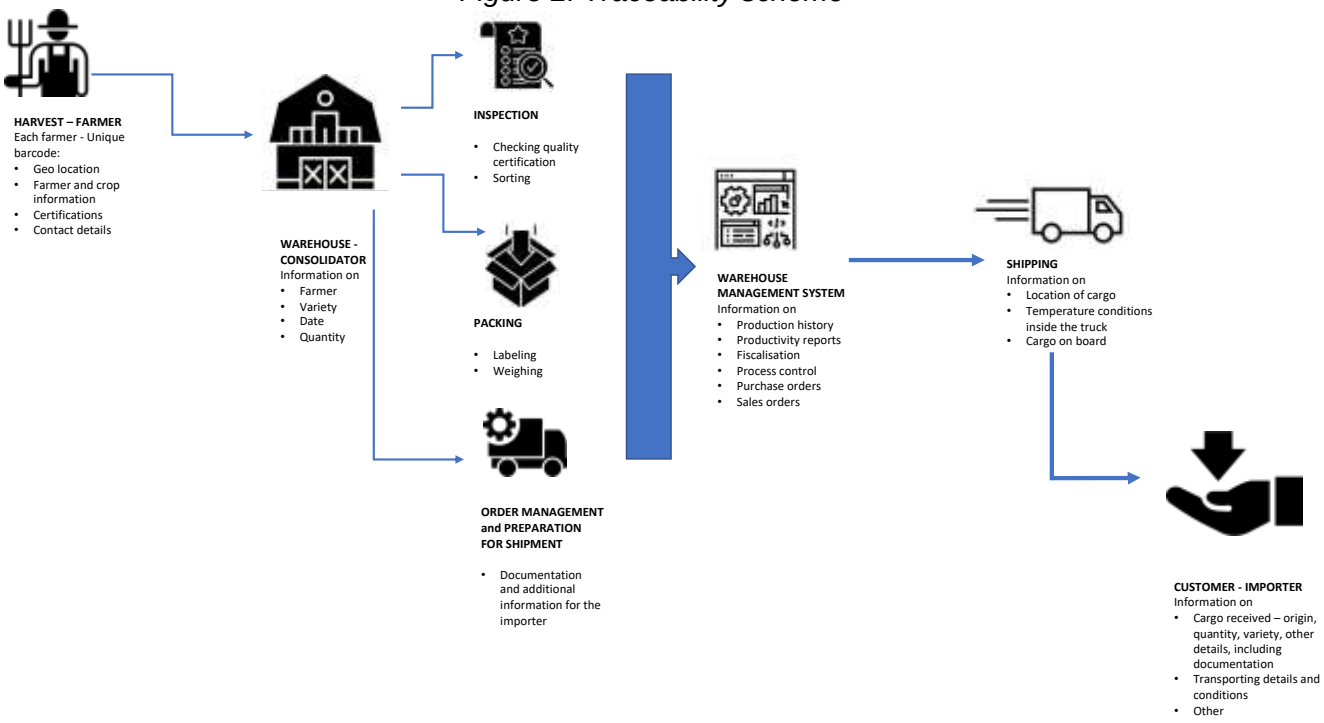
The system will be web-based and accessible by all exporters in the first phase. Later, through a plan agreed with the ministry, other actors (e.g. individual farmers) will be able to implement the system that the traceability cycle is complete for the entire supply chain.

The software will have an easy integration with other systems in order to facilitate the work of the actors who will use it (e.g., existing fiscalization and ERP systems). The following services should be introduced within traceability package of services:

- Implementation of traceability functionality with a pilot group of Exporters/ agribusinesses/ consolidators
- Building the capacity of the selected beneficiaries to carry on with proper record keeping and management of the system
- Ensuring that the selected exporters have in place structures that meet Global GAP food safety standard through the use of traceability system[1] and in the future, controls related to crops/ soil/ etc.

[1] Traceability systems in place help prove easier that the traceability and segregation requirements for GlobalG.A.P are complied with and the producer is selling only the products that are GlobalG.A.P certified.

Figure 2: Traceability scheme



Source: elaboration by the contractor - Helius Systems

DELIVERY MODEL

Activity 1: Inception Phase

This phase is to set up and mobilize the project team and infrastructure, establish communication and coordination mechanisms, gain a better understanding of project environment and expectations, and finalize implementation strategy and work plan. This phase should also include traveling to the location and gathering data and information needed.

Activity 2: IT development

Based on the data gathered in previous step, this activity will consist of developing a web-based IT system that will allow to trace agricultural products (and not only) from the plot of land where they are planted until the product reaches its end customer. The solution will aim to enable barcode-based, packaging-level traceability back to individual farmers in their entire agricultural supply chain in Albania in order to proactively address sustainability challenges and adherence to certification standards including for export purposes.

Activity 3: Testing phase

This task includes testing of the system on the Exporter level; analysis of the issues, bug fixing and improvements of the UI and UX.

Activity 4: Launch of the product with a pilot group of 2-3 Exporters

This activity will include launching of the traceability system as well as installing it at exporter level (with a pre-selected pilot group of 3 exporters2). In addition, this phase envisions the organization of training events to the pilot group on the use of the system.

Activity 5: Finalization of the functionalities

The final stage will focus on finalizing any outstanding issues and conducting an event to introduce the platform to the public (including to enable synergies with other platforms).

CONCLUSIONS AND CONSIDERATIONS

Traceability systems help transparent cross-border movements of goods and can help improve both export capacities of a given country as well as its access to regional and global markets. Traceability systems help identify products of lower quality before they reach end consumers or end buyers. Moreover, targeted product recall helps to identify specific farmers responsible for food fraud and make subsequent exports more filtered and therefore, more cost-effective3 as well as contributing more positively to the amount of waste produced (recalled products most often end up being destroyed).

Traceability systems help make relationships between farmers, collection points and buyers smoother and more automatized, at the same time increasing the value (including the selling value) of the products produced in accordance with the specific standards, and in accordance with the requirements of specific high-value markets. Higher standards and traceability lead to increase in volumes exported, which in turn leads to an increase in turnover and profits for exporters and increase in official employment in the sector.

Installment of the traceability and adapting to the new quality management process, will require agribusinesses to hire new staff to manage those and to answer to the increased operation and potential increase in export activity. Expectations are that each of the exporters involved in the pilot will create 7 full-time new jobs over the next three years period: at least one staff member dedicated to maintenance of the traceability functionality and maintain communication with consolidators/ logistical companies and/ or one-two who will coordinate all exporting efforts (inside and outside the country), dedicated staff to cover logistics, verify standards, maintain packaging control.

Increased interest from the side of International Buyers will make exporters likely to increase their farmer pools, which in turn will require an increase in areas of cultivation, which

[2] The exporters for the pilot will be selected on the basis of their prior experience with exports, and the criteria that they have previously undergone GlobalG.A.P certification process for their group of farmers that supply them.

[3] There is no official statistics on how much product is being recalled during exports but from our research, average of 30% of exported fruit and vegetables in Albania do not meet Buyer's requirements or get sent back.

would necessarily mean the need for more employees, especially of seasonal format. Each Exporter involved in the project, during the three-year period would create at least 10 new seasonal jobs per each pool of their 10 farmers- suppliers.

Over next three years, this initiative has the potential to create about up to 70 full-time jobs and around 120 part-time or seasonal jobs. Based on experience, we envision that at least 30% of the newly employed will be young people (18-29 years old).

Our believe is that the services will be in demand, especially from those companies that can be considered as export-ready or export-interested. There will be recurring costs for maintenance of the system that would be charged on a yearly basis.

Based on experience on implementing digital solutions in the agricultural market, the businesses usually have a bit of trouble when adopting such solution. Thus, there is a need to work with these businesses personally, both to change their attitude and their interest to adopt the service as well as for capacity building purpose. As with many other examples, seeing success stories of other exporters/farmers would prompt other businesses in the area to try and adopt the solution.

To make this initiative sustainable, it is essential the collaboration with important actors in Albania such as Certification Bodies and Export Promotion Associations as well as review synergies with financial instruments available on the market such as IPARD, Risi Albania network and know-how. Collaboration with these actors will create better implementation opportunities for this innovative package of service tailored for agriculture exporters and financing opportunities for the potential beneficiaries. The system will have an easy integration with other systems in order to facilitate the work of the actors who will use it (e.g. existing focalization and ERP systems).

Future research work shall consist in the preparation of a general plan, agreed with the ministry and other actors in order to create a national standard for the food traceability that will be able to facilitate the cycle for the entire supply chain.

This plan should include also an automatized solution that will allow an easy integration with other systems in order to facilitate the work of the actors who will use it (e.g., existing fiscalization and ERP systems).

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