C768 – Task2 – Executive Summary

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04/14/2022

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[R&D] Q2 Evaluation of New Supply Chain Tech

Problem Statement

In recent internal studies, key vendors, distributors, and staff within our supply chain have wished for an enhanced data collection process regarding our products. When asked about which business processes require better data access, the results are split. 31% selected an answer related to product quality report filings. 43% of participants cite regulatory filing requirements. 26% cite a growing need for product traceability through digital means. Of those polled, 73% answered that blockchain and IoT sensor rollout might present an opportunity.

Proposed Solution

We introduce a three-fold plan to integrate blockchain and IoT sensors into our supply chain. The solution proposes to solve digital product traceability, enhance data collection needs, and ease the burden of mandatory filing requirements.

Three steps in the supply chain have been identified for upgrading.

- Sourcing
- Manufacture/Warehousing
- Distribution

Many farmers are already using IoT sensors for field tracking in the sourcing step. We suggest working with them to develop data-sharing agreements.

In the manufacture/warehousing step, we would implement our sensors and monitoring using IoT devices to bring us up to modern smart-warehousing standards. Additionally, we recommend developing new NFC/RFID identification and anti-tampering devices at this stage.

NFC/RFID tagging from the previous step allows for product tracing until retailer shipment acceptance. Lastly, blockchain can enable reporting on all stages.

Cost

Implementing these technologies would require expenditures in key areas. Here is the breakdown:

One-Time Costs

- $230,000 - $248,000 in new IT equipment acquisitions
- $115,000 - $117,900 in new development costs
- $1,730 in IoT sensor costs

Yearly Costs

- $7,340 in additional IT infrastructure maintenance
- $47,600 in RFID/NFC tagging requirements

Overall, we estimate approximately $391,000 to implement and $55,000 per year to maintain.

Final Thoughts

The impact of investing in these technologies could be huge. For example, we estimate time spent on paperwork filings will reduce by around 20-30%. Additionally, a large amount of data we expect IoT sensors to generate will be able to feed the machine learning algorithms our other teams are still researching.

Data gathering from sensors also creates a new opportunity to develop a product for digital product tracing. We estimate profit margins will increase by 3-5% by enabling portions of our data to be viewable by customers with a new digital tracing tool.

Such a tool would assist us internally by mitigating recalls and enforcing existing product handling measures during warehousing and distribution steps. A final benefit is we expect waste generated during manufacturing to fall by an additional 9% with proper tracking, tracing, and recall reduction measures.