

# The integration of the farm market online platform

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## 1. Introduction & Background

What:	website
Why:	the cost of production is high
When:	transaction
Who:	We, farmers
Where:	laboratory, farmland
How:	Internet platform integration

Food, Clothing, Housing, Transportation, Education, Entertainment are all human needs. Because we are led by food, it is even more important for the survival of human beings. Vegetables are more indispensable food in their daily life. In Taiwan, due to the natural environment restrictions, the average size of Taiwan's arable land is only 1.02 hectares, which is a form of small-scale farming. In today's agricultural sales model, fs have all or most of their crops, and then wholesaler resells produce to retailers, and finally retailers resold to consumers. This sales model through the layers of barriers before finally to the consumer. For farmers, the cost of production is high, but there is not much profit. For consumers, the source of vegetables is not clear, the price is high.

## 2. Analyze the As-Is and To-Be process with 2 process re-engineering techniques

### 2.1 TOC

1.First of all, farmers sell crops only through wholesalers often. Wholesalers decide which kinds of crops to buy. Even we selected the types of crops, there are still different qualities and appearances in each type. The wholesalers decide what kind of products to buy, and also how much to buy. We found that the process needs to pass a lot of levels, according to these factors, find the bottleneck of the system is that the wholesalers acquisition system.

2.If we already know the bottleneck of the system, we must let him maximize the efficacy as far as possible. if necessary, the burden can be transferred to other non-bottleneck resources, applied to our project objectives. Harvest, packing, delivery, and

them sent to the fruit and vegetable market, and finally wholesaler sold to other access roads, or shipped directly to the fresh processing field, and then delivered to each supermarket shelves sale. Whether the former or the latter, there are human resources, marketing, transportation, refrigeration and transportation and other related processes, we will integrate it into a platform we have established between farmers and consumers.

3. With the consensus of the previous step, we are asking farmers and we to work together to improve this process. We should try our best to understand the work environment of farmers and information on agricultural products. farmers should also provide complete information on crops so that we can jointly establish Information transparent, lower logistics costs of cooperation projects.

4. Farmers and we cooperate fully with the conclusion of Step 3, the bottleneck will be loosened so that the bottleneck is no longer the bottleneck. If there are plans in place, bottlenecks should shift to other levels at this time.

5. When we adjust the system, we'll inevitably experience the run-in period. After the system become stable, we need to go back to step 1. By doing so, we can improve the system continuously.

## 2.2 IDEF

We use IDEF0 to analyze the whole activities. We try to model the decisions, actions, and activities of the whole system. The process diagrams are as follows.

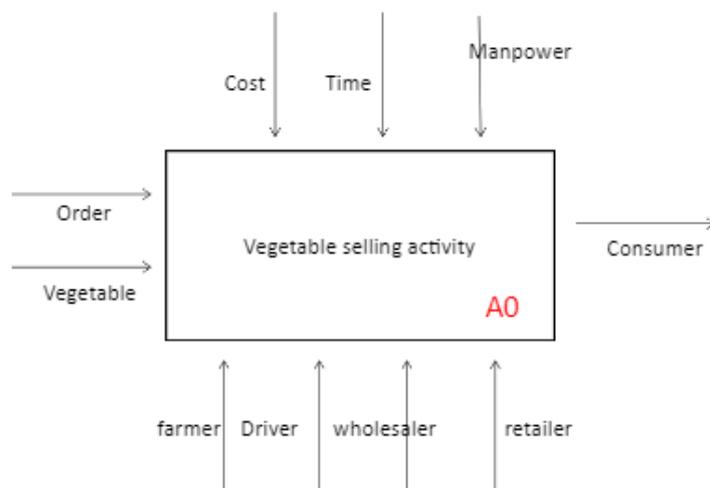


Fig.1 The first layer of the IDEF

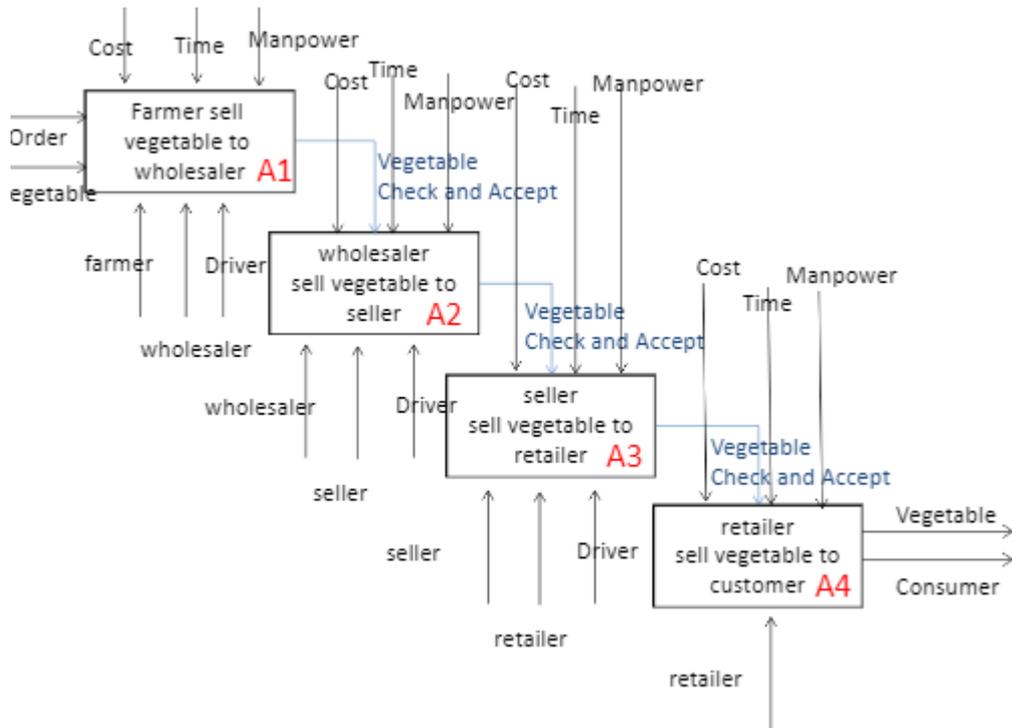


Fig.2 The second layer of the IDEF

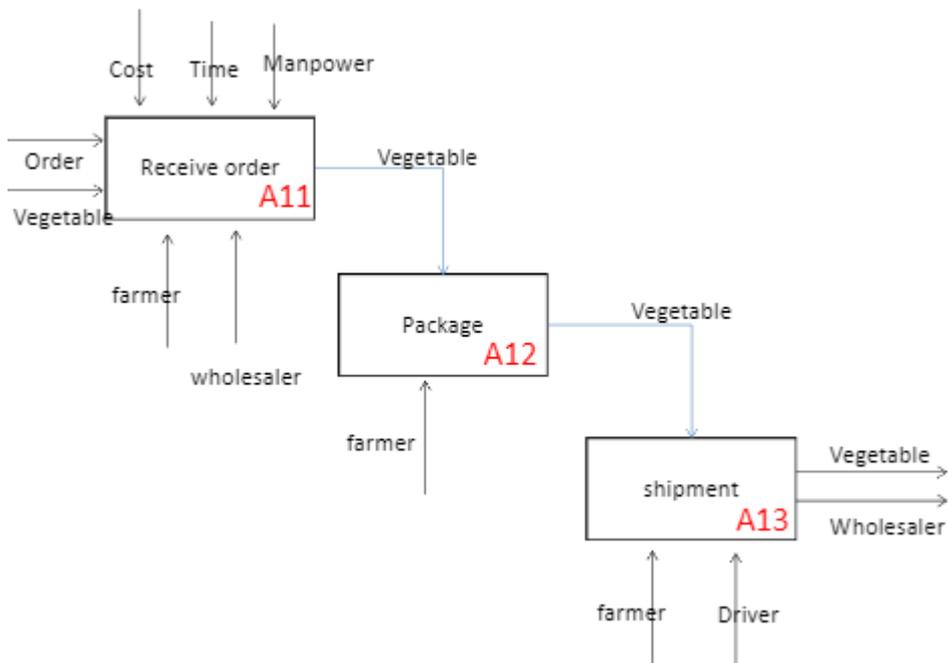


Fig.3 The third layer of the IDEF

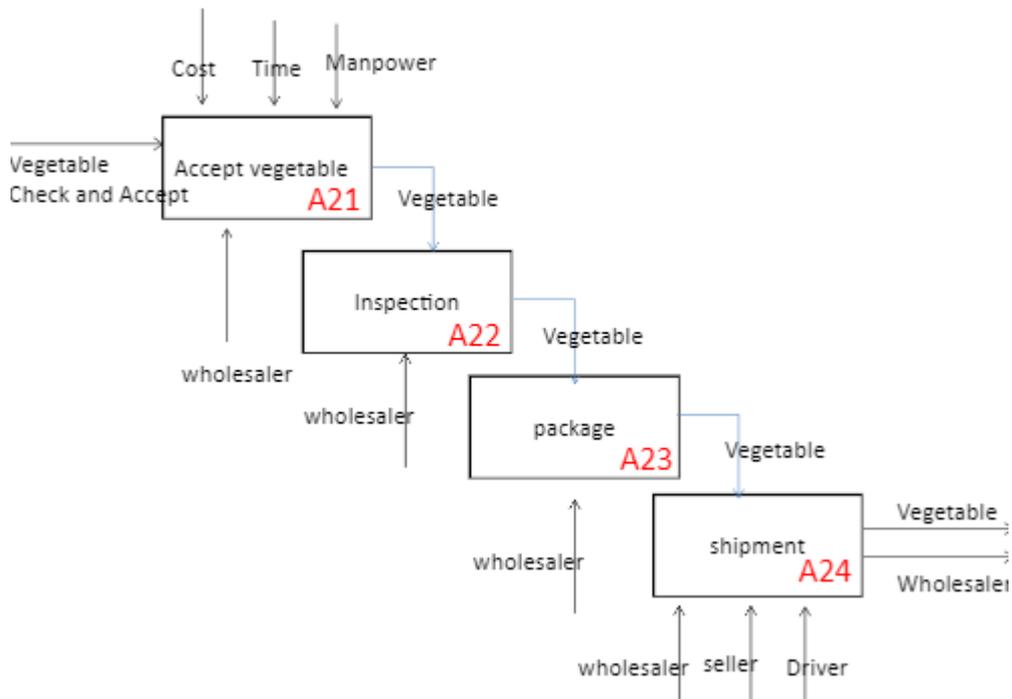


Fig.4 The fourth layer of the IDEF

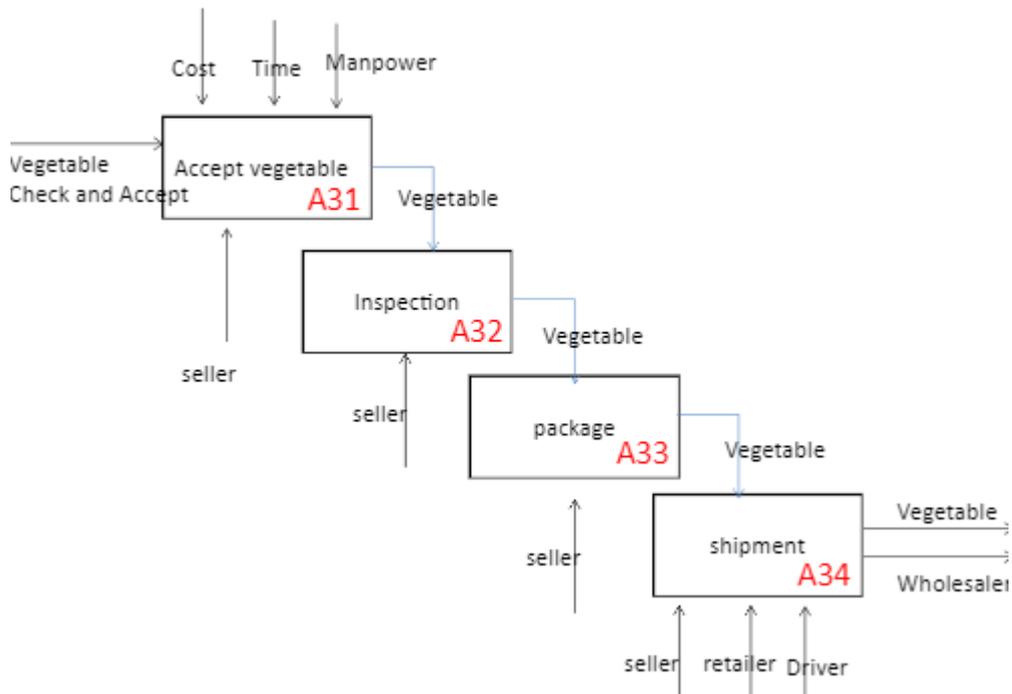


Fig.5 The fifth layer of the IDEF

From the above diagrams, we find it that the process is complicated and meaningless. So we try to simply the process. We cut down the wholesaler, the seller, and the retailer. Because they are doing similar activities, likes accepting vegetable, inspecting, packaging, and shipping. It is totally a waste of manpower

and time. So we refine the process, and the new process model is as follows.

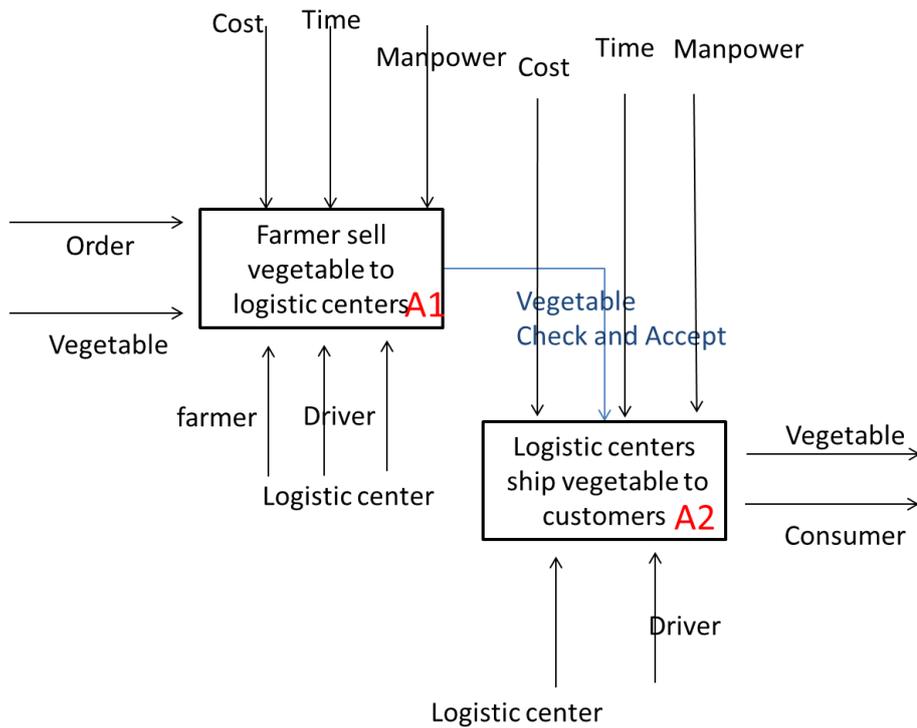


Fig.6 The new model of the IDEF

### 3. Compare the performance via INCOME simulation with at least 2 drill down processes

#### 3.1 AS-IS

When farmer want to sell his vegetable, he will sell to wholesalers. And wholesaler will sell to seller, and so on. Fig.7 (AS-IS Behavior Model) is the current detailed process. And we set the cost and time of the activities are as Table.1.

	Sell to wholesaler	Sell to seller	Sell to retailer	Sell to customer
Average Cost	10	11	8	5
Average Time	50	40	40	20

Table.1 Cost and Time Statement Analysis of AS-IS Model

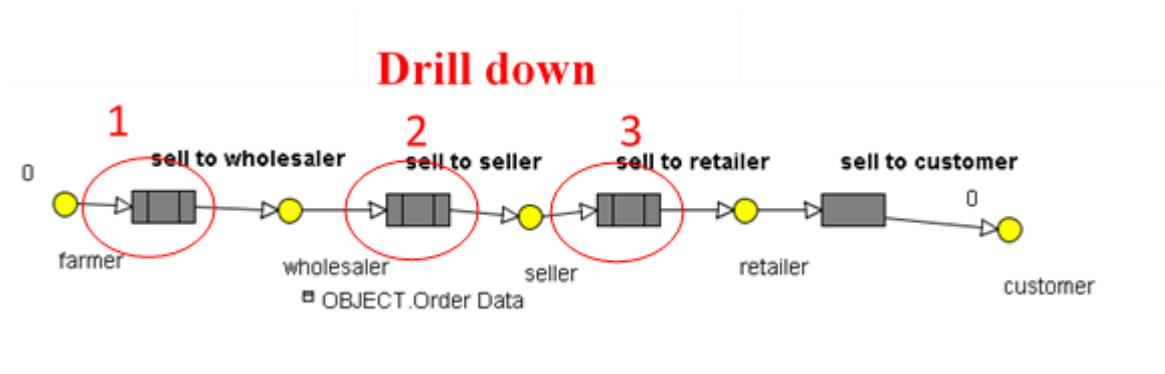


Fig.7 AS-IS Behavior Model

In the AS-IS Behavior Model, we drill down some activities. Fig.8, Fig.9, and Fig.10 are the drill-down process.

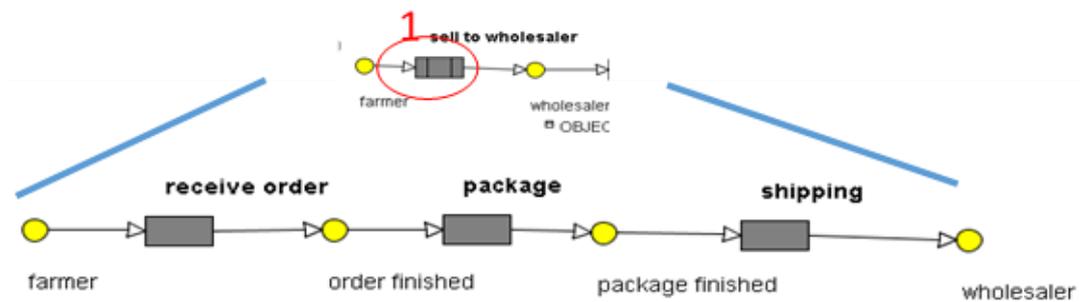


Fig.8 AS-IS Drill Down 1 Behavior Model

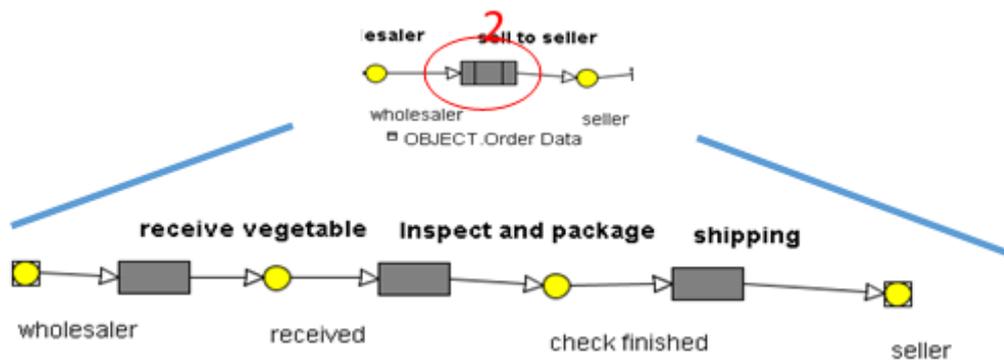


Fig.9 AS-IS Drill Down 2 Behavior Model

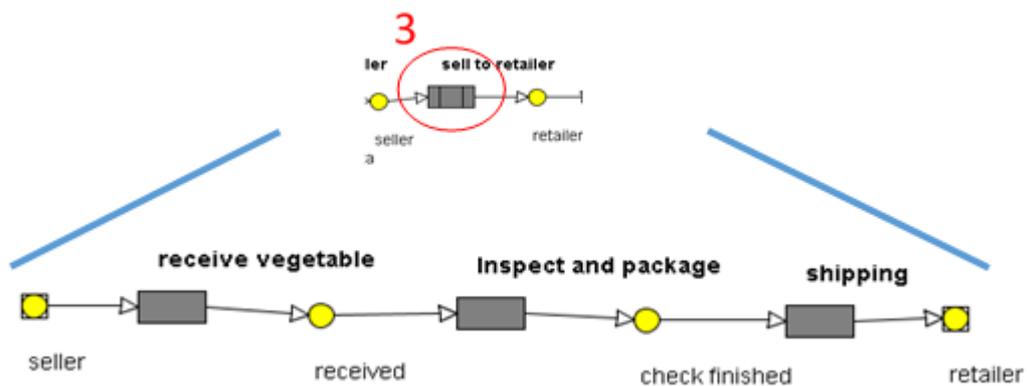


Fig.10 AS-IS Drill Down 3 Behavior Model

### 3.2 TO-BE

After we analyze the As-Is process with TOC and IDEF, we improve the whole process to make it simple and efficient. When customer make orders on the platform, farmer will receive the orders and then ship to the logistics center. Logistics center ship to the customers. Fig.11 (TO-BE Behavior Model) is the refined process. And we set the cost and time of the activities are as Table.2.

	Receive order	Shipping	Shipping to customer
Average Cost	5	5	15
Average Time	30	30	60

Table.2 Cost and Time Statement Analysis of TO-BE Model

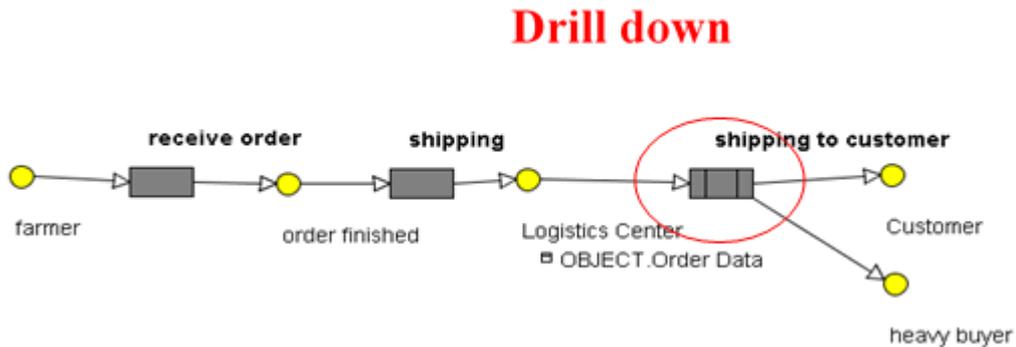


Fig.11 TO-BE Behavior Model

In the logistics center, the employees receive, inspect, package, and ship to customer.

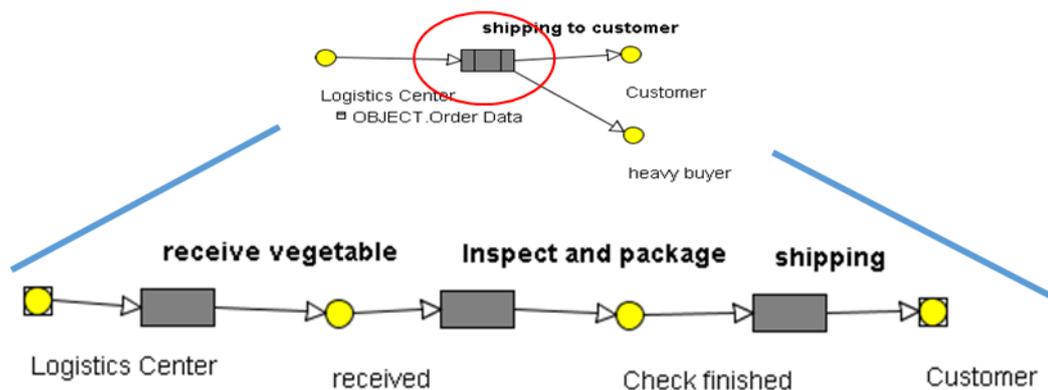


Fig.12 TO-BE Drill Down Behavior Model

### 3.3 RESULT

We simplify the original process. The customers can order online, so the whole activities can save 48% time (from 4.17 hours to 2 hours) and 50% cost (from 3400 to 1700). According to the results show below, we successfully reduce the process time and the cost. It means we simultaneously enhance the service quality and the profit.

In the future, we hope all of farmers and customers can use online reservation, because it can make the whole activities operate more efficiently and patients also get a high quality of vegetables.

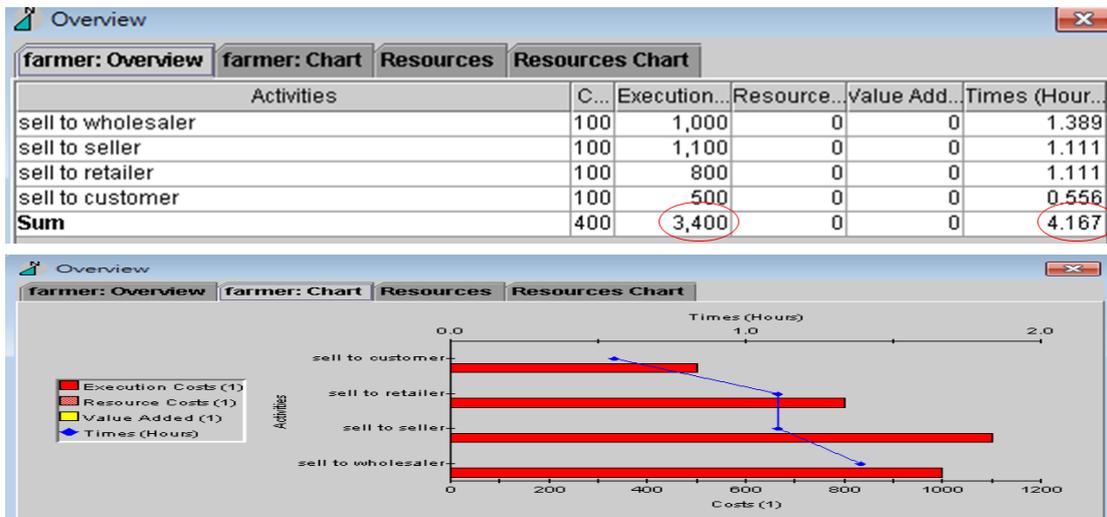


Fig.13 The result of the As-Is Model

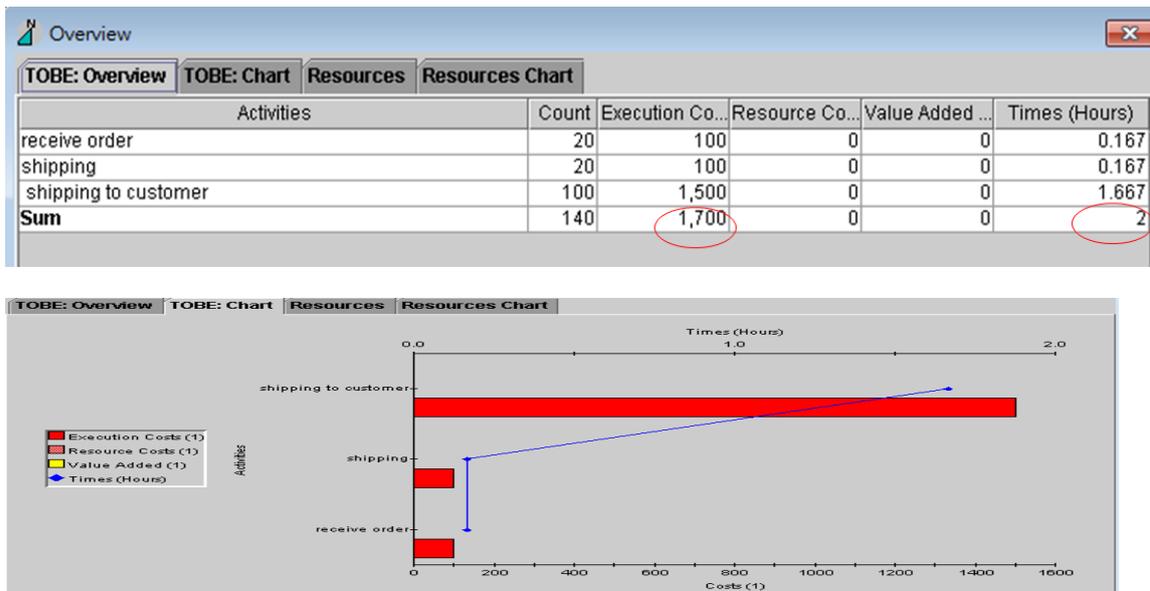


Fig.14 The result of the To-Be Model

#### 4. Website Description

The farm markets website has five main pages, Home, Farmer 1 introduction, Farmer 2 introduction, backstage management, and Login page.

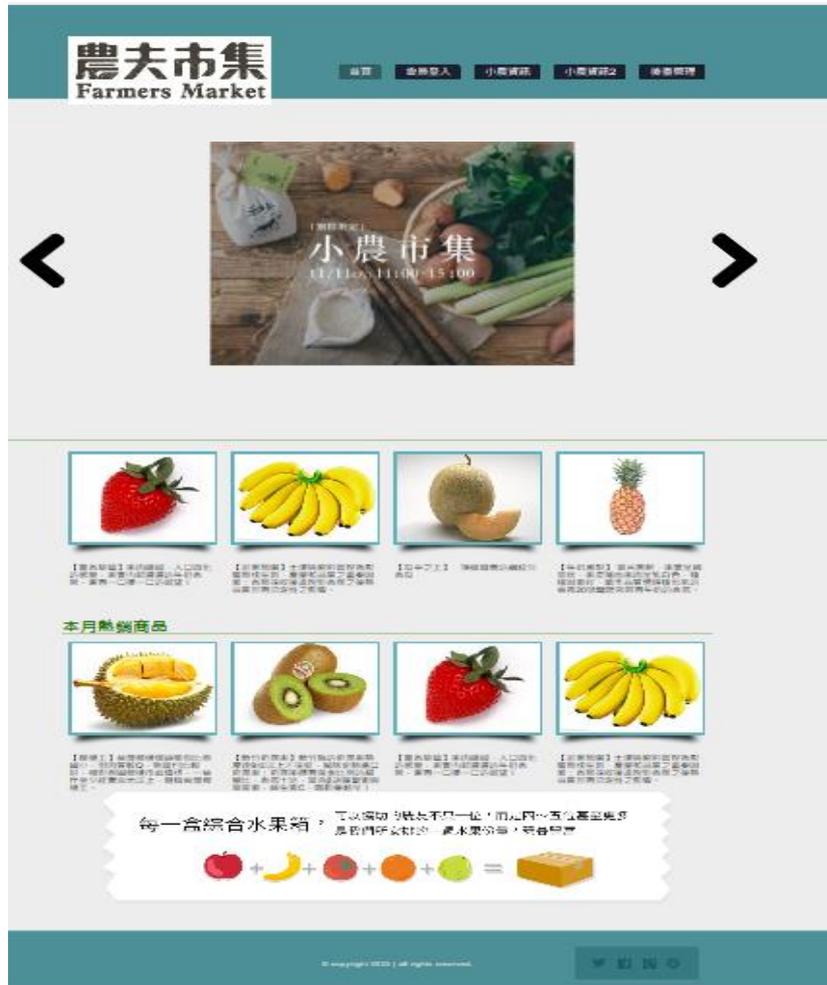


Fig.15. The Website: Home Page

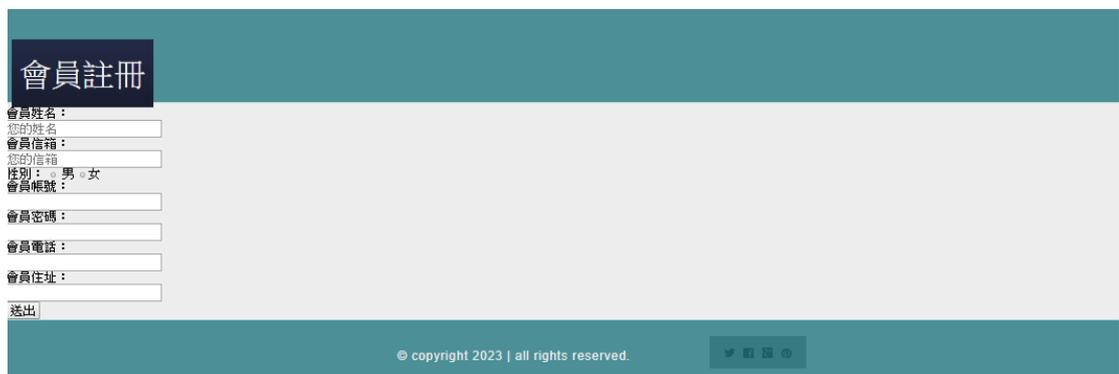


Fig.16. The Website: Register Page



Fig.17. The Website: Login Page



Fig.18. The Website: Farmer 1 introduction

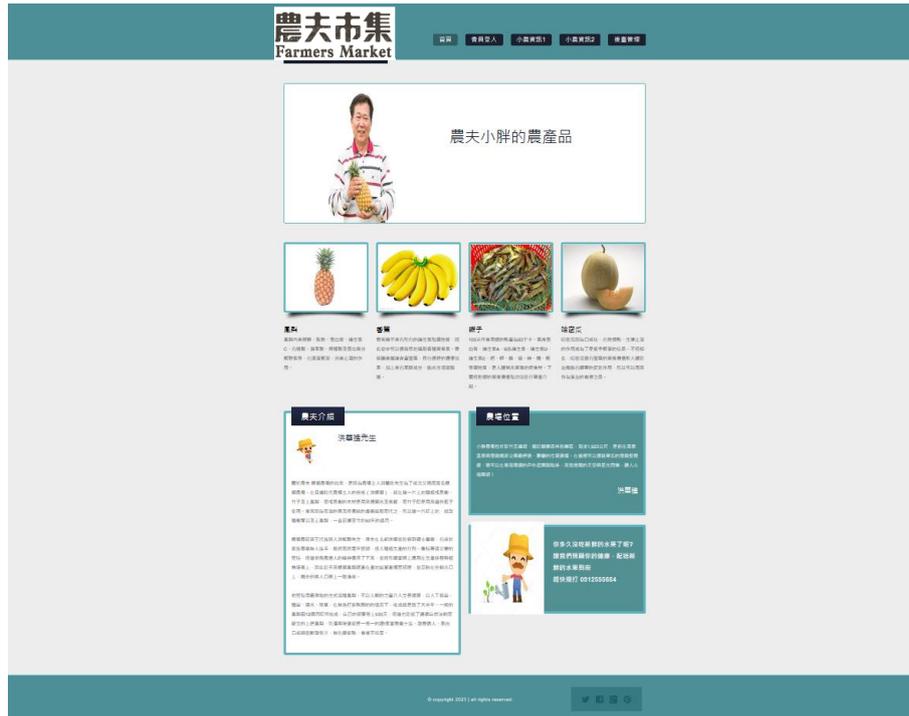


Fig.19. The Website: Farmer 2 introduction

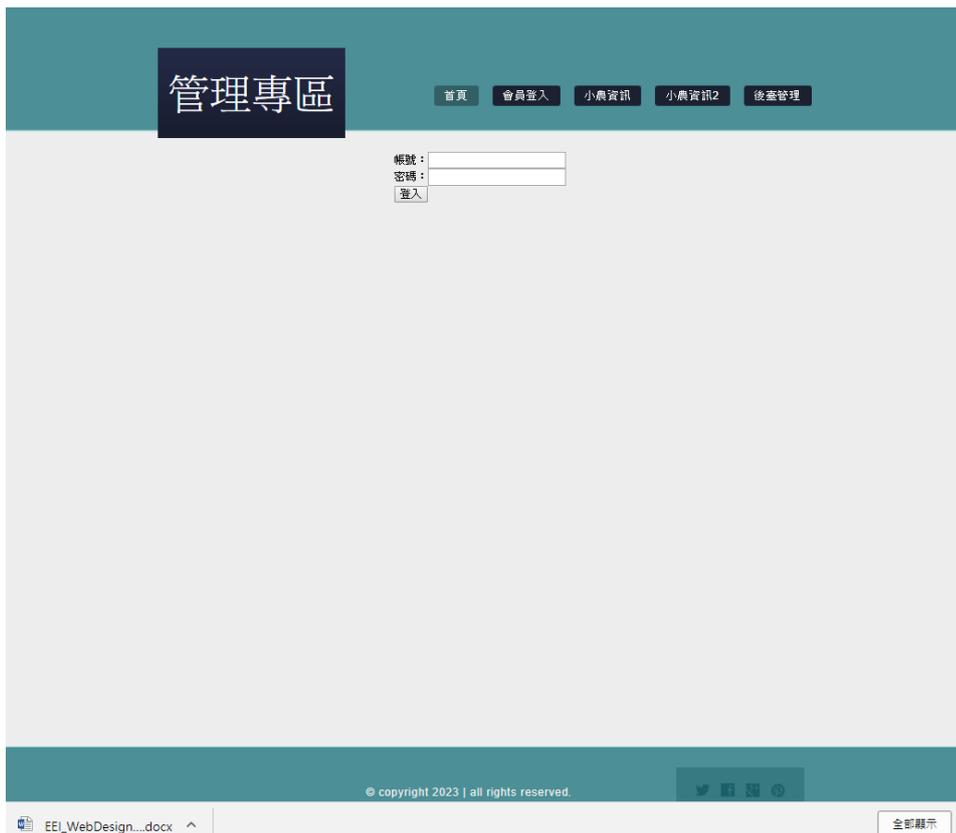


Fig.20. The Website: backstage management



Fig.21. The Website: Product Catalog



Fig.22. The Website: Shopping Cart



Fig.23. The Website: Order Form

## 5. Conclusion

We refine the process to make people served as soon as possible. We encourage all of farmers to use our online platform to promote their products. Through the refined process and promotion, customer waiting time becomes shorter, the satisfaction of customer is increasing, and the farmers can operate more efficiency.