

## 1. Problem Definition & Requirements

Stone Hearth Bakery's current traceability system relies on invoices. If a recall were to take place, all products made on a specific date would be recalled. The company requires a more thorough system to start shipping products outside of Nova Scotia.

Canadian Food Inspection Agency (CFIA)'s guidelines:

- 1 Document the ingredients a product was made of, their supplier's information, lot codes and date received
- 2 Document the product's supplied to a customer, its information and date of delivery
- 3 Keep all records for 2 years.
- 4 Provide documents to the CFIA upon request within 24 hours

Requirements provided by Metroworks:

- 5 Cloud-based software
- 6 Cross-platform software

## 2. Project Scope

- A** Develop a CFIA-compliant traceability system for the Kosher and Non-Kosher processes
- B** Train employees who will be using the solution

## 3. Initial Conditions



Fig. 1 Printed invoices



Fig.2 Kosher Storage

- Lack of a standardized method to track which ingredients were used to fulfill a customer's order.
- Disorganized storage. No clear distinction between unopened ingredients and refill bins.



Fig.3 Initial Process Map

## 4. Methods & Analysis

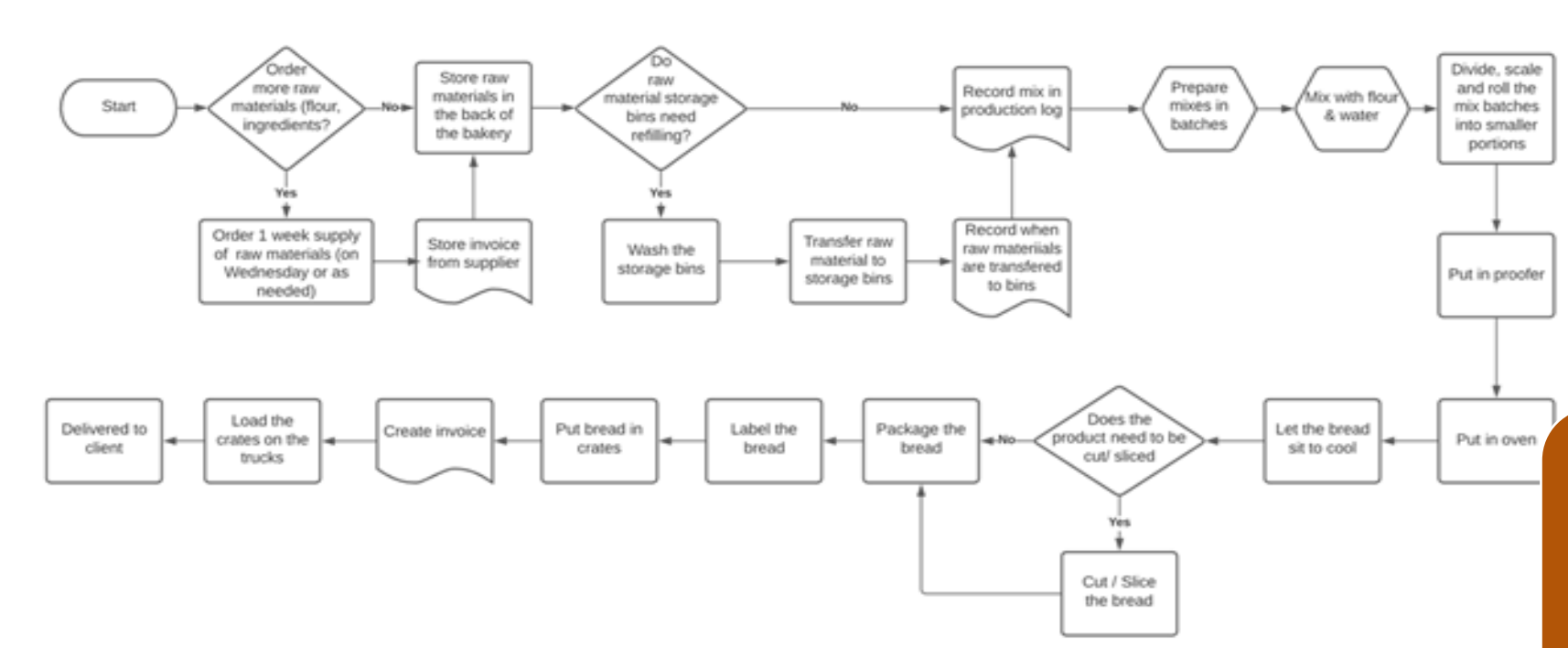


Fig 4. Kosher Process Map

- Process maps
- Spaghetti diagrams

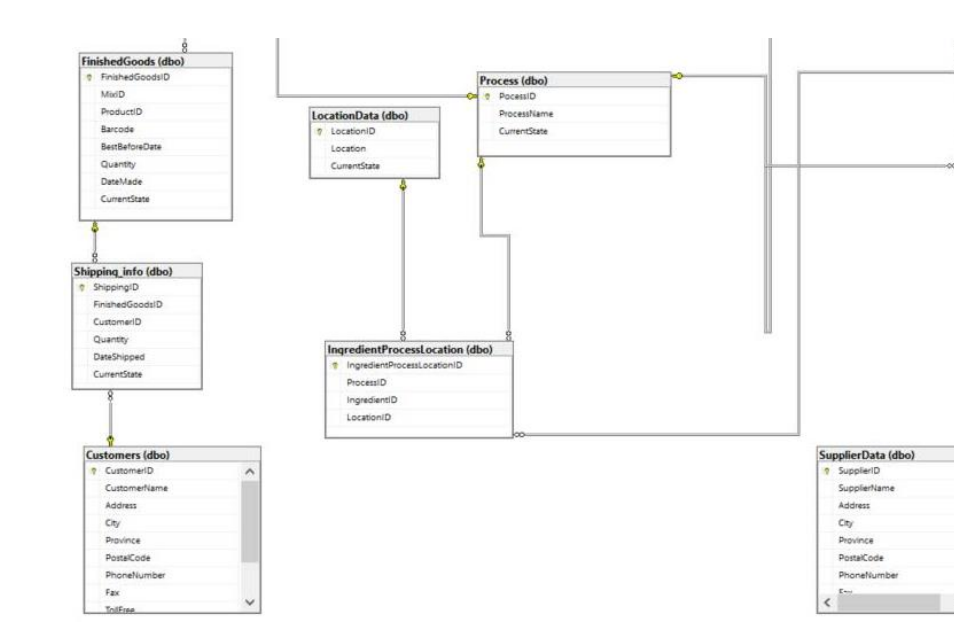


Fig 5. Screenshot of relational database

- Normalized data into **20** tables and created relationships using SQL.

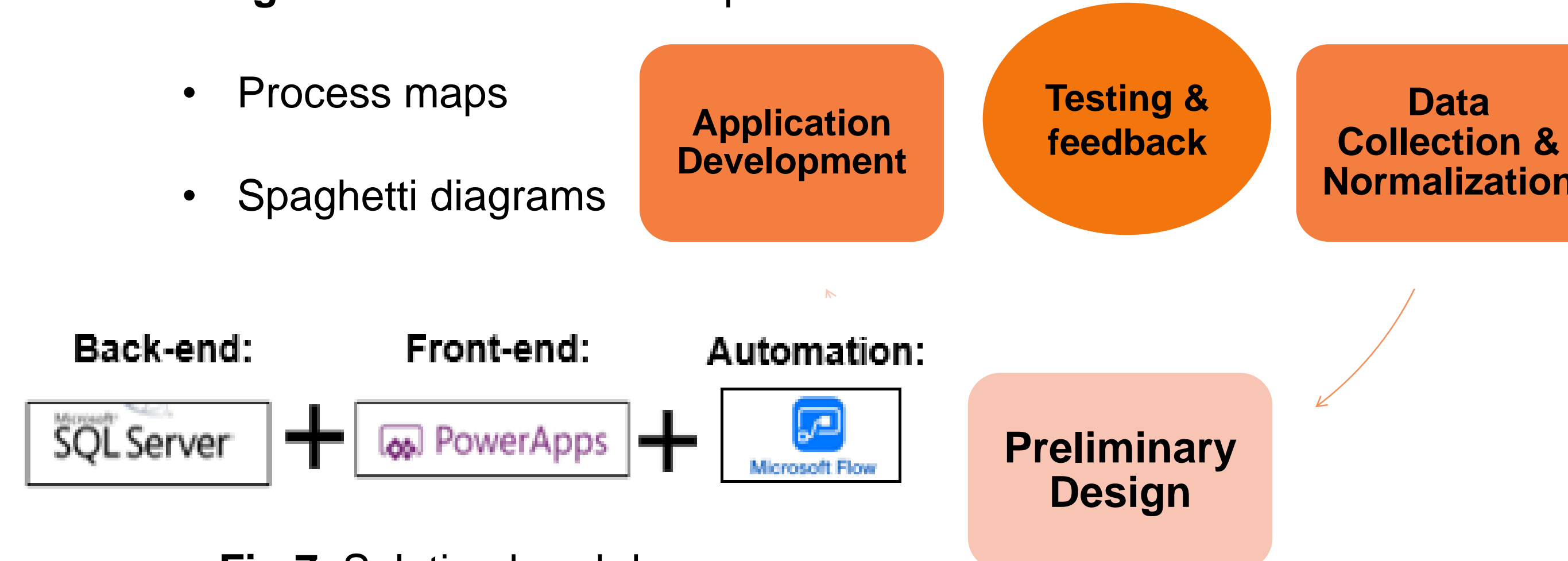


Fig 7. Solution breakdown

- Built tables, queries and procedures using SQL.
- Developed interfaces using code functions on PowerApps.
- Performed triggers and set up automated procedures with Flow.

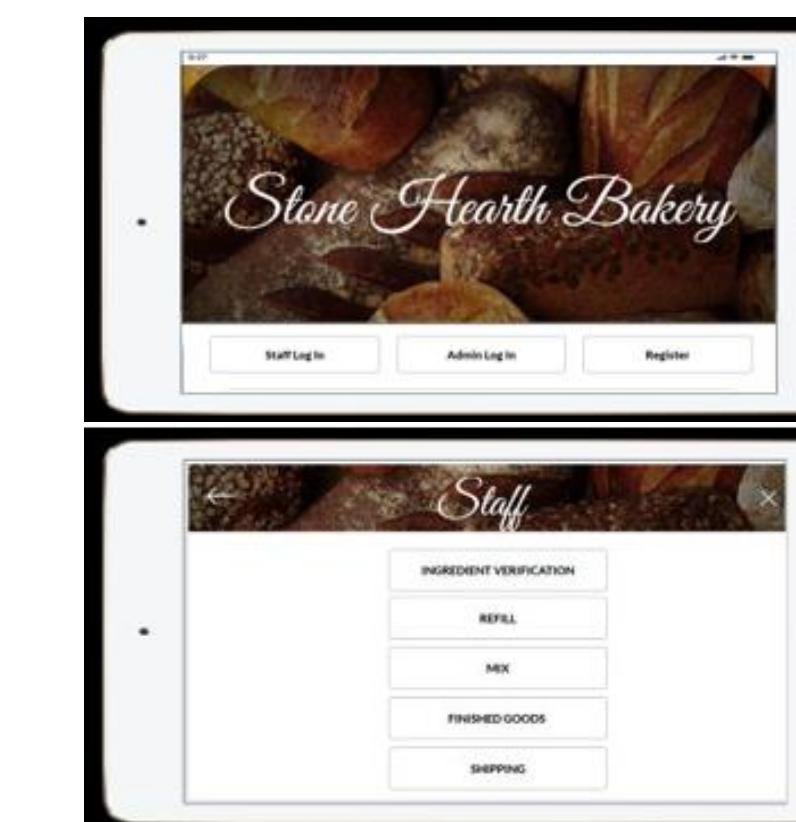


Fig 6. Screenshots of Prototype

- Developed a prototype to illustrate the preliminary design of the solution.

## 5. Results & Implementation



Fig 8. Kosher storage Before 5S



Fig 9. Kosher storage After 5S

- 5S layout distinguishes between unopened ingredients and refill bins.

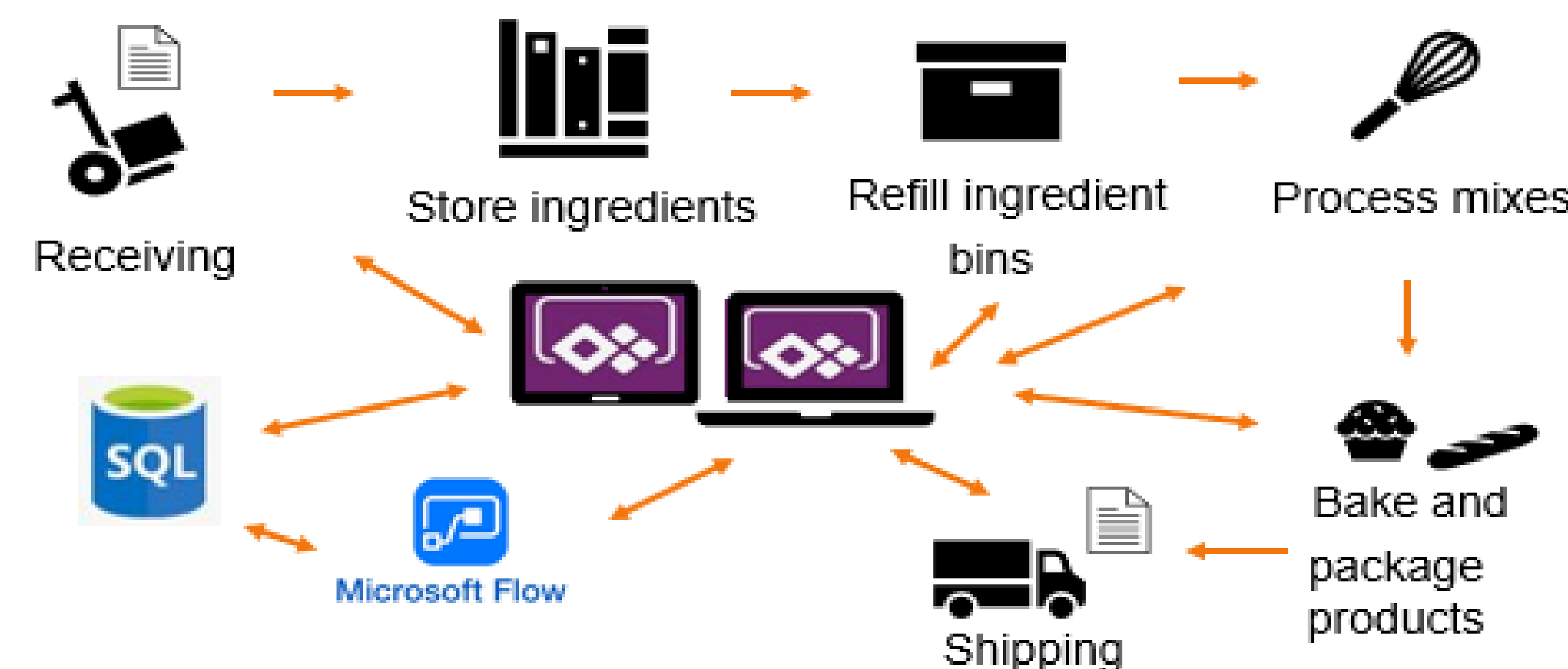


Fig 10. Final Process Map

- All stakeholders can access the traceability system on their tablets or computers by entering their credentials.

Recall Interface

DATE RECEIVED (YYYY-MM-DD): 2021-03-27

LOT CODE: [Dropdown]

RECALL

Order Received	Ingredient	Lotcode	Supplier Name	Total Received	Quantity used or refilled	Quantity in storage
2021-03-27 00:00:00	Butter milk					

Customer Name	Date Shipped	Product Name	Quantity
		Buttermilk Tea Biscuits	
		Buttermilk Tea Biscuits	
		Buttermilk Tea Biscuits	

Fig 11. Recall Interface

- The Recall interface shows all required information by the CFIA. The data can be exported into an Excel file and shared.



Fig 12. Training sessions

- Carried out 3 training sessions.
- Developed training material and SOPs.

## 6. Definitions

- Kosher:** used to describe foods that meet a strict dietary standard of traditional Jewish law. E.g., meat and non-dairy products are prohibited, except eggs.
- Non-Kosher:** where biscuits and desserts are baked.
- Cloud-based:** allows users to access software applications that run on shared computing resources via the Internet.
- Cross-platform:** system that can work across multiple types of computing platforms.

## 7. Quick facts

- 143** different ingredients accounted for
- 54** different recipes entered into the system
- 67** different finished products being tracked
- 29** user-friendly application interfaces developed
- 100%** of staff trained
- 74%** under budget

## 8. Conclusion

- 5S layout has optimized the space available, improved process efficiencies and created a bigger storage capacity.
- The developed application makes the recall process accurate, reliable and CFIA-compliant.

## 9. Recommendations

- Implement inventory management methodologies into the system including EOQ analysis, reordering points, and forecasting techniques.
- Improve the app's shipping process by creating a step where employees can draft multiple orders at the same time.
- Implement more scanning features to streamline the data entry process.

## 10. References

- Techopedia. (2013, July 09). What is cross platform? - definition from Techopedia. Retrieved March 31, 2021, from <https://www.techopedia.com/definition/17056/cross-platform>
- Hill. A. (2019, January 25). Kosher Food: Everything You Need to Know [Blog Post]. Retrieved from <https://www.healthline.com/nutrition/what-is-kosher>

## 11. Acknowledgments

- Metroworks & Stone Hearth Bakery's staff
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