

# Lab 8 – Process Analysis for Big Data (FoodShiftr)

**Course:** Big Data Analytics

**Instructor:** David Johnson

**Student:** Ruth Ihunanya Chimezuru Obere

**Date:** 17 January 2025

## Introduction

This document presents the complete Lab 8 submission for ***Process Analysis for Big Data***. The goal of this lab is to analyze an existing business process and identify opportunities where Big Data techniques can improve efficiency and reduce waste.

The FoodShiftr case study focuses on reducing food waste by connecting food donors who have excess food with restaurants that can use the food instead of discarding it.

## 1. BEFORE BPMN – Without Big Data

The BEFORE BPMN represents a **manual process** where food donors and restaurants interact **without Big Data, analytics, or automation**. Decisions are based on human judgment, phone calls, or emails, which makes the process slow and inefficient.

### Actors / Swimlanes

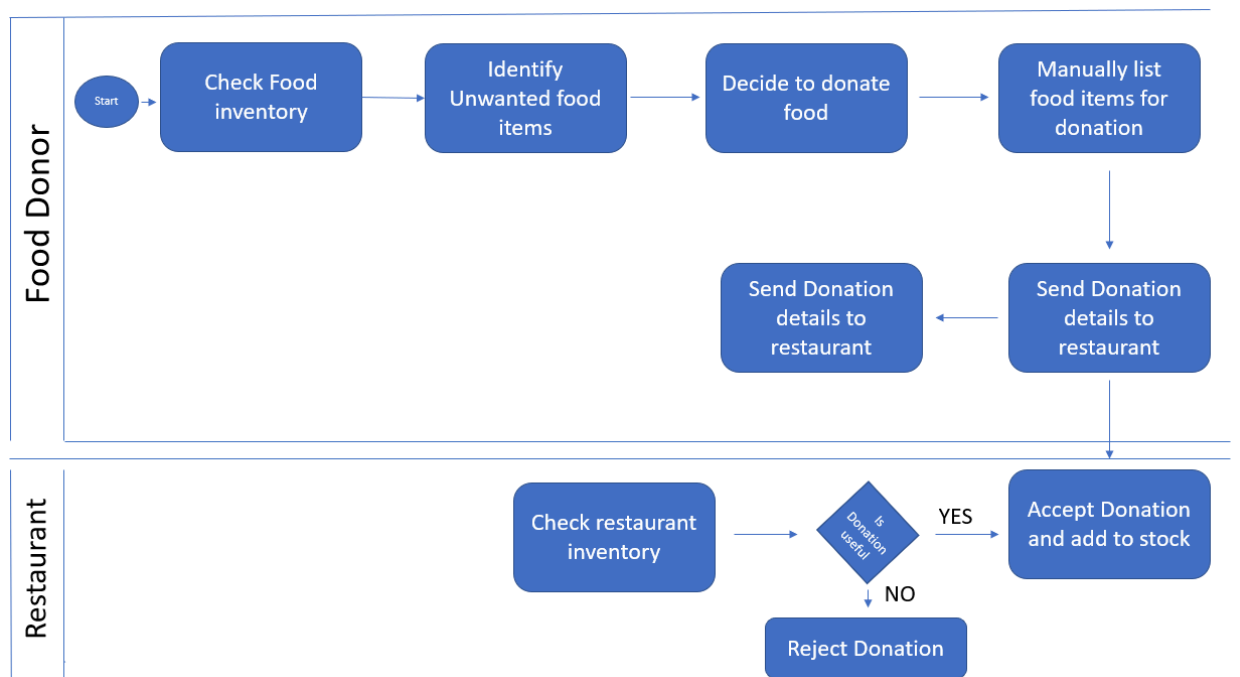
- Food Donor
- Restaurant

### Process Description (BEFORE BPMN)

1. The food donor checks their food inventory manually.
2. The donor identifies unwanted or excess food items.

3. The donor decides whether to donate the food.
4. Donation details are manually listed.
5. The donor sends donation details to a restaurant.
6. The restaurant checks its own inventory.
7. The restaurant reviews the donated food items.
8. A decision is made on whether the food is useful.
9. If accepted, the food is added to stock; otherwise, it is rejected.

## BEFORE BPMN Diagram (without Big Data)



## 2. Process Analysis (Opportunity Finding)

By analyzing the BEFORE BPMN, several inefficiencies and improvement opportunities are identified:

- Inventory checking is fully manual
- No prediction of surplus food
- Slow and delayed decision-making
- Poor matching between donors and restaurant needs
- High risk of food expiring before use

These issues show clear opportunities for Big Data, automation, and analytics.

### 3. AFTER BPMN – With Big Data

The AFTER BPMN improves the original process by introducing **Big Data, Machine Learning, and automation**. The process becomes faster, smarter, and more efficient.

#### Actors / Swimlanes

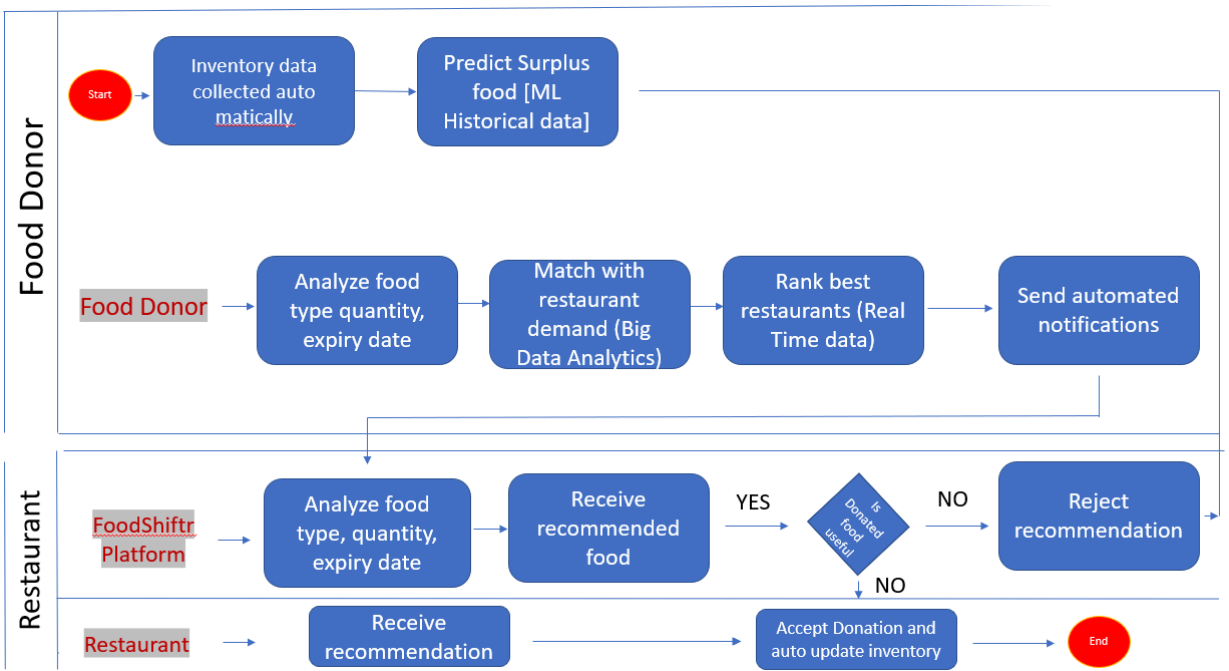
- **Food Donor**
- **FoodShiftr Platform**
- **Restaurant**

#### Process Description (AFTER BPMN)

1. Inventory data is collected automatically from donors.
2. Machine Learning predicts surplus food using historical data.
3. Food type, quantity, and expiry dates are analyzed.
4. Big Data analytics matches donations with restaurant demand.
5. The platform ranks the best restaurants based on need and location.
6. Automated notifications are sent to restaurants.

7. Restaurants review recommendations and decide whether to accept.
8. Accepted food is added to inventory automatically.

## AFTER BPMN Diagram (With Big Data)



## 4. Use of Big Data

Big Data enhances the FoodShift process by enabling:

- Prediction of surplus food before it becomes waste
- Automatic matching of food supply with restaurant demand
- Use of historical and real-time data
- Faster and more accurate decision-making
- Performance monitoring through dashboards and analytics

## 5. Conclusion

By extending the original BPMN with Big Data techniques, FoodShiftr transforms a **manual and inefficient process** into an **automated, predictive, and scalable system**.

This lab demonstrates how Big Data can be used to improve business processes by reducing waste, speeding up decisions, and efficiently connecting supply with demand.