

Lab 4: Workflow Mapping and Solution Design — Sunrise Community Kitchen

Team Ripple Consulting (Instructor Example) | SE 395-2: AI Tools for Social Impact | October 8, 2026

1. Workflow Selection

Section by Alex Torres

Sunrise Community Kitchen is a three-person nonprofit in the Parramore neighborhood of Orlando. Every Saturday they distribute groceries and prepared meals to roughly 200 families. The team consists of Maria Sandoval (founder and director), one part-time coordinator named Dani, and a rotating pool of 15 to 20 community volunteers. They have been operating for four years out of a donated church kitchen and rely on weekly food bank deliveries supplemented by local restaurant donations.

We selected **weekly meal distribution coordination** as our workflow. This is the process that begins on Monday when the food bank emails a PDF manifest of available items and ends on Saturday evening when Maria sends a post-distribution summary to the food bank and United Way. It is the operational core of Sunrise. Everything the organization does, from volunteer management to family outreach to donor reporting, flows through this weekly cycle.

This workflow is the right grain size for three reasons. First, it happens every week without exception, which means any improvement compounds 52 times a year. Second, it has clear inputs (the manifest, volunteer availability, family roster) and produces tangible outputs (a distribution plan, labeled bags, a post-distribution report). Third, it involves real judgment calls that cannot be fully automated, particularly around how to allocate food when supply is short of demand. These judgment calls are what make the workflow interesting from an AI design perspective.

We avoided scoping too small ("posting a volunteer thank-you on Instagram" is a task, not a workflow) and too large ("all operations at Sunrise" includes fundraising, grant writing, and outreach, each with different rhythms and stakeholders).

2. The Cold Reality

Section by Jordan Blake

Before proposing any AI solution, we need to understand exactly what happens today. Not what should happen, not what Maria wishes happened, but what actually happens every week. We asked four questions.

Question 1: Where does the data come from?

Three sources feed into the weekly distribution cycle:

- **Food bank manifest (Monday, email).** The Central Florida Food Bank sends a PDF attachment listing available items for that week's pickup. The manifest is typically 200 to 400 line items, each showing a product name, category code, quantity (cases or pounds), and expiration date. The PDF is

generated from the food bank's inventory system and is sometimes formatted cleanly as a table, sometimes as a raw text dump with inconsistent spacing. Maria prints this out and works from the paper copy.

- **Volunteer availability (Tuesday through Wednesday, text and email).** Dani sends a group text to 15 to 20 regular volunteers asking who can work Saturday. Responses come back over 24 to 48 hours as individual text messages and occasional emails. Dani tracks responses in a notebook, crossing off names as people confirm or decline. There is no shared calendar or scheduling app.
- **Family roster (Google Sheet, ongoing).** Maria maintains a Google Sheet with approximately 200 rows. Each row includes a family name, household size (ranging from 1 to 9), dietary restrictions or preferences (halal, vegetarian, diabetic-friendly, nut allergy), address, phone number, and a notes column. The notes column contains things like "elderly, cannot carry heavy bags" or "picks up for neighbor at 412 also." This sheet is updated irregularly. Maria adds new families when they show up on Saturday and removes families who have not come in three months.

Question 2: What do they do to it?

Maria spends Monday evening and most of Tuesday working through the manifest. She reads every line item and mentally groups them into four categories: protein (chicken thighs, ground beef, canned tuna), produce (bananas, potatoes, onions, lettuce), dairy (milk, cheese, yogurt), and pantry staples (rice, beans, pasta, cooking oil, canned vegetables). She writes these groupings by hand on a legal pad. She then cross-references the available items against the family roster, flagging pork products as unsuitable for the 34 halal families, prioritizing short-shelf-life produce for larger households, and calculating rough portion sizes: one whole chicken per family of four, two for families of six or more, a half-bag of rice for households under three.

By Wednesday, she has a handwritten distribution list showing what each family should receive. She enters a simplified version into a spreadsheet so she can print bag labels. On Thursday, she writes a run-of-show email to confirmed volunteers from scratch: arrival time (7:30 AM), station assignments, what to wear, and a summary of that week's items.

Question 3: What leaves, who gets it?

Three outputs leave the workflow each week:

- **Saturday distribution plan (Thursday, email to volunteers).** The run-of-show email described above. Volunteers use it to know where to be and what to do.
- **Labeled bags (Saturday, physical).** Each family receives a paper grocery bag with a printed label showing the family name and contents. Families who arrive without a reservation still receive food, but from a general table rather than a pre-packed bag.
- **Post-distribution summary (Sunday, email to food bank and United Way).** After Saturday distribution, Maria hand-counts the remaining inventory. She photographs the leftover items on her phone, estimates quantities, and on Sunday writes an email to the food bank and their United Way contact summarizing: how many families served, total pounds distributed (estimated from the manifest minus leftovers), any items that were not distributed, and any issues (damaged goods, contamination, families turned away).

Question 4: Where are the handoffs?

Day	Who	What	Handoff To
Monday	Maria	Receives and reads manifest	No handoff. Maria works alone.
Tuesday	Maria	Categorizes items, begins allocation	No handoff. Still solo.
Tue-Wed	Dani	Collects volunteer confirmations	Hands final list to Maria by Wed evening
Wednesday	Maria	Finalizes distribution list with volunteer count	No handoff until Thursday
Thursday	Maria	Writes and sends run-of-show email	Email goes to all confirmed volunteers
Saturday	Volunteers	Sort, pack, distribute	Families receive bags
Sunday	Maria	Writes post-distribution report	Email goes to food bank and United Way

The pattern is clear: Maria is the single point of failure. She holds the entire workflow from Monday through Thursday with no backup. Dani handles volunteer logistics but has no visibility into the distribution plan itself. If Maria is sick on a Wednesday, there is no distribution plan on Saturday. Volunteers show up and improvise.

Honest Gaps

We are unsure how Maria decides portion sizes when supply is short. She mentioned "experience" and "I just know" but could not describe the rule. When we asked what happens if there are 180 chickens for 200 families, she said "I figure it out." We pressed for specifics and she described a mental process that involves knowing which families are in the most difficult situations that week, but she could not articulate a formula. This is a gap in our understanding, and it matters because any AI solution that touches allocation will need to account for this judgment.

We are also unsure how accurate the leftover inventory counts are. Maria estimates quantities visually and by weight (she lifts boxes and guesses). She acknowledged the numbers in her Sunday report are "close enough" but not precise. If the food bank or United Way ever audits these numbers, there could be a discrepancy.

3. Swap Test Revisions

Section by Priya Mehta

We exchanged our workflow document with another team on Thursday. They read our Cold Reality section and came back with three points of confusion.

Confusion 1: How does Maria decide which families get priority when food is limited? Our draft said Maria "adjusts for need" without explaining what that means. The answer: she uses an

informal rotating priority system that exists entirely in her head. She tries to give more to families who received less the previous week, but admitted she sometimes forgets, especially when a family in crisis shows up. We added a paragraph clarifying this and noting the rotation is undocumented and inconsistent.

Confusion 2: Do volunteers get the plan before or after they confirm? Our draft was ambiguous. We clarified: Dani collects confirmations Tuesday through Wednesday, Maria finalizes the plan Wednesday evening using the confirmed count, and the email goes out Thursday. If only 8 volunteers confirm instead of 14, Maria reduces stations and simplifies distribution.

Confusion 3: What happens when a volunteer cancels last-minute? We had not addressed this. Last-minute cancellations happen roughly once every three weeks. When they do, Maria covers the station herself. There is no on-call backup. We added this because any AI-generated volunteer plan must account for the headcount dropping by one or two the morning of distribution.

4. The Recipe

Section by Alex Torres

Ingredients

- **Food bank manifest PDF** (approximately 300 line items, received Monday by email). Contains product name, category code, quantity in cases or pounds, and expiration date. Format varies week to week.
- **Volunteer availability responses** (15 to 20 individual text messages and emails, collected Tuesday through Wednesday by Dani). No standard format. Responses range from "I'm in" to "Can't do morning but could come at noon."
- **Family roster Google Sheet** (200 rows: family name, household size, dietary restrictions, address, phone, notes). Updated irregularly. Some rows have incomplete data. Notes column contains unstructured free text.
- **Previous week's leftover inventory count** (handwritten tally on a legal pad, photographed on Maria's phone). Approximate quantities only. Stored in her camera roll with no consistent naming.

Method

Step	Description	Who
1	AI reads the manifest PDF and categorizes each line item into protein, produce, dairy, or pantry. Outputs a structured table with item name, category, quantity, and expiration date sorted by category.	AI
2	Maria reviews the categorized table and corrects misclassifications. The manifest sometimes lists culturally specific items that AI may not categorize correctly. Plantains are produce, not a snack. Jackfruit is produce, not canned goods. Ghee is dairy, not oil. Maria also flags items close to expiration that need to go to larger families first.	Human
3		AI

AI cross-references the corrected manifest quantities against the family roster. It generates a draft allocation: which families receive which items, in what quantities, based on household size, dietary restrictions, and available supply. When supply is short, AI flags the shortage and presents options ("38 chickens short of full allocation. Show families who received reduced portions last week?") but does not make the final call.

4	Maria reviews the draft allocation and adjusts. She knows that the Herrera family just lost a job this month. She knows the Nguyen family has a new baby and needs more formula-compatible items. She knows Mrs. Patterson's grandson moved out so her household size dropped from 4 to 3 but the spreadsheet has not been updated. She applies the informal priority rotation and overrides the AI's suggestions where needed.	Human (judgment)
5	AI drafts the volunteer run-of-show email based on confirmed availability from Dani's list and the number of stations needed for that week's distribution volume. Includes arrival time, station assignments, a summary of items being distributed, and any special instructions (e.g., "we have 40 cases of yogurt expiring Monday, push these first").	AI
6	Maria reviews, personalizes greeting ("Thanks for coming back, DeShawn" or "Welcome to your first Saturday, Lucia"), adjusts station assignments based on volunteer strengths she knows from experience (Carlos is strong and fast at sorting, Anita is patient and good at the distribution table with elderly families), and sends.	Human
7	Saturday: volunteers sort, pack, and distribute food to families using printed lists and bag labels generated from the finalized allocation. Maria oversees and handles exceptions (families who show up unregistered, items that look damaged upon unpacking).	Human
8	AI generates the post-distribution report from the remaining inventory count and the distribution records. Calculates total pounds distributed, number of families served, percentage of manifest utilized, and compares to the previous four weeks. Formats the report for the food bank and United Way and drafts the email.	AI

Time and Serves

	Current (Manual)	AI-Assisted (Estimated)
Maria's hours/week	6 hours (Mon eve: 1.5h manifest. Tue: 2h allocation. Wed: 1h finalize. Thu: 0.5h email. Sun: 1h report)	2 hours (Tue: 0.5h review categories. Wed: 0.5h review allocation and adjust. Thu: 15min review email. Sun: 15min review report. Sat: 0.5h oversight as usual)
Dani's hours/week	2 hours (collecting and tracking volunteer responses)	1 hour (responses still come by text, but AI helps parse and tally confirmations)
Total	8 hours	3 hours

Output goes to: volunteers (distribution plan email, Thursday), families (labeled bags, Saturday), food bank (post-distribution report, Sunday), United Way (same report, Sunday).

Chef's Note

AI must never decide which families receive meals when supply is short. Maria knows things that are not in the spreadsheet. She knows the Herrera family's father was deported last month and the mother is feeding four children alone. She knows Mrs. Osei just finished chemotherapy and cannot cook, so she gets extra prepared meals instead of raw ingredients. She knows the Alvarez family has not come in two weeks and she needs to call them because last time that happened, the grandmother had fallen and could not get to the kitchen.

If AI made allocation decisions based on the roster data alone, it would optimize for data completeness. Families with full profiles, every field filled in, every dietary restriction documented, would get accurate allocations. Families with sparse records (often the newest, most vulnerable families who signed up in a rush on a Saturday) would get generic portions or be deprioritized. The algorithm would reward good record-keeping and punish the families who need the most help.

The priority rotation must stay with Maria. AI can present her with the right information faster: here is what we have, here is what each family usually gets, here is who got less last week. But the final decision on who gets what when there is not enough is a human decision rooted in relationships and context that no spreadsheet captures.

5. Proposal Seed

Section by Team Ripple Consulting (individual section by Jordan Blake)

Why This Workflow and How It Works Today

Weekly meal distribution coordination is the operational core of Sunrise. If it fails, 200 families do not eat on Saturday. It consumes six of Maria's hours every week. Saving four of those hours returns 208 hours per year to an organization with exactly one full-time person.

The process is entirely manual and entirely dependent on Maria. When she had the flu in February, Dani attempted to run distribution alone. She could not read Maria's handwritten allocation notes, did not know which families had dietary restrictions, and ended up doing first-come-first-served. Three halal families received pork. Two elderly families who always get delivery were not called. Maria spent the following week rebuilding trust.

How AI Fits In

The recipe (Section 4) divides the workflow into eight steps: four AI, four human. AI handles the mechanical work (manifest categorization, draft allocations, volunteer email drafts, report generation). Humans handle everything requiring judgment, relationships, or cultural knowledge. The division works because the workflow has natural seams: the manifest is a data-processing task, the email is templated communication, the report is arithmetic. The allocation adjustments, cultural food knowledge, and crisis awareness are human strengths.

What Stays Human

Four things must stay with Maria: (1) **priority decisions** when supply is short, because the knowledge driving those decisions lives in relationships, not data; (2) **cultural food knowledge**, because the

manifest uses generic product names and Maria knows which families will actually use plantains, jackfruit, or taro; (3) **crisis awareness**, because Maria tracks family wellbeing through Saturday conversations and community word-of-mouth, not through any system; and (4) **volunteer relationships**, because knowing that Carlos has a bad back and Anita speaks Creole matters for station assignments in ways a spreadsheet cannot capture.

Gaps from Claude Interview

We used Claude to stress-test our recipe by asking it to identify assumptions we had not validated. Five gaps emerged:

1. **How accurate is the manifest PDF?** The format varies week to week. Some weeks it is a clean table, other weeks a text dump with abbreviations ("chk thgh" for chicken thighs) and merged cells. We need three to four sample manifests to test whether parsing works reliably.
2. **Does the food bank's category system match Maria's?** The food bank categorizes by storage type (refrigerated, frozen, shelf-stable). Maria categorizes by meal function (protein, produce, dairy, pantry). AI would need to learn Maria's system, not the food bank's.
3. **How do volunteers respond to impersonal emails?** Several volunteers told us they come back because "Maria makes you feel like family." If AI-drafted emails read as generic, volunteer retention could drop.
4. **What happens when the leftover tally has errors?** Maria estimates quantities visually. If errors accumulate in the food bank reports, there could be accountability issues. Do we need a counting step, or is approximate good enough?
5. **How does Maria track family wellness?** She learns about crises through Saturday conversations and community word-of-mouth. None of it is recorded. If AI needs this context for allocation decisions, asking Maria to formally log family crises raises privacy concerns.

What We Need from the Partner

To move from this proposal seed to a working prototype in Lab 5, we need the following from Sunrise Community Kitchen:

- **Three to four sample manifest PDFs** from different weeks, so we can assess format variability and test whether AI parsing works on their actual documents. We need one clean week and one messy week at minimum.
- **Access to one week's volunteer email chain** (with volunteer permission), so we can see the actual format and tone of confirmations and understand what information Dani extracts from each response.
- **One Saturday observation visit.** We want to watch the distribution from setup to teardown. We need to see the physical flow: where does the sorting happen, how do families check in, how are bags distributed, what happens when someone shows up who is not on the list. We cannot design a solution for a process we have only heard described.
- **Thirty minutes with Maria to document the priority rotation.** This is the most important conversation. We need to understand, as concretely as possible, how she decides who gets what

when there is not enough. We are not asking her to formalize it into a rule. We are asking her to walk through three or four real examples from recent weeks so we can understand the pattern of her judgment, even if that pattern resists being written as a formula.

"The goal is not to save Maria time. The goal is to make the kitchen survive a week when Maria is sick."
— Team Ripple Consulting

If the AI-assisted workflow works, Dani or a trained volunteer could run a Saturday distribution using the system's output as a starting point. Their judgment calls would not be as good as Maria's. But they would have a categorized manifest, a draft allocation, and a volunteer plan. That is the difference between a functional Saturday and the one in February.

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