

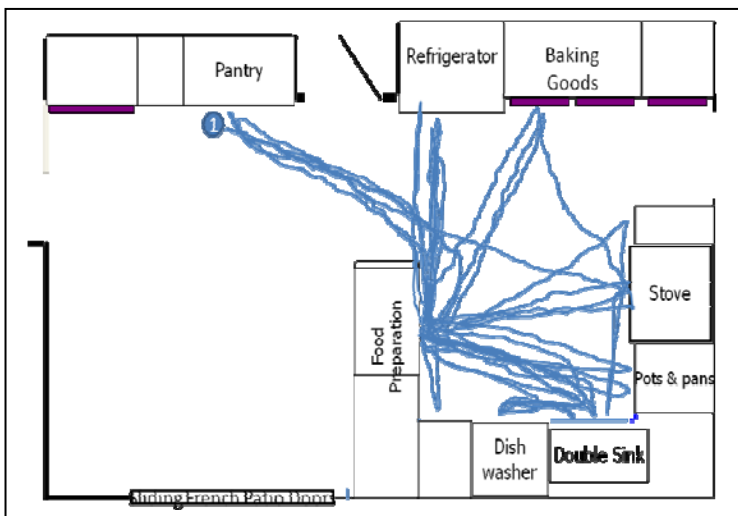
# Spaghetti Diagrams

**What** The spaghetti diagram (aka Physical Process Map) is a tool used to show the path of work flow in a process. It is used to help establish the optimum layout for the process based on transfers between added-value steps. Spaghetti diagrams expose inefficient layouts and identify non-value-added transfers between key steps.

**When** The spaghetti diagram is a simple mapping tool used during the Define and Analyze phases of a Lean Six Sigma process. It provides a useful visual overview of the geography of the process. The Spaghetti Map is a particularly useful tool when there is excessive movement of an entity or entities through a process. A highly simple, visual tool, it can help streamline a process. In that context, it can show existing problems in a process and also communicate the potential benefit of change to a new layout or flow.

**How** 1. **Invite the right people:** In this technique it is important to include people that are intimately familiar with the process. Their hands-on knowledge is critical to the success of the project. You might also include one or two people that have no experience with the process. These people will help you uncover and test your hidden assumptions.

2. **Determine Project Scope:** Determine the scope of the process in question (i.e., the start point, end point, and geographical boundaries of the process).
3. **Draw the Floor Plan:** On a flip chart or graph paper lay out the floor plan as accurately as you can. Label each station, system, equipment, or room.
4. **Follow the Work Path:** Follow the process and mark the actual travel or walk patterns for the person, product, or process. Avoid drawing the path "as the crow flies," since this would not be representative of the actual path taken, only the points between. Mark the process locations and steps onto the layout. The paths should be drawn for just a single cycle of the process. If you choose to examine the path across multiple shifts then use different colors.
5. **Calculate the Distance Traveled:** This is done with a measuring device such as the measurement wheel-on-a-stick, an electronic pedometer, or odometer of a forklift, as appropriate.



6. **Analyze the Process Flow:** Analyze the process flow to determine if reordering the process can save significant time and effort. Avoid unintended consequences by recognizing other processes that by moving a step could cause greater issues.

7. **Draw To-Be Process:** After the Current State Map is completed and work is done to improve the layout of the process, a second, Future State Map, is constructed with an indication of the reduction in travel time and distance.