Input Determines Output

\[ Y = f(x) \]

Everything we do is a process, and to perform the process, we need inputs.

**Examples:**

1. Consider going to work. What process do you use to get from your house to your workplace?
   
   - Leave your house
   - Unlock car
   - Get in car
   - Start car
   - Drive to work
   - Park car
   - Get everything you need from the car
   - Lock car
   - Walk into work

Assume the output -- \( Y \) -- is the time it takes to drive to work. What are some of the inputs (x's) needed to perform the process that may affect travel time?

- Functioning car
- Keys
- Amount of gas
- Knowledge of area
- Route
- Weather
- Time of day (rush hour v. normal traffic)
- Parking space at work
- Work material (computer, notepad, etc.)
- etc.

Can you think of any more inputs that affect travel time?
2. You are spending the day at an amusement park and want to ride all the roller coasters. Your measure of success is the number of roller coaster rides you accomplish within the day’s time.

What are some of the inputs to your process that may impact that number?

- Day of the week
- Time of the day
- Weather
- Your physical condition
- Number of people in your party
- Number of restrooms in the park
- Number of concession stands in the park
- The order in which you ride the roller coasters
- The distance between the roller coasters
- Park’s queuing system: Does the park offer “Easy Passes?”
- Money
- etc.

In Lean Six Sigma, the idea is to find the critical inputs, siphoned off from the trivial ones, and set those critical inputs at an optimum value so the process always has the desired outcome.