Optimizing the personal budget by reducing spending

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Key Dates	Launch	Define	Measure	Analyze	Improve	Control
	5-Apr	5-Apr	12-Apr	19-Apr	28-Apr	5-Jun

Define

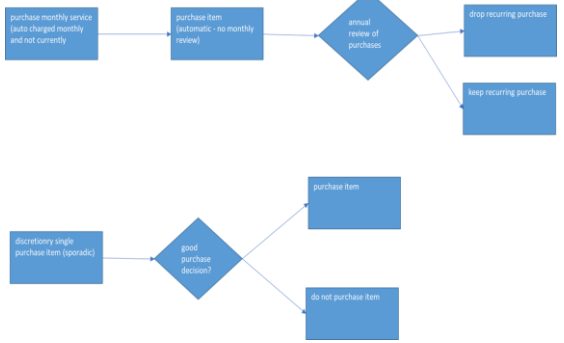
Problem Statement

- I am currently spending too much.
- Weekly average spend= $436
- Standard deviation= $143

Impact

- Having a negative affect on savings
- Attempt to reduce spending 25%
- Reduce weekly spending $110 if possible

Current process map



Task

I need rules to optimize my budget, and must apply these rules whenever taking on future expenses.

Measure

Sample size

Using 90% confidence (z*=1.645), with a margin of error of +/- $115.00 the sample size formula requires 4 samples.

z*	sigma	E	n	n rounded
1.645	142	115	4.125844	4

Confidence Interval

Using 90% confidence (z*=1.645), with a sample size of 4 gives a margin of error of +/- $115.0

X	sigma	z*	n	s	Error
436	142	1.645	4	142	116.795

Descriptive Stats

Breaking the spending into categories shows a large difference in spending based on category. The most variance comes from services.

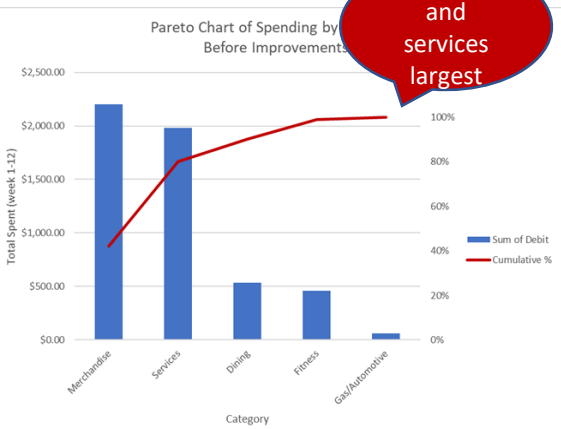
Statistic	Dining	Fitness	Gas/Automotive
Mean	$ 44.44	$ 152.42	$ 29.59
Meadian	$ 51.80	$ 152.42	$ 29.59
Mode	N/A (not discrete)	N/A (not discr	N/A (not discrete)
Variance	442.1871091	0	69.26645
Standard Dev	21.02824551	0	8.322646815
Range	$ 57.90	$ -	$ 11.77
Statistic	**Merchandise**	**Services**	**Dining+Merchandise**
Mean	$ 183.60	$ 164.90	$ 228.04
Meadian	$ 174.20	$ 147.46	$ 216.63
Mode	N/A (not discrete)	N/A (not discr	N/A (not discrete)
Variance	1769.990154	5771.160675	1063.921499
Standard Dev	42.07125092	75.96815566	32.61780954
Range	$ 121.70	$ 251.87	$ 96.92

Analyze

Purchase types

Analyzing spending by category shows merchandise and services purchases affect overall spending the most.

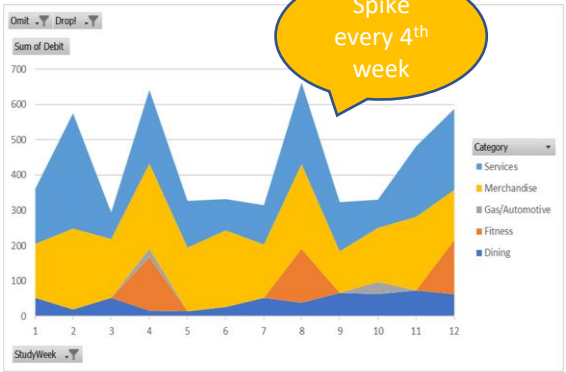
Merch and services largest



Automated purchases

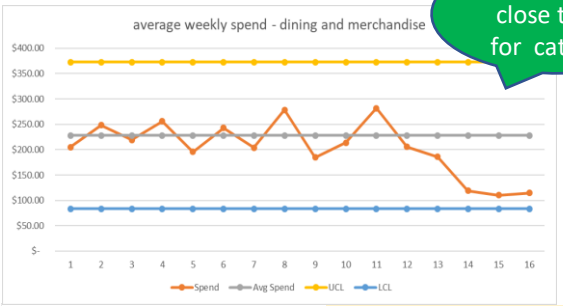
Monthly automated purchases need to be systematically reviewed. Are they necessary or even redundant?

Spike every 4th week

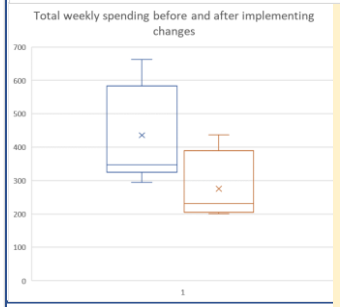


Improve

3 out of 4 close to LCL for category



SQL improved from 0.2 to 1.15 based on weekly spending opportunities averted.



Did you successfully improve your process?
Two sample hypothesis test, one-tail, sample size < 30:
Xbar 1 (total spending, weeks 1-12, average) = 436
Xbar 2 (total spending, week 13-16 average) = 235
n1 = 12, n2 = 4
S1 = 143, S2 = 109
Df = (n1+n2)-2 = 16-2 = 14
t = 2.35
p = 4%
Confidence = 96%

Control

1. New processes implemented should provide control going forward.
2. Constant monitoring part of process
3. Internal feedback-loop slows spending as week progresses and amount goes up!

For sporadic single purchases,
Is the purchase necessary or substitutable?
If necessary, purchase
If substitutable, is the purchase going to bring over the spending limit for this point in the week?

For automatic purchase renewals, review them weekly and end the renewal if it is a redundant item (R) or waste (W).