

# **Connecting the Dots: QPM, OPP, CAR, and OPM**

CMMI Conference  
November 15-18, 2010

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Abstract 11177



# What Does **HONEST** High Maturity Behavior Look Like?

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# Objectives



- Intended for people who are new to high maturity.
- Shows how inter-connected the high maturity process areas are.
- Stresses how using high maturity can result in success, even in your personal lives
- Will use personal life example to help you understand basic principles.

# Northrop Grumman Information Systems (IS) Sector

## IS Sector

- 7,000 contracts
- 32,000 employees

## Products and Services

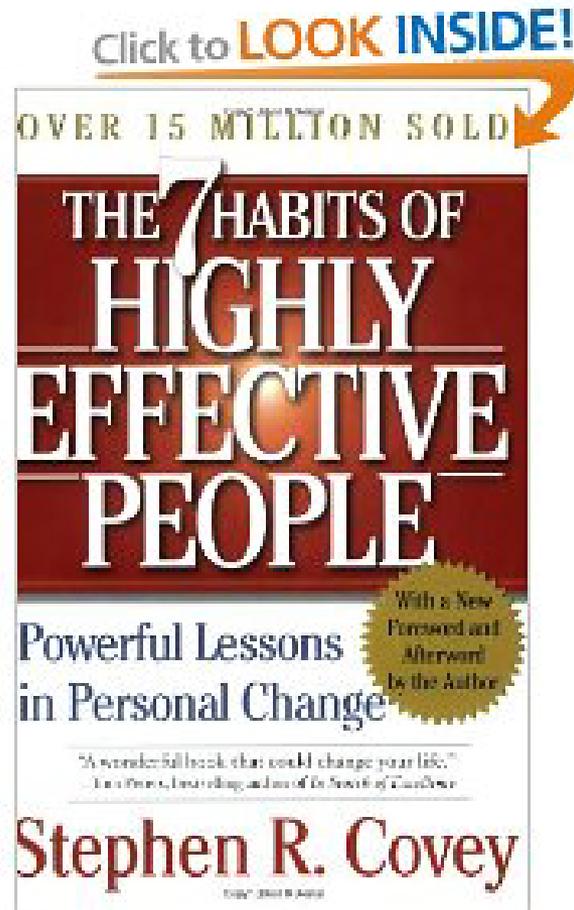
- Mission support
- Cybersecurity
- Enterprise applications
- Command, control, and communications
- IT & network infrastructure
- Management & engineering services
- Intelligence, surveillance, & reconnaissance



## CMMI Appraisals

- Over 80 organizations (over 250 projects) appraised at Level 3 or higher
- Completed 32 Level 5 appraisals

# Almost a Personal Improvement Presentation

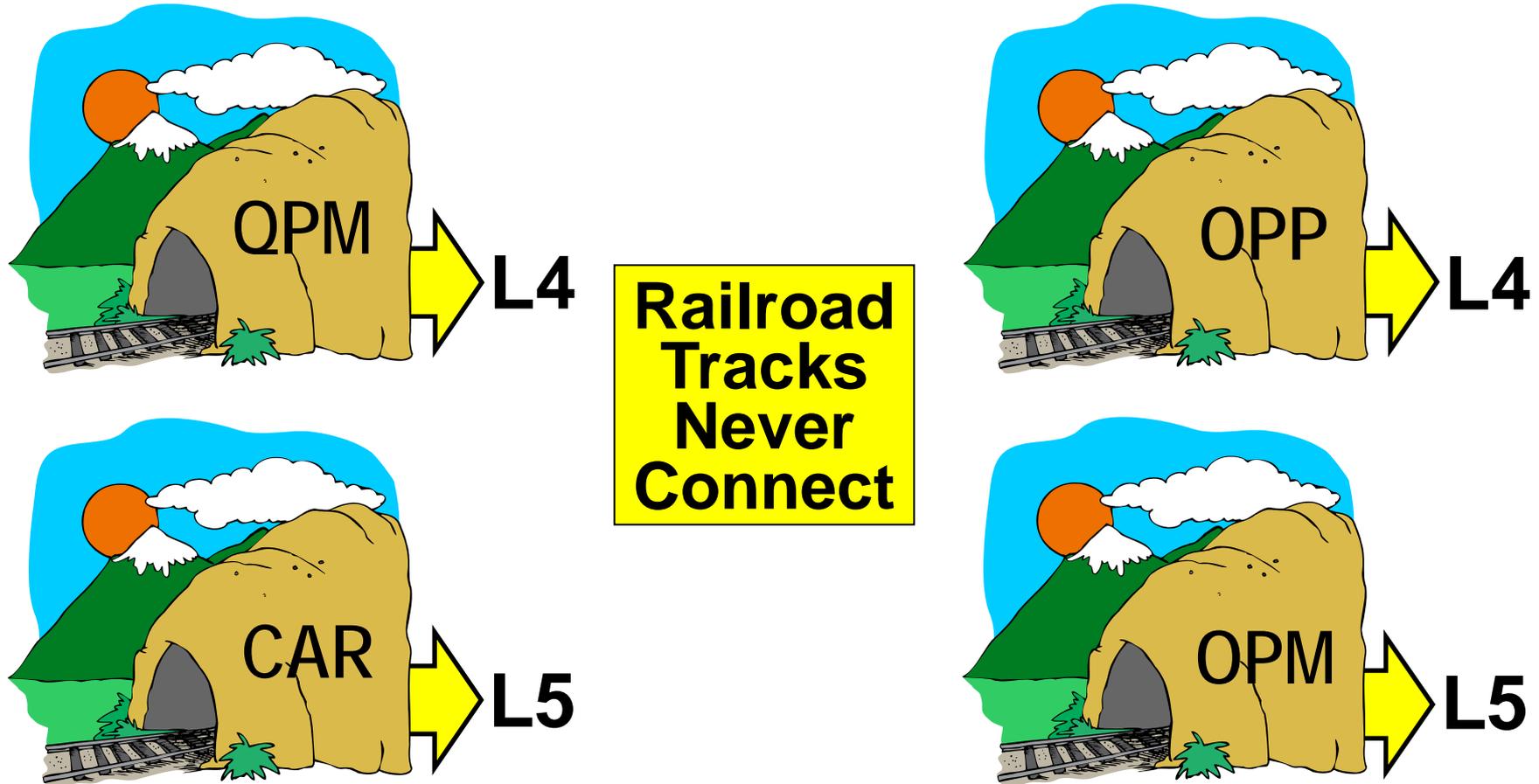


## Book contains 7 principles:

- Principles of Personal Vision (OPM)
- Principles of Personal Management (QPM)
- 8<sup>th</sup> new habit: Principles of Taking High Maturity Seriously

Even self improvement textbooks use high maturity concepts.

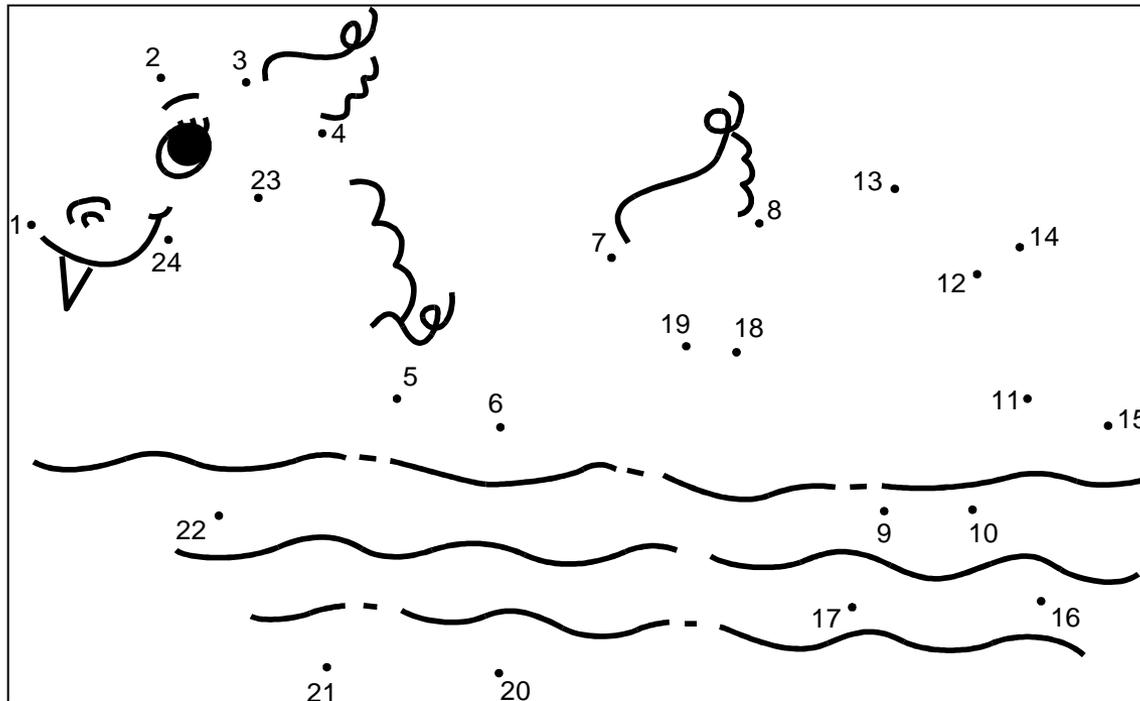
# High Maturity Process Areas Should **NOT** Be Like This



Should not do each process area in isolation and pop out with a level.

# High Maturity Process Areas Should Be Like This

Dot-to-dot where high maturity process areas continually connect to one another, e.g., OPP to QPM to CAR to OPP to OPM to QPM to OPP . . .



High maturity continuously bounces back-and-forth between dots.

# Examples of Not Connecting the Dots

- Baselines and models (OPP) are not used by projects (QPM)
- Making improvements (OPM) that are not based on an analysis of existing performance (OPP)
- Managing your project (QPM) without an understanding of your current performance (OPP) Note that baselines and models can be at a project level.
- Not using what projects have learned (CAR) to make organizational improvements (OPM)
- Not using performance measures (QPM) to help figure out the root cause of performance problems (CAR)
- And the list goes on ...

For high maturity, some of this behavior is expected.

# Personal Example is Money



- Example shows how I manage money using high maturity concepts
- Use of high maturity concepts helped to reach personal goals (business objectives)
- Many aspects of my personal example can be used to manage spending in organizations

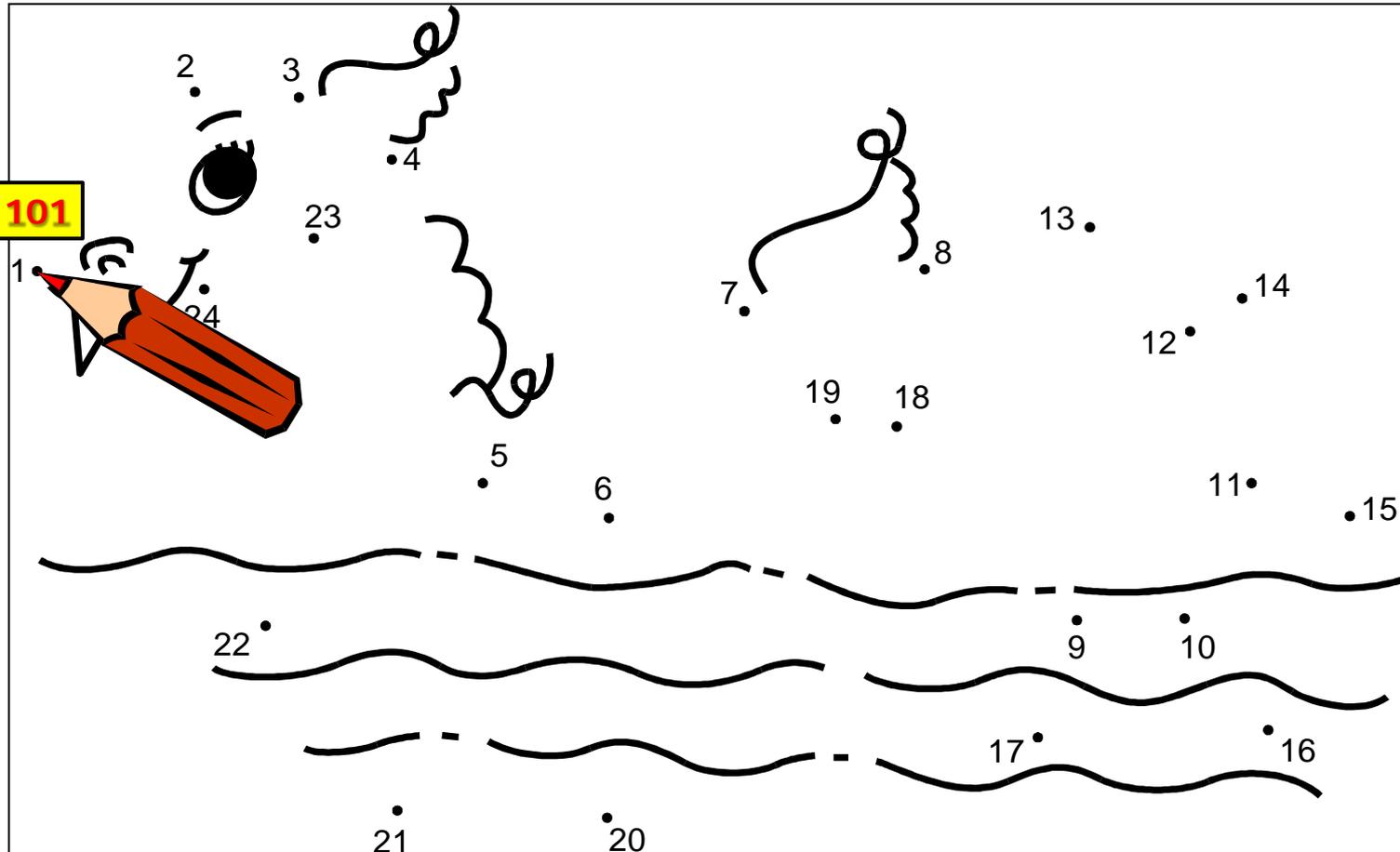
# When M&A Started

- Moved away from home at 19 years old in 1978 with \$600.
- Worked full time at TRW, Inc. in the graphic art department.
- For no particular reason, immediately started tracking spending.
- Collected barely any metrics (kindergarden M&A)

JAN 1979						
First checking account						
DP CK	000	TRW check 12-29	1/10			295 16
CK	101	Cash - spending money	1/26	100 00		
DP CK	089	TRW - check 1-12	1/29			387 78
		TOTAL:				\$ 100. <sup>00</sup>

# M&A 101 : Baby Metrics

**M&A 101**



You have to start collecting data, even if you start off with baby M&A.

# M&A Evolved Quickly

- By the end of 1979, M&A quickly evolved to log more details.

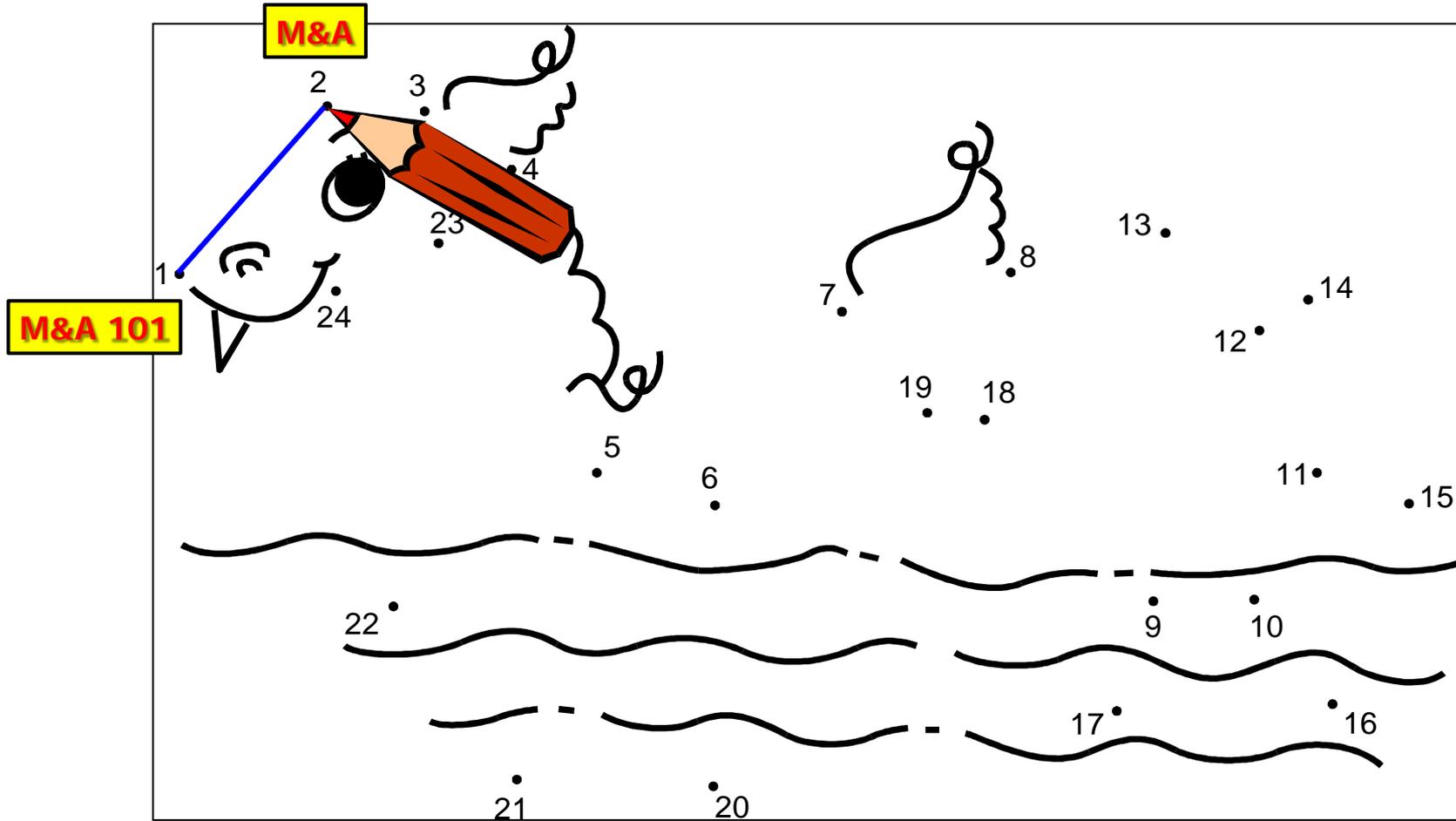
DEC 1979  
Received first credit card

CK 308	Cosmopolitan - 1 year subscription	12/3	21 00	
CK 309	Contempo shoes - Pacific Square - 2 pairs	12/15	76 32	
CK 310	Fabric Galaxy - Karen's x-mas present	12/15	31 80	(15 00)
CK 311	Surprise store - Craig and my pants	12/15	50 77	
CK 312	Yoke - Master Mind for Dad's birthday	12/16	10 00	
CK 313	Cash - spending money	12/16	(200 00)	
CK 314	May Co. - 2 shirts Glenn's x-mas Craig	12/19	43 46	(10 00)
MASTER	Contempo Casuals - 1 shirt	12/19	29 68	
MASTER	Cicorice Pizza - 4 albums	12/23	42 36	(20 00)

I clearly had no control over my spending.

- Only interested in total spending (the process, not subprocesses)

# M&A: Grown Up Metrics



As you get used to M&A, you “grow up” and gather more details.

# M&A Went Overboard

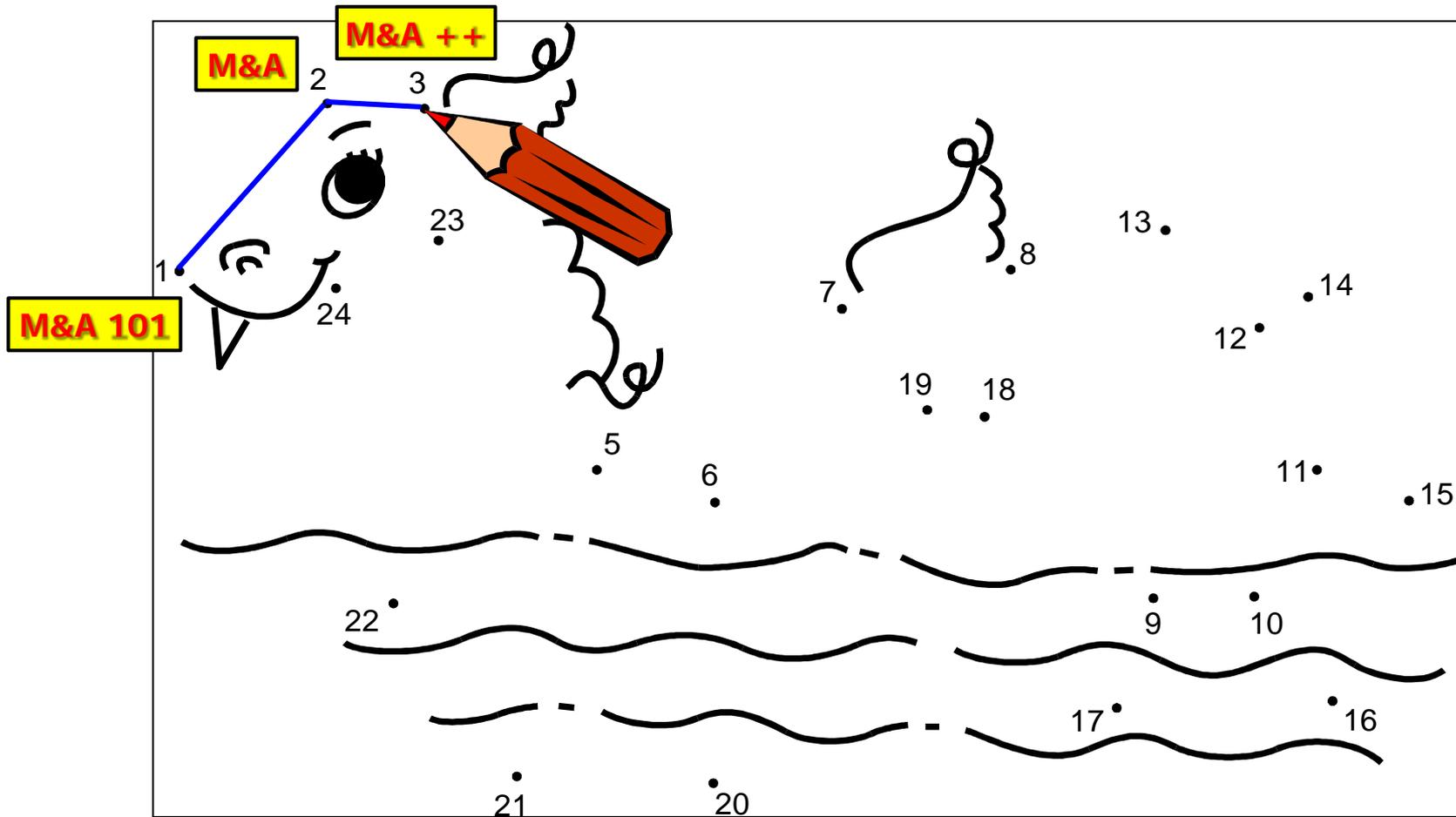
- Soon after, obsessive compulsive disorder kicked in.

CASH	Breakfast at Mammoth Lodge	5/22	3 55
CASH	Clip on Polaroid for glasses	5/22	6 36
CASH	lift ticket for full day	5/22	13 00
CASH	Dinner at Shogun - Denny treated	5/22	5 00
CASH	Arcade after dinner	5/22	2 00
CASH	Swenson ice cream - single cone	5/22	1 00
CASH	Breakfast at The stove - Denny treat	5/23	0 01
CASH	Gas paid to Denny for trip	5/23	10 00
CASH	Gas paid to Cheez for trip	5/23	15 00
—	Condo paid by Kawaber father	5/23	— —

Logged a penny. Even started to log when I found a penny in the parking lot.

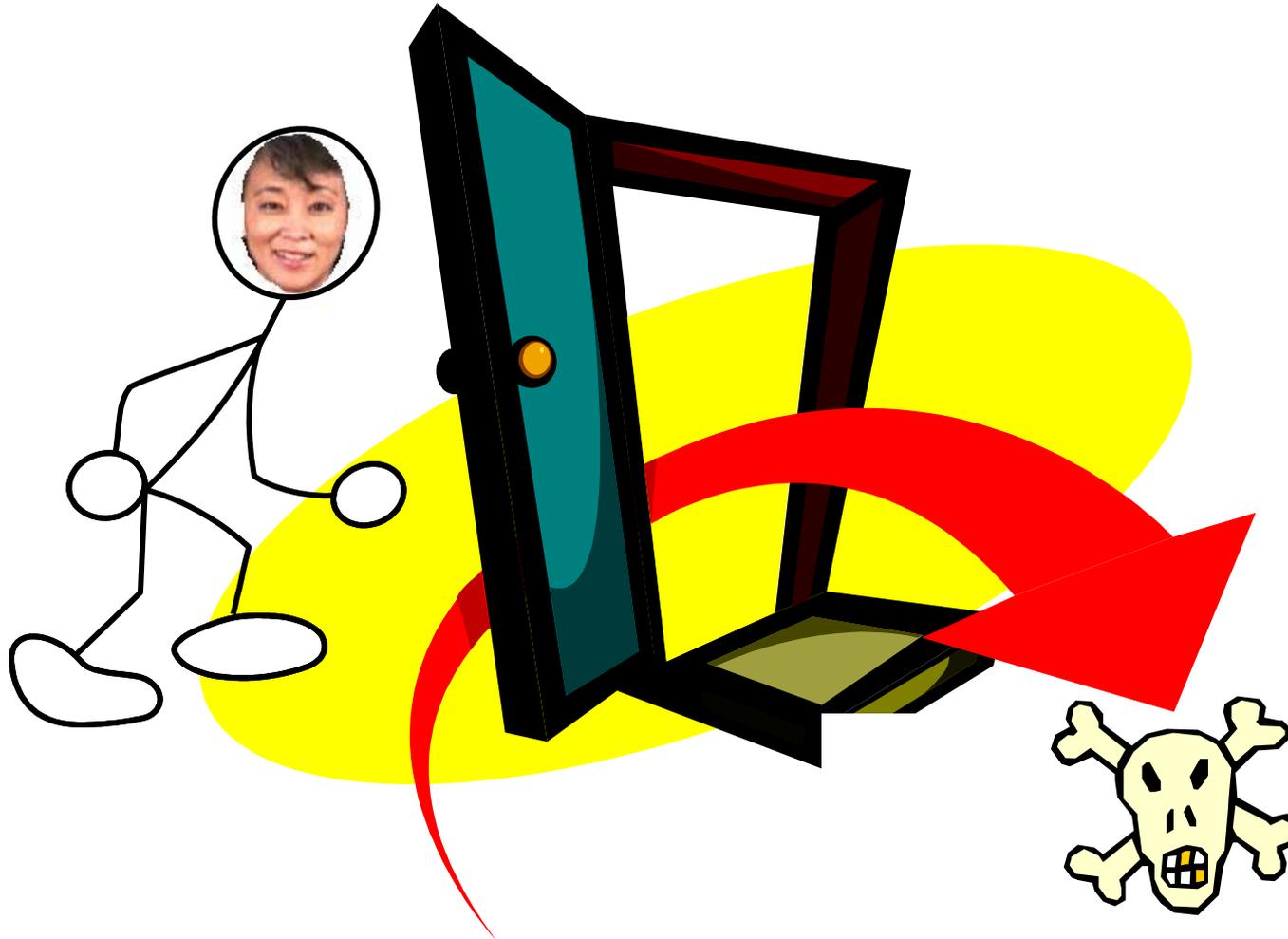
- As you collect data, you may start to realize you need more.

# M&A: Obsessive Compulsive Disorder



The point when you start to care usually leads to high maturity.

# The “Event”: My First OPM Business Objective



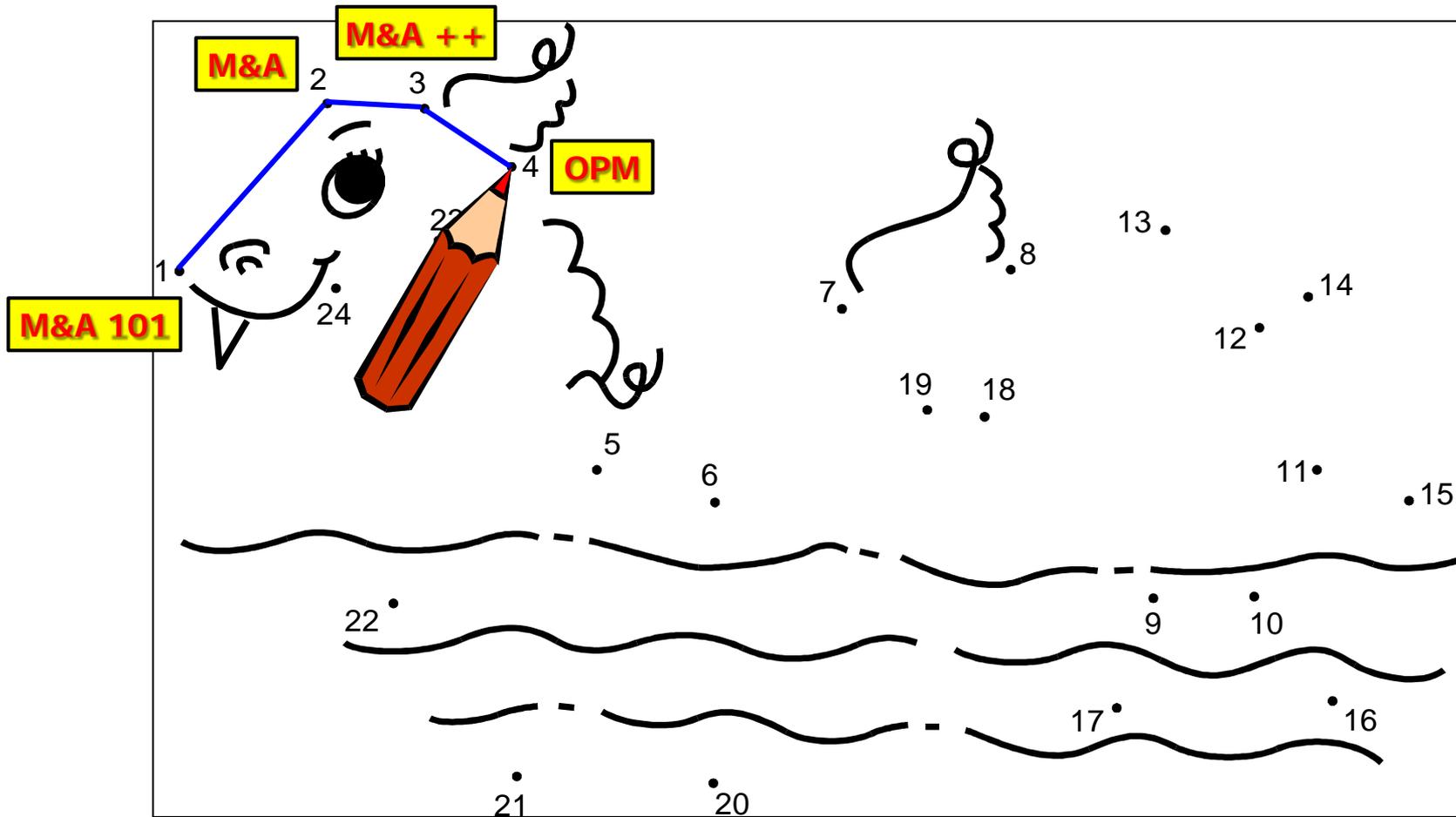
“Three’s Company”, i.e., pain, led to my first “business objective”

# OPM “Business Objective”

Buy a house in Los Angeles before any of my friends by 21 years old.



# OPM: Vision to Buy a House by 21 Years Old



With OPM, you have a vision to strive for “Principles of Personal Vision”

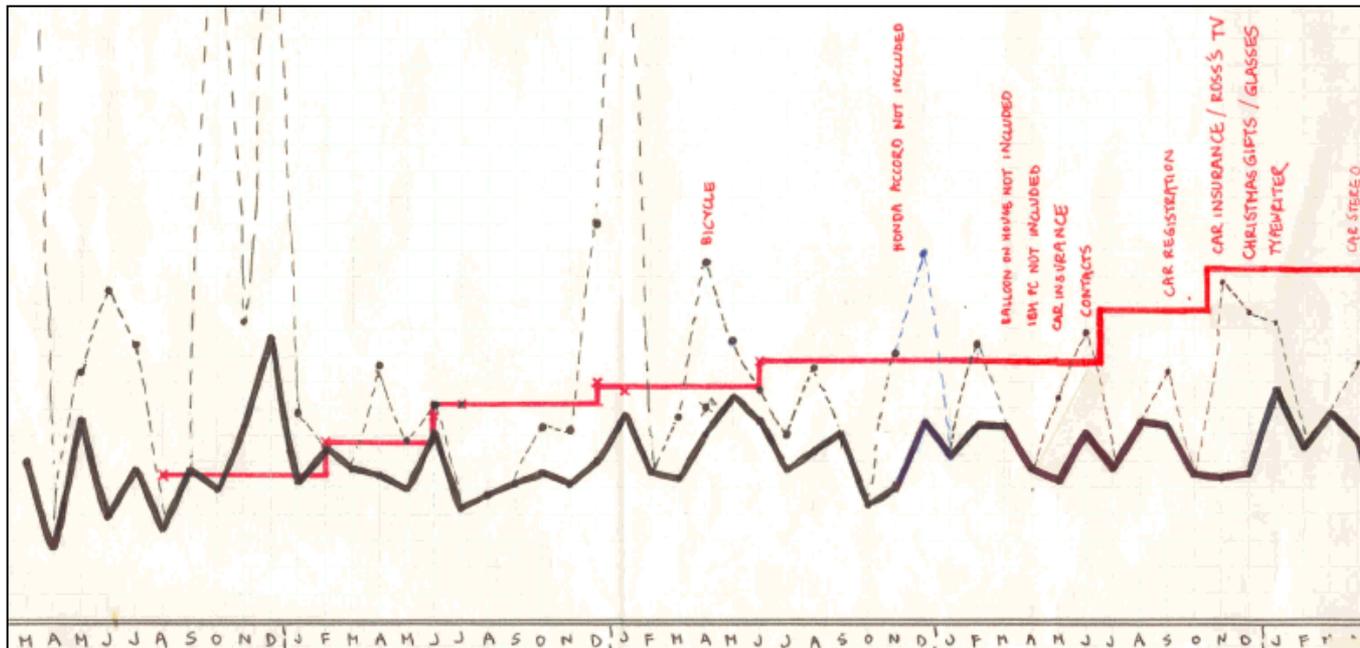
# QPM: Performance Objectives

- Process performance objectives:
  - Increase my hourly rate as quickly as possible
  - Control my spending
- Both are measurable objectives.

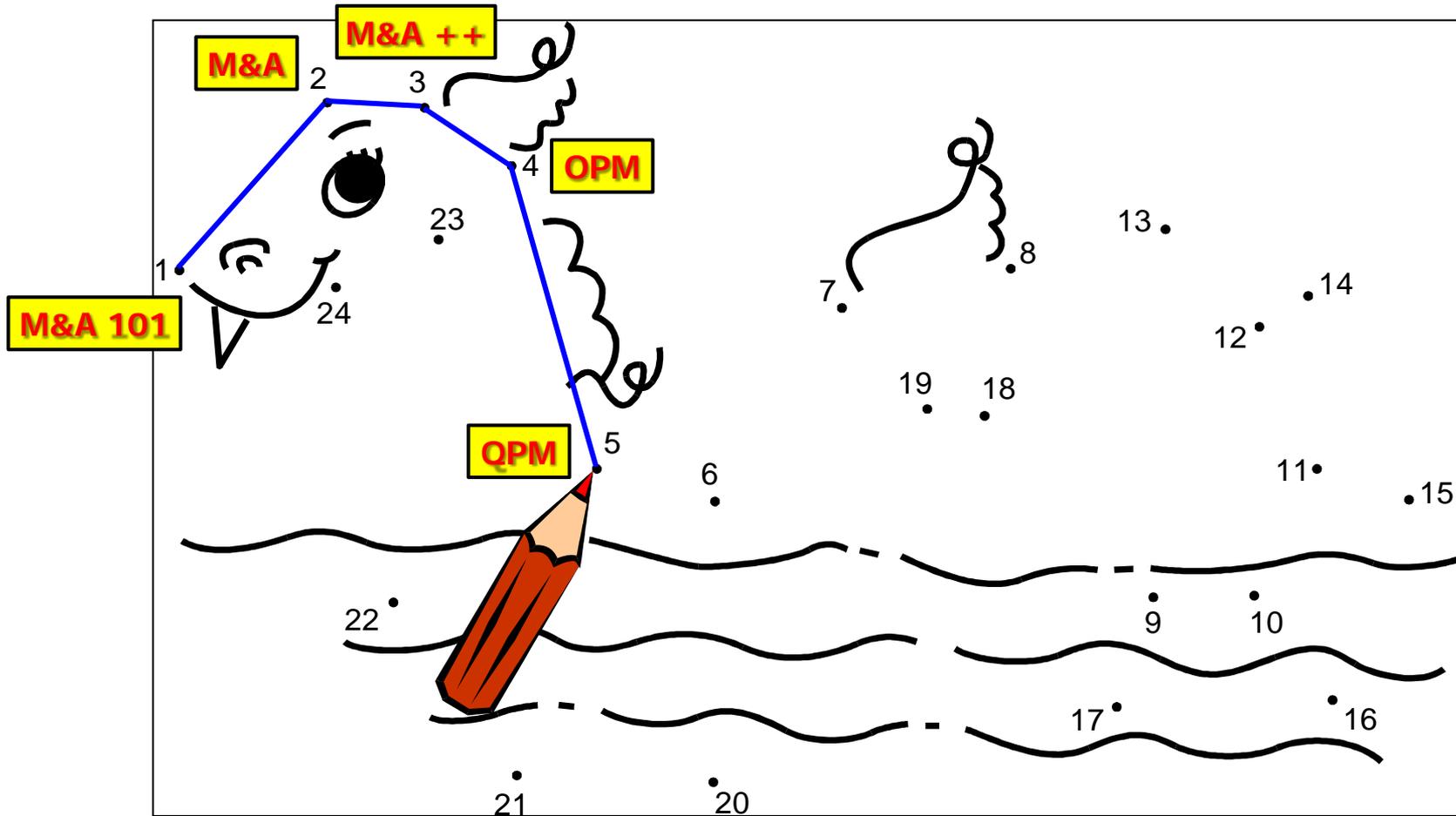


# QPM: Monitored Performance

- Continually tried to understand and control spending.
- Graphed typical spending, actual spending, income, and special causes and tried to reduce variation in typical spending.
- Graph shows typical spending eventually stabilized.



# QPM: Used Metrics to Control Spending



Controlling spending includes stabilizing and reducing variation.

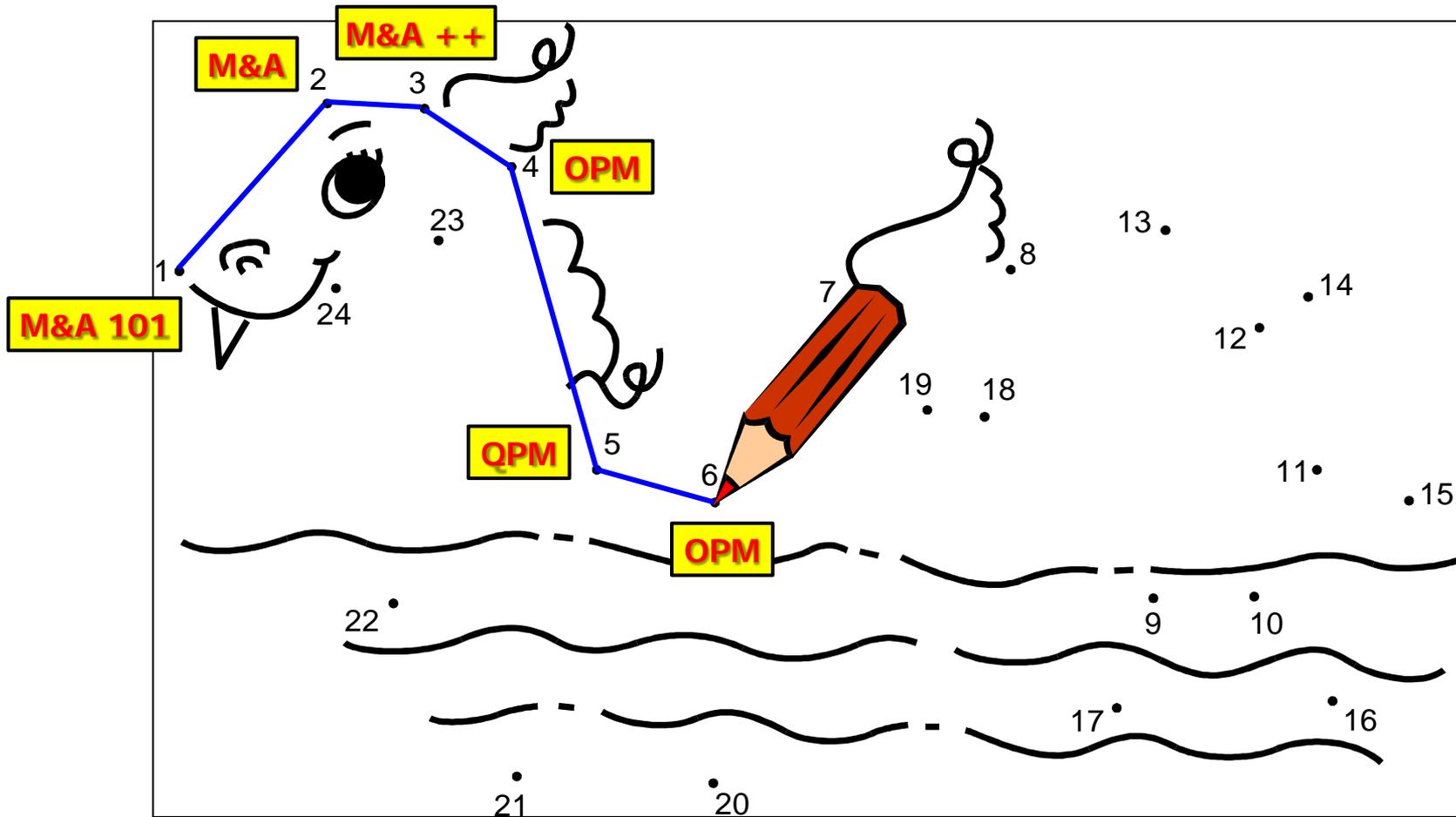
# OPM: Achieved Business Objective

- By age 21 (1980), went from \$4.50/hr to \$13.50/hr (7 graphic art companies)
- Worked 56 hours per week at \$20.25/hr (overtime pay)
- Continued to track and control spending (QPM)
- Significant measureable improvement towards meeting my business objective (OPM)



**Bought first house  
at 22 years old**

# OPM: Achieved Business Objectives

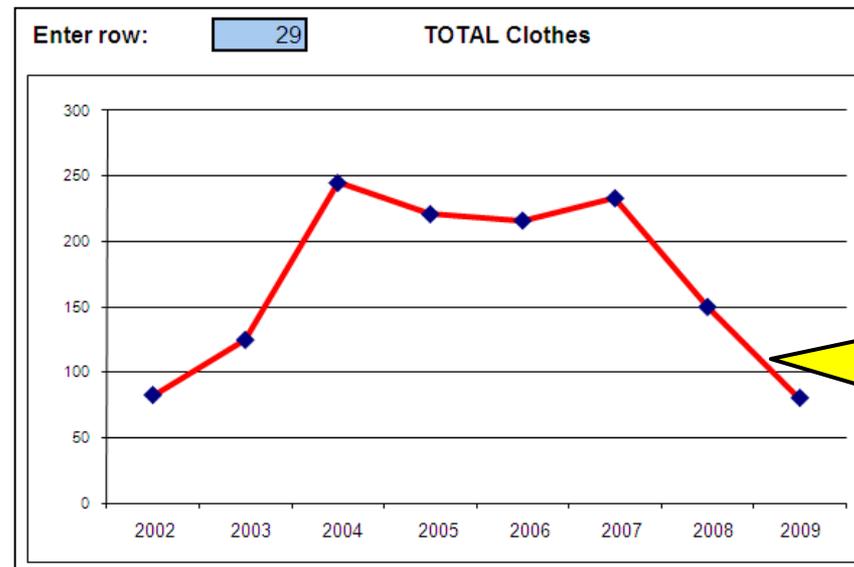


Seeing tangible measurable improvements motivates people.

# OPP: Evolved to Subprocess-Level Knowledge

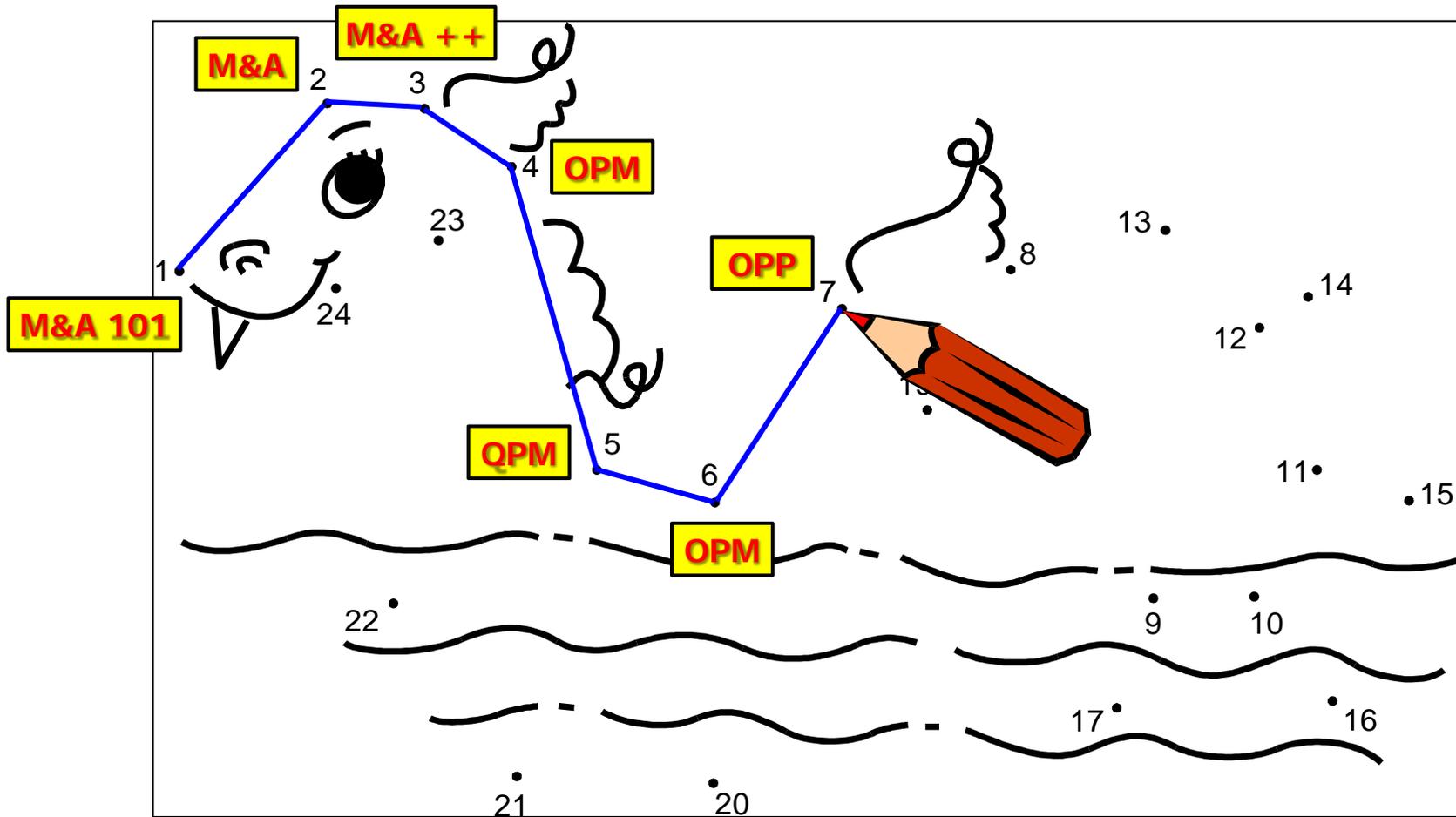
- By 198X, I didn't have enough visibility into spending so I broke the "spending money" process into subprocesses by categories, e.g., food, clothes, entertainment, etc.
- Entered spending into Quicken/Excel to understand typical spending patterns and trends

## Clothes



Last 2 years, spent a total of \$225 on clothes, which includes shoes, underwear, and accessories (so, ... did I learn to control spending?)

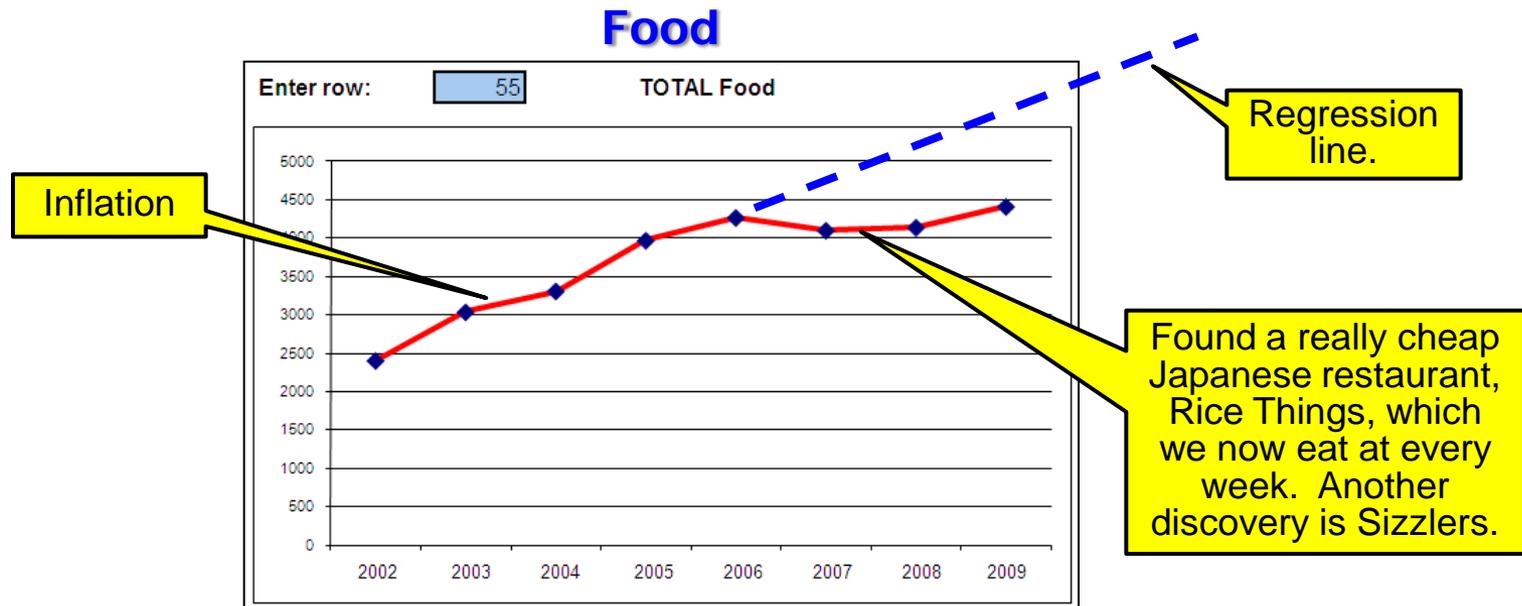
# OPP: Understood Actual Performance



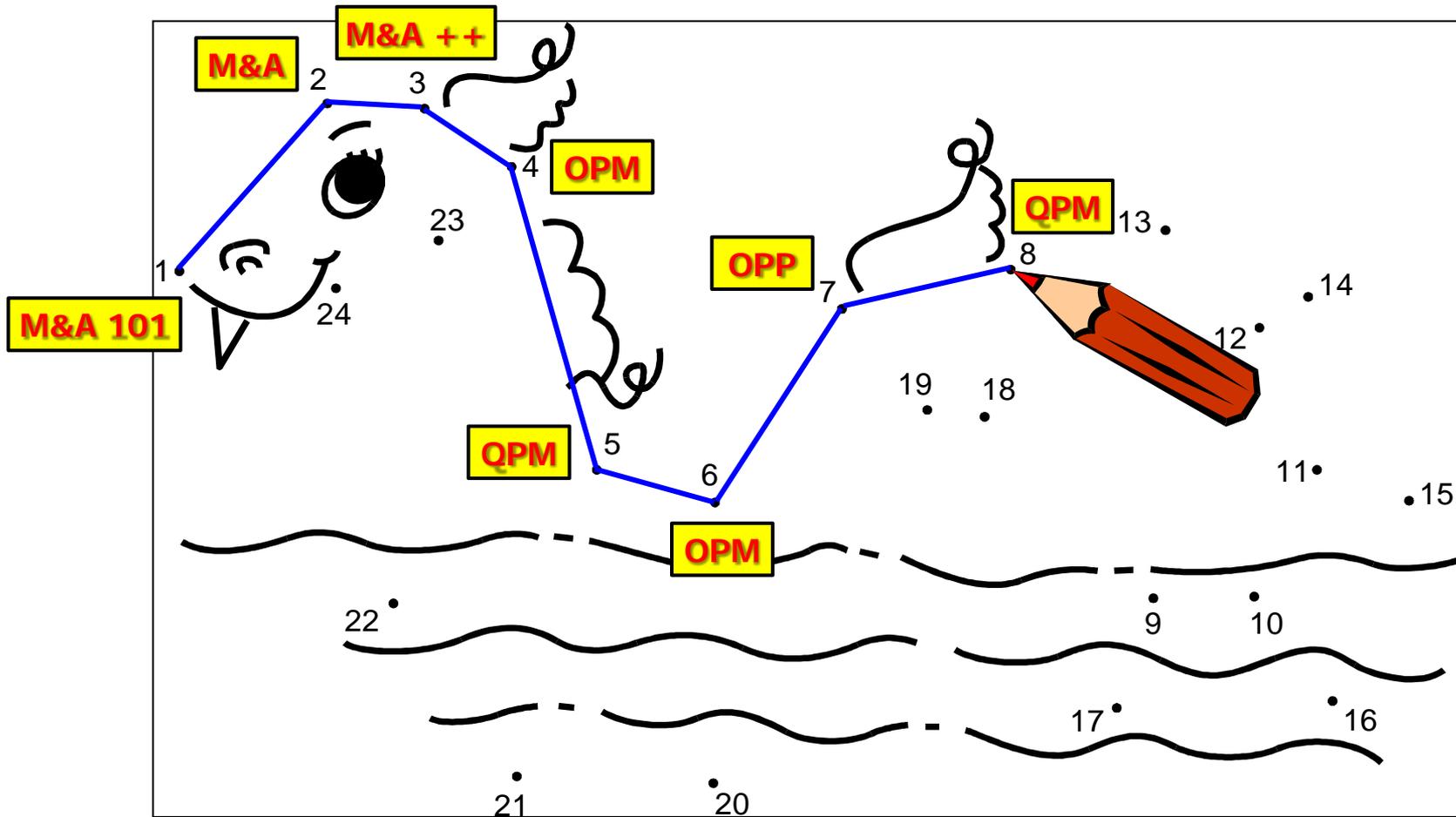
Evolved to understand central tendency and range for subprocesses.

# QPM: Used Measures to See Improvements

- Used OPP baselines to predict and improve QPM performance
- Understand which expenses I have control over
- Some subprocesses can be controlled through improvements, others cannot



# QPM: Took Action to Meet Objectives



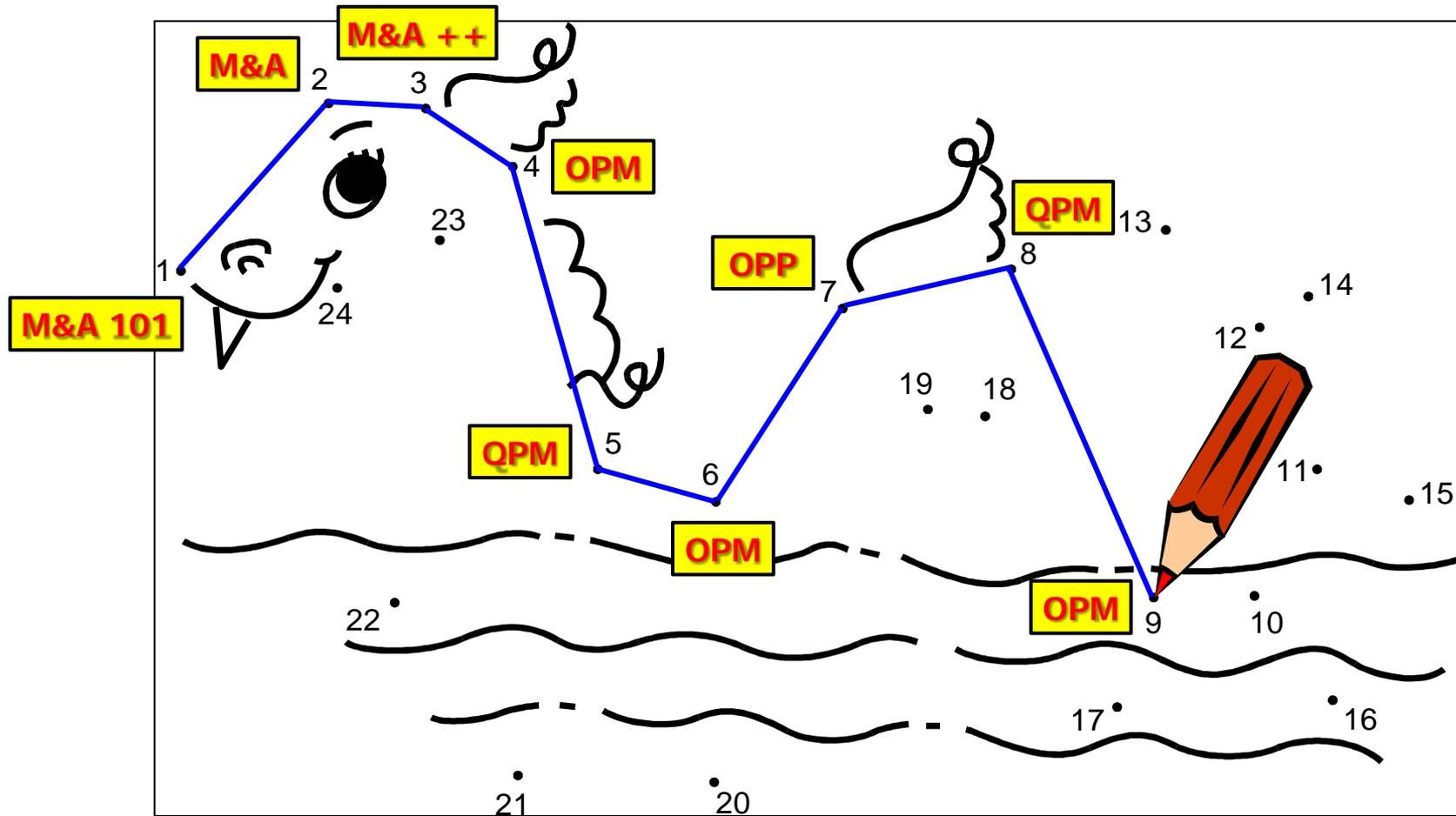
Some process changes have a visible shift. You can alter your future.

# OPM: Latest Business Objective

In 2002, came up with a new business objective,...  
early retirement at 55



# OPM: Vision to Retire at Age 55



Business objectives should always evolve.

# OPP: Created Mortgage Model

- My husband also has the same business objective to retire at 55.
- He created an OPP mortgage model and did “what-if” analysis.
- He refinanced several times, paid additional principle each month, and at age 49 in 2010, paid off his \$700,000 and \$200,000 homes.

Payment Estimating System

Loan Amount: 147148.00      Term: 120 months <10 yrs 0 mos>  
 Interest Rate: 4.500      Standard Payment: 1525.02

Month	Standard Payment			Payment	Estimated Payment		
	Principal	Interest	Balance		Principal	Interest	Balance
73	1274.23	250.79	65602.32	2100.00	2027.06	72.94	17424.54
74	1279.01	246.01	64323.31	2100.00	2034.66	65.34	15389.88
75	1283.81	241.21	63039.50	2100.00	2042.29	57.71	13347.59
76	1288.62	236.40	61750.88	2100.00	2049.95	50.05	11297.65
77	1293.45	231.57	60457.43	2100.00	2057.63	42.37	9240.01
78	1298.30	226.72	59159.13	2100.00	2065.35	34.65	7174.66
79	1303.17	221.85	57855.95	2100.00	2073.10	26.90	5101.57
80	1308.06	216.96	56547.90	2100.00	2080.87	19.13	3020.70
81	1312.96	212.05	55234.93	2100.00	2088.67	11.33	932.03
82	1317.89	207.13	53917.04	935.52	932.03	3.50	0.00
83	1322.83	202.19	52594.21	0.00	0.00	0.00	0.00
84	1327.79	197.23	51266.42	0.00	0.00	0.00	0.00

Total Standard Payments: 183002.21      Total Estimated Payments: 171035.52  
 Pay-Off Time: 120 mos <10 yrs 0 mos>      Pay-Off Time: 82 mos < 6 yrs 10 mos>

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# OPP: Created SEI Intro to CMMI Training Model

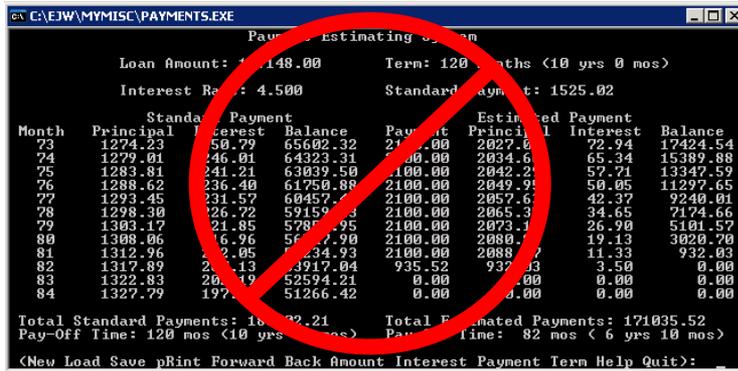
- Part of my retirement plans is to start teaching the SEI Introduction to CMMI-DEV V1.3 course publicly in Los Angeles on the weekends, starting in Jan 2011.
- Built a model for “what if” analysis for teaching.

Number of Students:	6
Number of Days:	3
Student Fee:	\$500.00
Room Fee (\$150 or \$350):	\$350.00
Profit:	\$887.92

Per Student Costs	Per Student	Total	Total
Breakfast (2 Days)	\$10.00	\$10.98	\$120.00
Lunch (2 Days)	\$13.00	\$14.27	\$156.00
Drinks (3 Days)	\$5.00	\$5.49	\$90.00
Snacks (3 Days)	\$2.95	\$3.24	\$53.10
FedEx Kinkos	\$40.00	\$40.00	\$240.00
Miscellaneous Supplies	\$5.00	\$5.00	\$30.00

# OPP: Use Models Regardless if They are CMMI Compliant



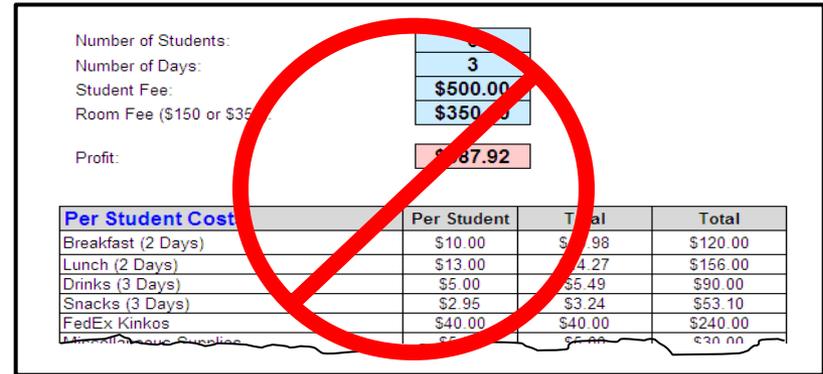
Payment Estimating Program

Loan Amount: 1,148.00 Term: 120 months (10 yrs 0 mos)  
Interest Rate: 4.500 Standard Payment: 1525.02

Month	Principal	Interest	Balance	Payment	Principal	Interest	Balance
73	1274.23	50.79	65602.32	2100.00	2027.60	72.94	17424.54
74	1279.01	46.01	64323.31	2100.00	2034.60	65.34	15389.88
75	1283.81	241.21	63039.50	2100.00	2042.20	57.71	13347.59
76	1288.62	236.40	61750.88	2100.00	2049.90	50.05	11297.65
77	1293.45	231.57	60457.43	2100.00	2057.60	42.37	9240.01
78	1298.30	226.72	59159.13	2100.00	2065.30	34.65	7174.66
79	1303.17	221.85	57856.95	2100.00	2073.10	26.90	5101.57
80	1308.06	216.96	56550.89	2100.00	2080.90	19.13	3020.70
81	1312.96	212.05	55234.93	2100.00	2088.70	11.33	932.03
82	1317.89	207.13	53917.04	935.52	932.03	3.50	0.00
83	1322.83	202.19	52594.21	0.00	0.00	0.00	0.00
84	1327.79	197.24	51266.42	0.00	0.00	0.00	0.00

Total Standard Payments: 18,302.21 Total Estimated Payments: 171035.52  
Pay-Off Time: 120 mos (10 yrs 0 mos) Pay-Off Time: 82 mos (6 yrs 10 mos)

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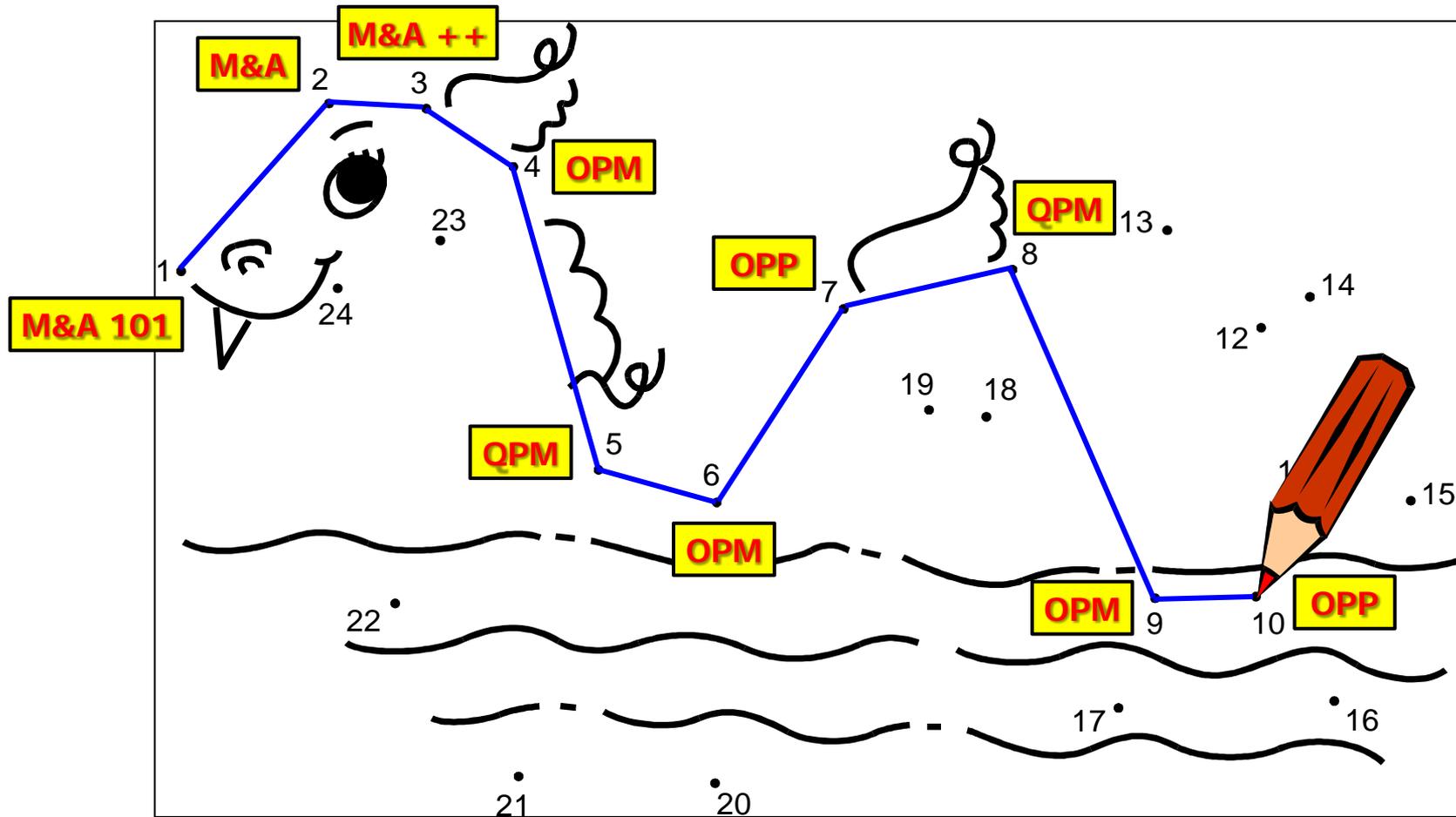


Number of Students:   
Number of Days:   
Student Fee:   
Room Fee (\$150 or \$350):   
Profit:

Per Student Cost	Per Student	Total	Total
Breakfast (2 Days)	\$10.00	\$30.98	\$120.00
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Drinks (3 Days)	\$5.00	\$15.49	\$90.00
Snacks (3 Days)	\$2.95	\$3.24	\$53.10
FedEx Kinkos	\$40.00	\$40.00	\$240.00
Miscellaneous Supplies	\$5.00	\$5.00	\$30.00

- Academics will say BAD DIANE, those models didn't use historical data so they are no good !!!
- If a model helps you make better decisions towards meeting your business objectives, that's all that should matter.

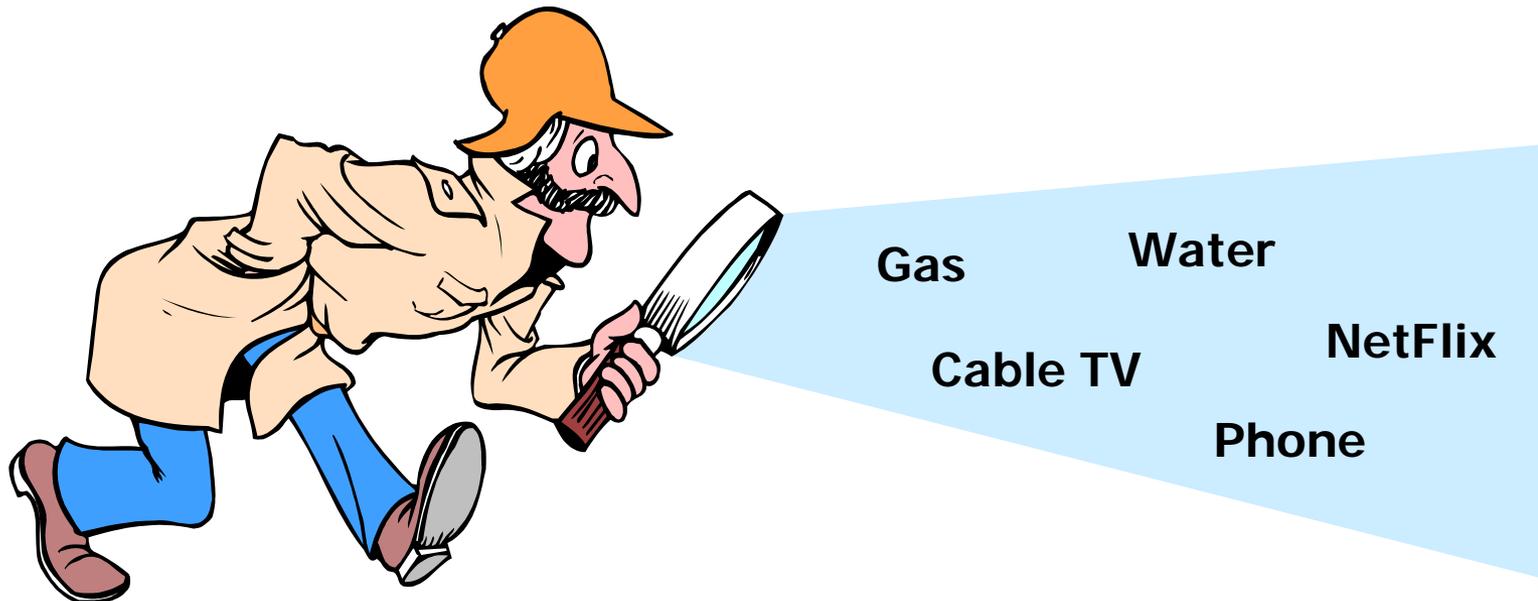
# OPP: Created OPP Models



“All models are wrong, but some are useful”, George Box

# CAR: What's Still Wrong With My Spending

- Problem was I still wasn't happy with my spending, but didn't know how to fix it
- In 2010, decided to do a CAR, and analyze spending in more detail, and figure out the root cause of some wasteful spending
- Analyzed the utilities subprocess baseline (OPP), which had been ignored for years to see if there was waste.



# CAR: Spending Improvements per CAR Analysis

- CAR identified 3 corrective actions:

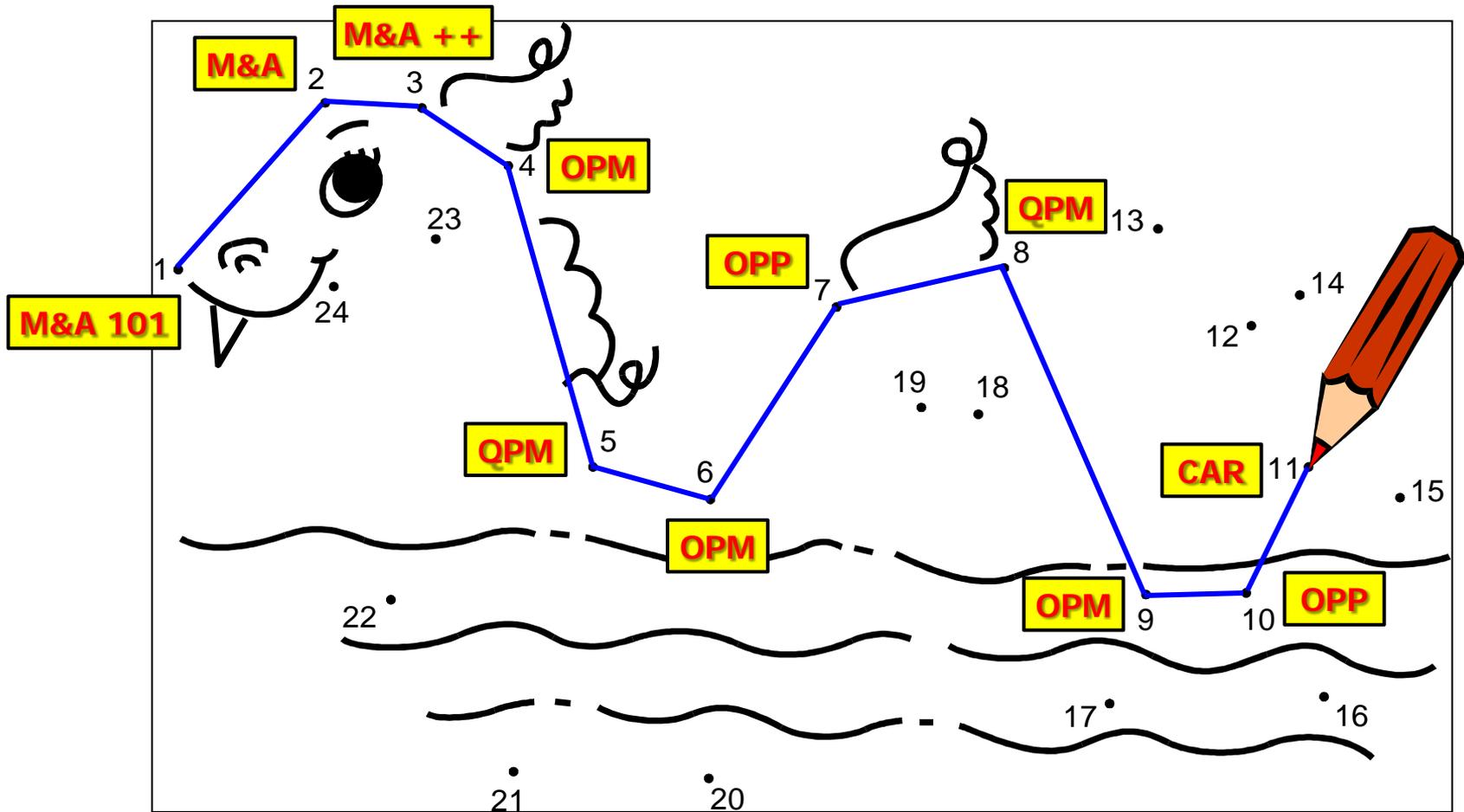
 1 After many years with Time Warner, switched to Verizon saving approximately \$30 a month.

 2 After many years renting 3 DVDs at a time from NetFlix, switched to 2 DVDs at a time

 3 Made my husband pay me half for NetFlix (he didn't like that)

- CAR analysis, coupled with 3 fixes, helped my QPM objectives which was to control spending

# CAR: Fixed Utilities Problem



Use CAR when you know it's broken but don't know why.

# OPM: Where Are We Now for Retiring at 55?

After paying off both homes in 2010, my husband bought our retirement home in the mountains of Los Angeles at 3.5% interest, 0 points, on 1 acre at age 49. Escrow will close Nov 24, 2010.



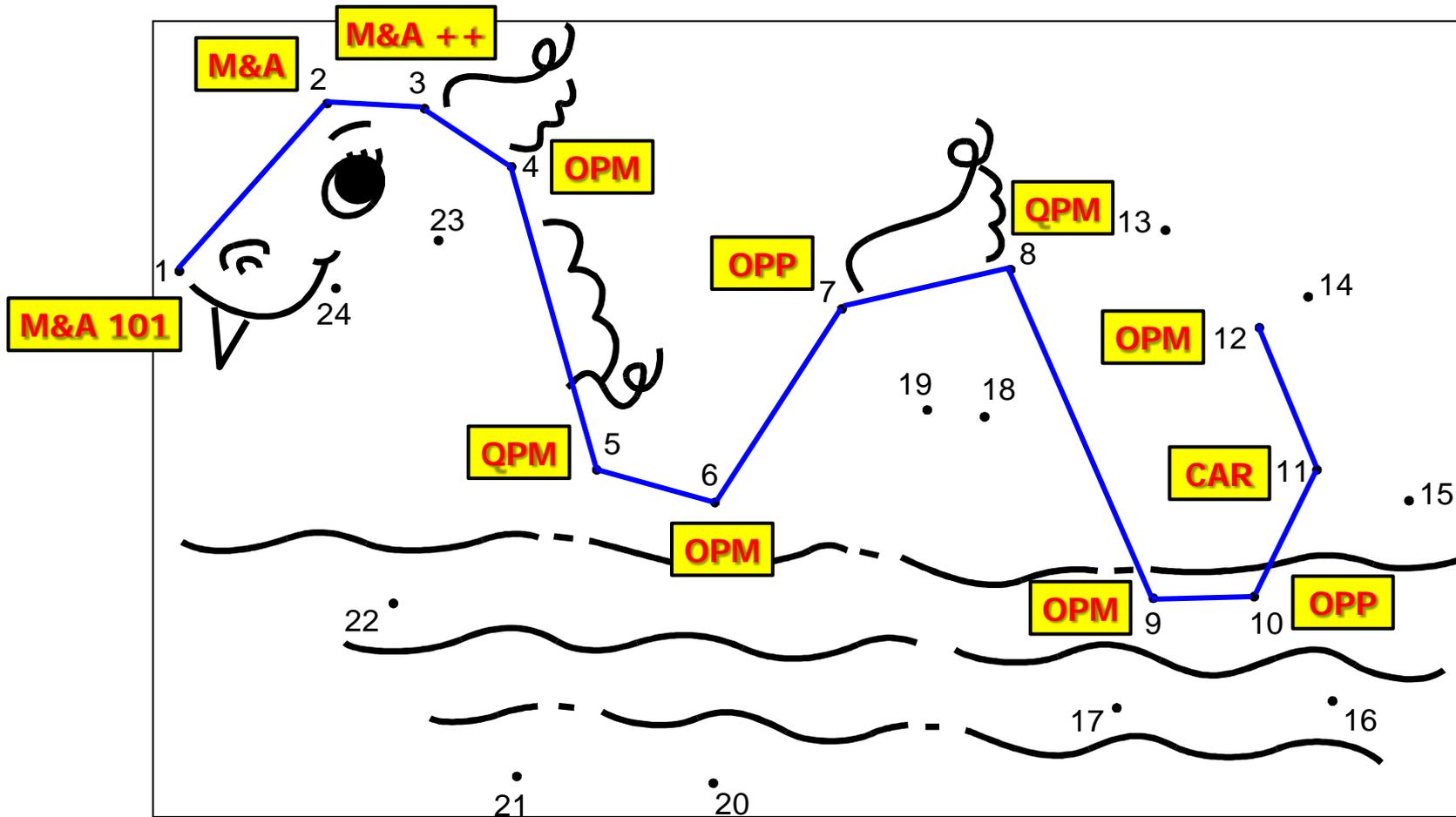
# Why All the Bragging?

Because I want you to beat me up in the parking lot so I finally get time off from work.



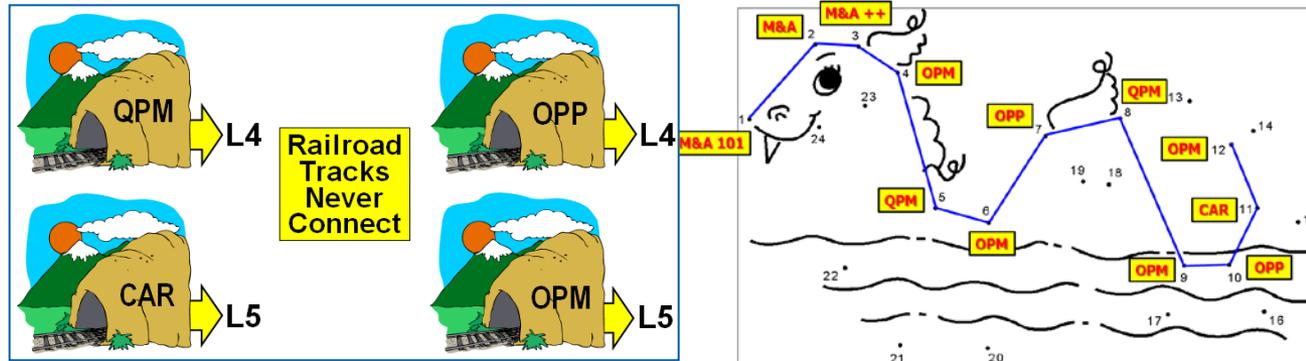
Seriously,... it's because for people/projects to be successful, high maturity behavior needs to be institutionalized, i.e., a part of your day-to-day life.

# OPM: On Schedule to Achieve Business Objectives



High maturity is continuing to help us meet our “business objectives”.

# Summary



- High maturity process areas are not isolated tunnels.
- High maturity organizations continually use all 4 process areas. They do not say, “QPM and CAR” are not mine,... that’s only for projects, or “OPP and OPM” are not mine, that’s only for organizations. They see value in using all 4 process areas.
- This presentation shows how much you could use high maturity concepts, even in your personal lives, to be more successful.

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