

# The Science of Managing Data Scientists

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**decide.**

Get recommendations

Search

## What to buy & when to buy it.

Find the best products and get price predictions backed by our guarantee.



▶ Learn about Decide Score



▶ See how price predictions work



▶ Learn about price guarantees

What are they  
doing all day?

# Data science is different





# Research doesn't fit the traditional SDLC



Good help  
is hard to  
find  
(and keep)



What are they  
doing all day?



# Bring transparency







Communication

Trust



Logistics





Communication

Do you speak the same language?



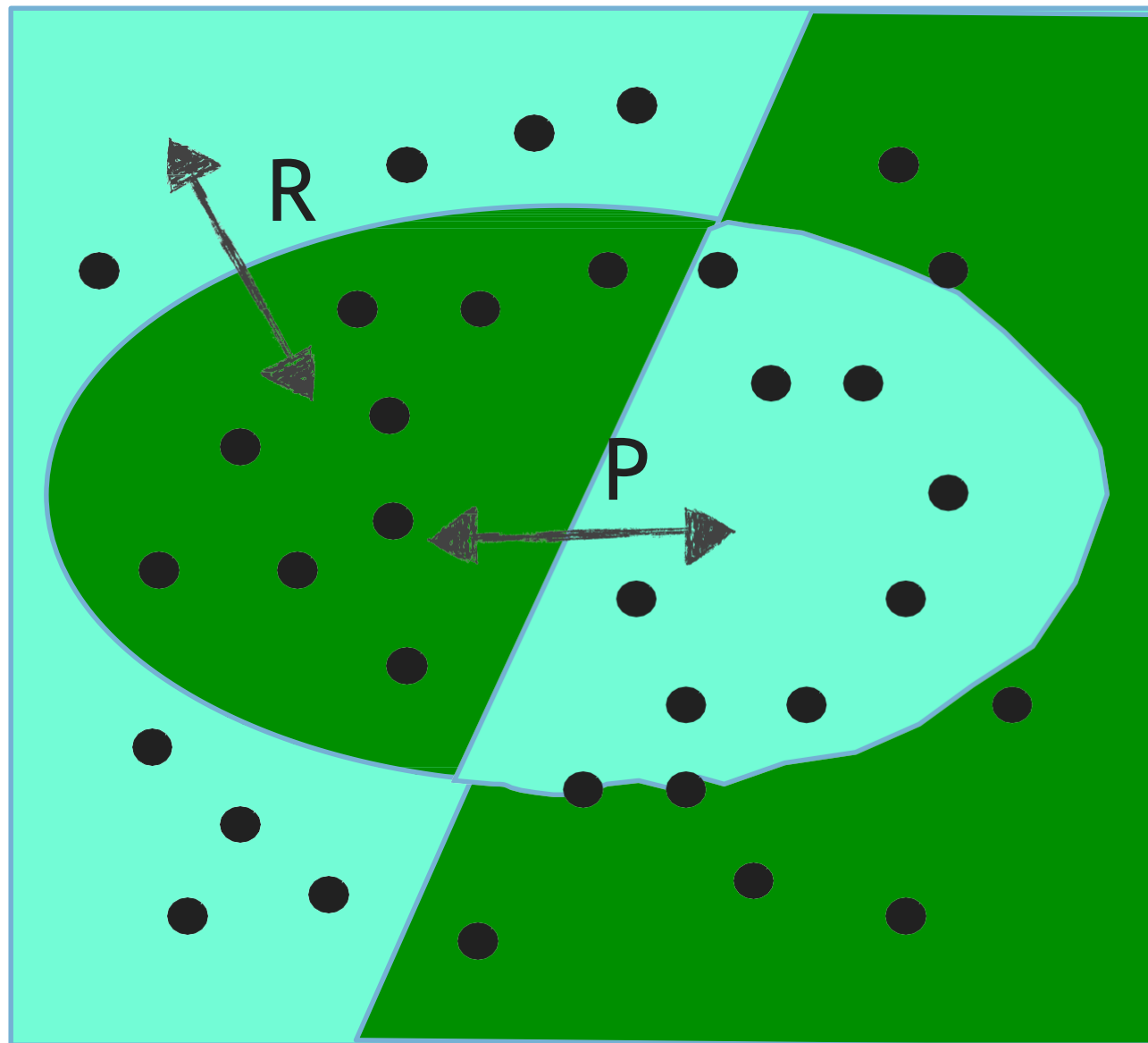


# What does it mean to be finished?





Define  
“quality”



Give them  
a lesson in  
semantics

What do precision  
and recall mean?

# Before

Precision:

80%

Recall 25%



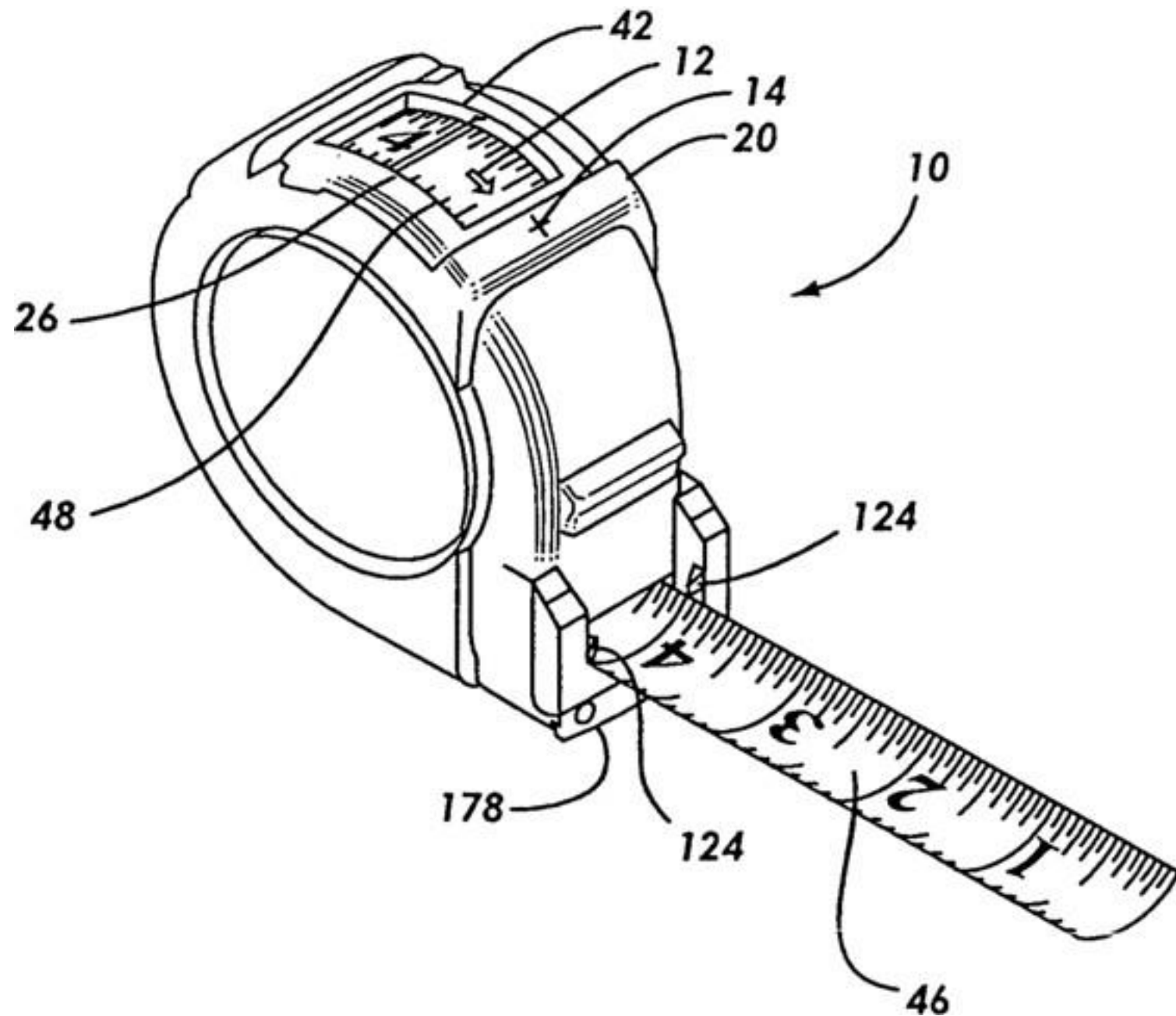
# After

For the top search terms\* accessories appear 25% of the time on the first page.

For top search terms the head products are present 90% of the time in the top 3 results, 98% of the time in the top5.

✱ Top search terms are the 1000 most popular queries on our website over the last 30 days.

# Measure with data that matters



This is a really hard  
problem.

We know it is  
hard...



We know it is  
hard... but we  
don't know why it  
is hard.

# Use analogies & examples



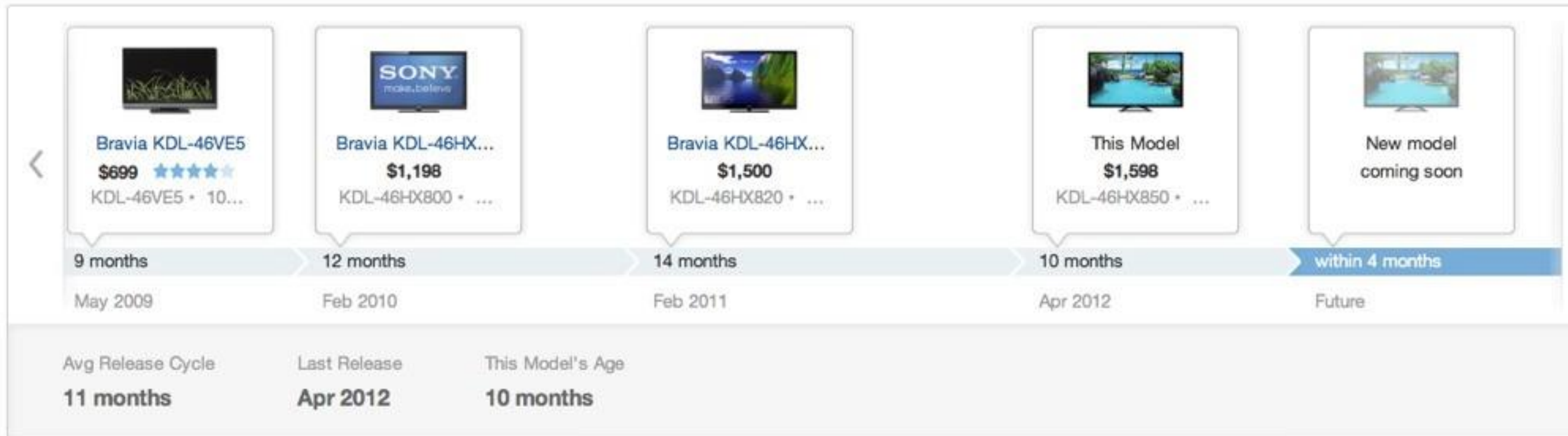
# Use analogies & examples



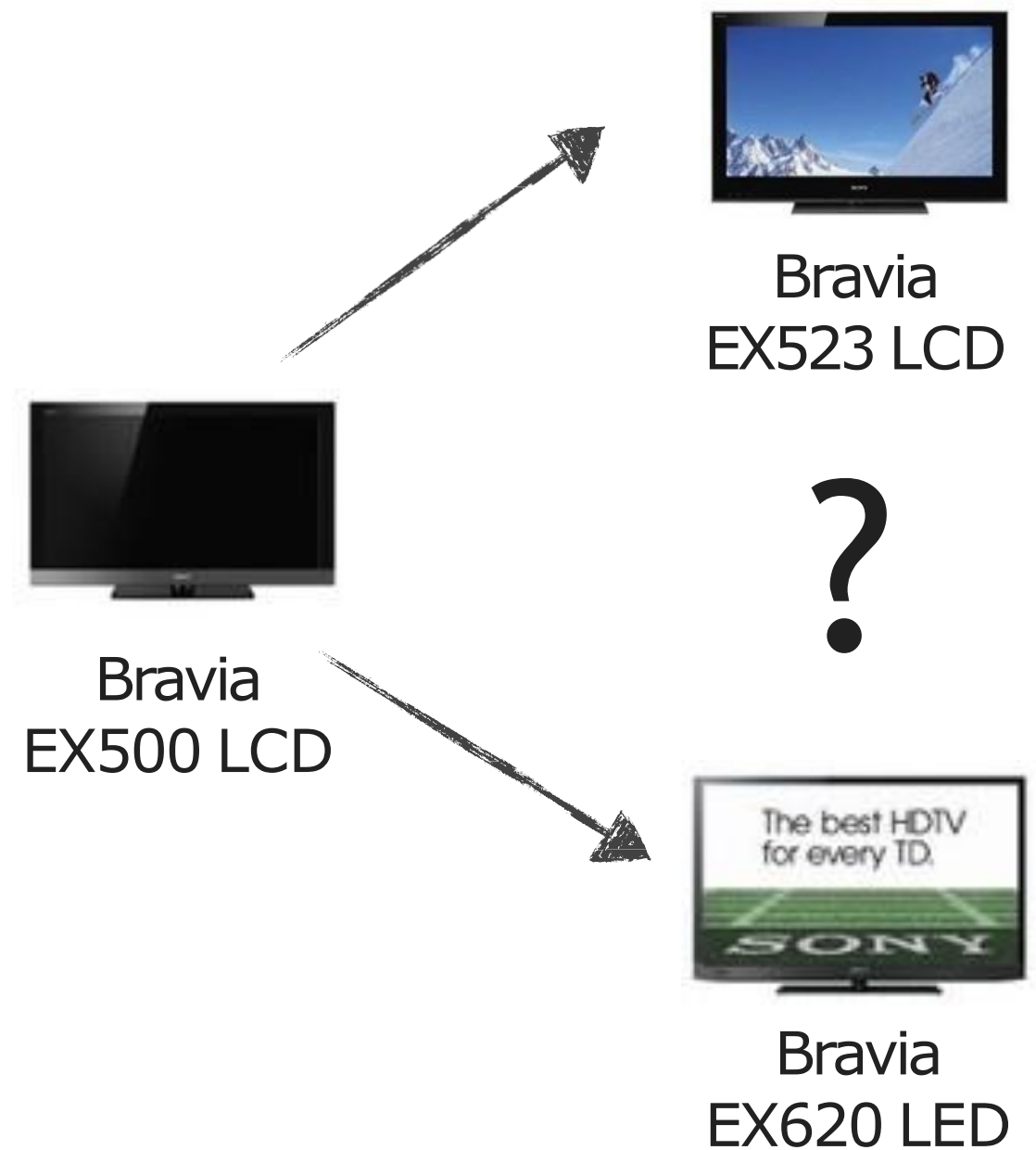
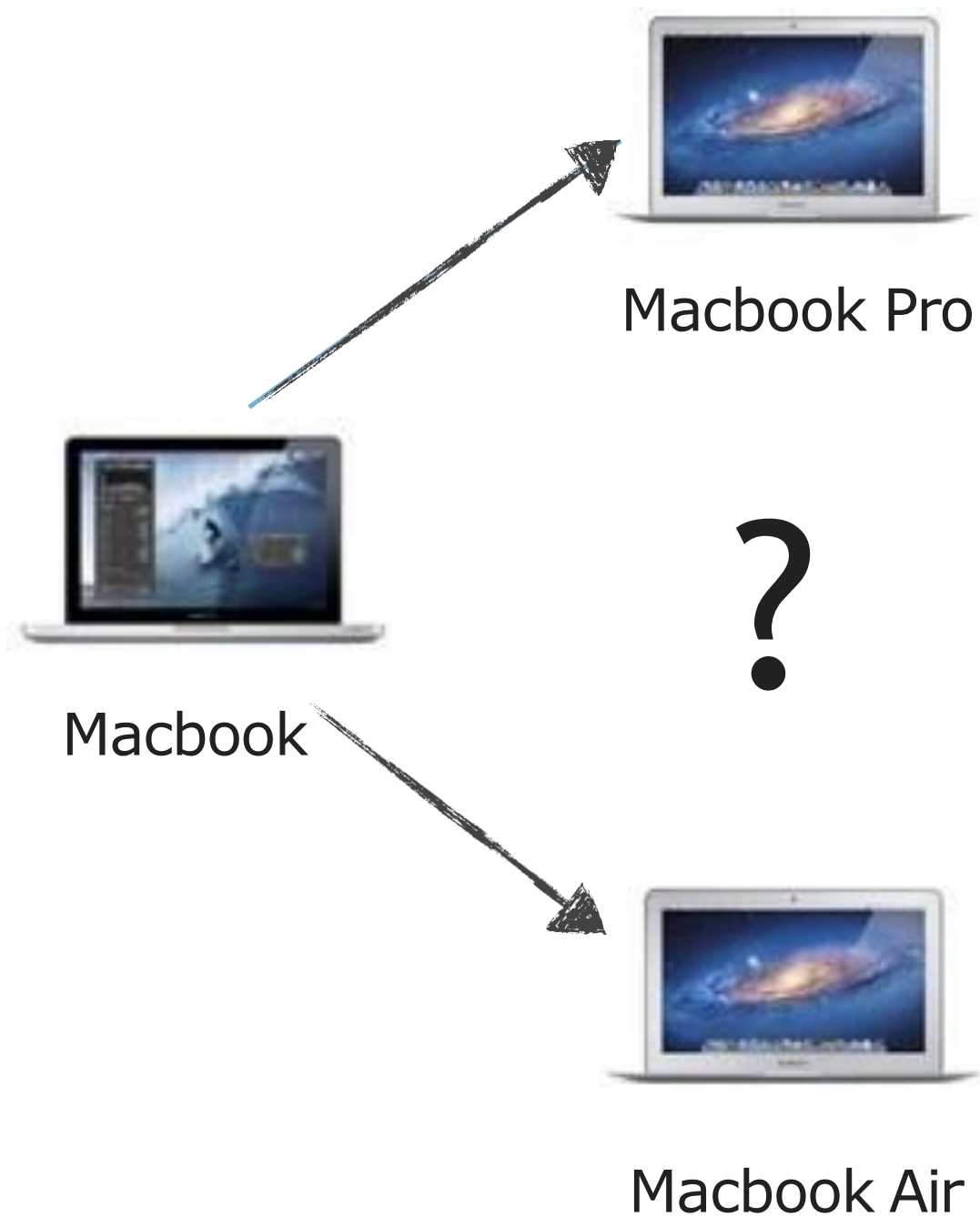
The dandelion swayed in the gentle breeze like an oscillating electric fan set on medium.

# Constructing model lineages for products is really difficult.

Next model within 4 months 77% Confidence

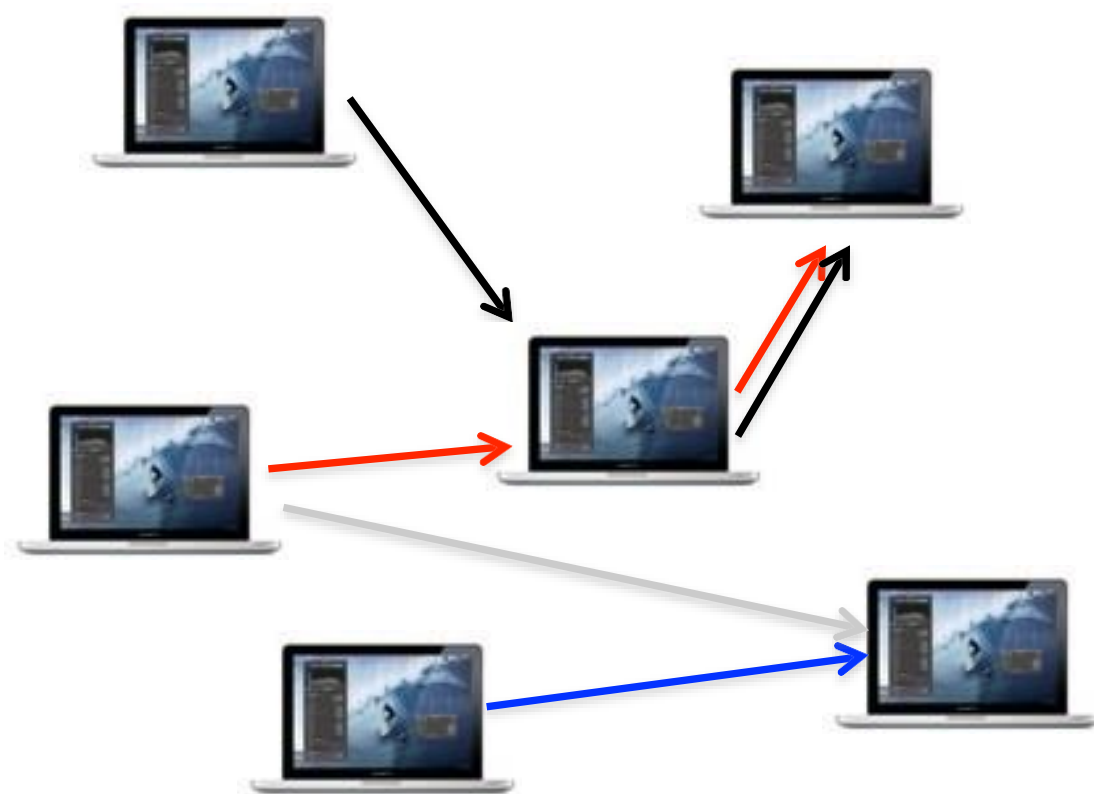






Be specific

# Take it up a level



Product Evolution



We are building a lineage



Show  
before





Show  
before



and  
after









Logistics

How do  
you create  
a sense of  
urgency?



What are  
the reasons  
behind it?





Deadlines in  
research?



They don't  
call it  
research  
for nothin'



# You can't predict the future





# Applying “agile” to R&D



image source: <http://mousebreath.com/wp-content/uploads/2011/08/funny-farmers.jpg>

# Applying “agile” to R&D



Trips to Hawaii

Backlog of experiments

That's doesn't sound agile....



# Applying “agile” to R&D



Regular Demos

Trips to Hawaii

Backlog of experiments

That's doesn't sound agile....

# Applying “agile” to R&D



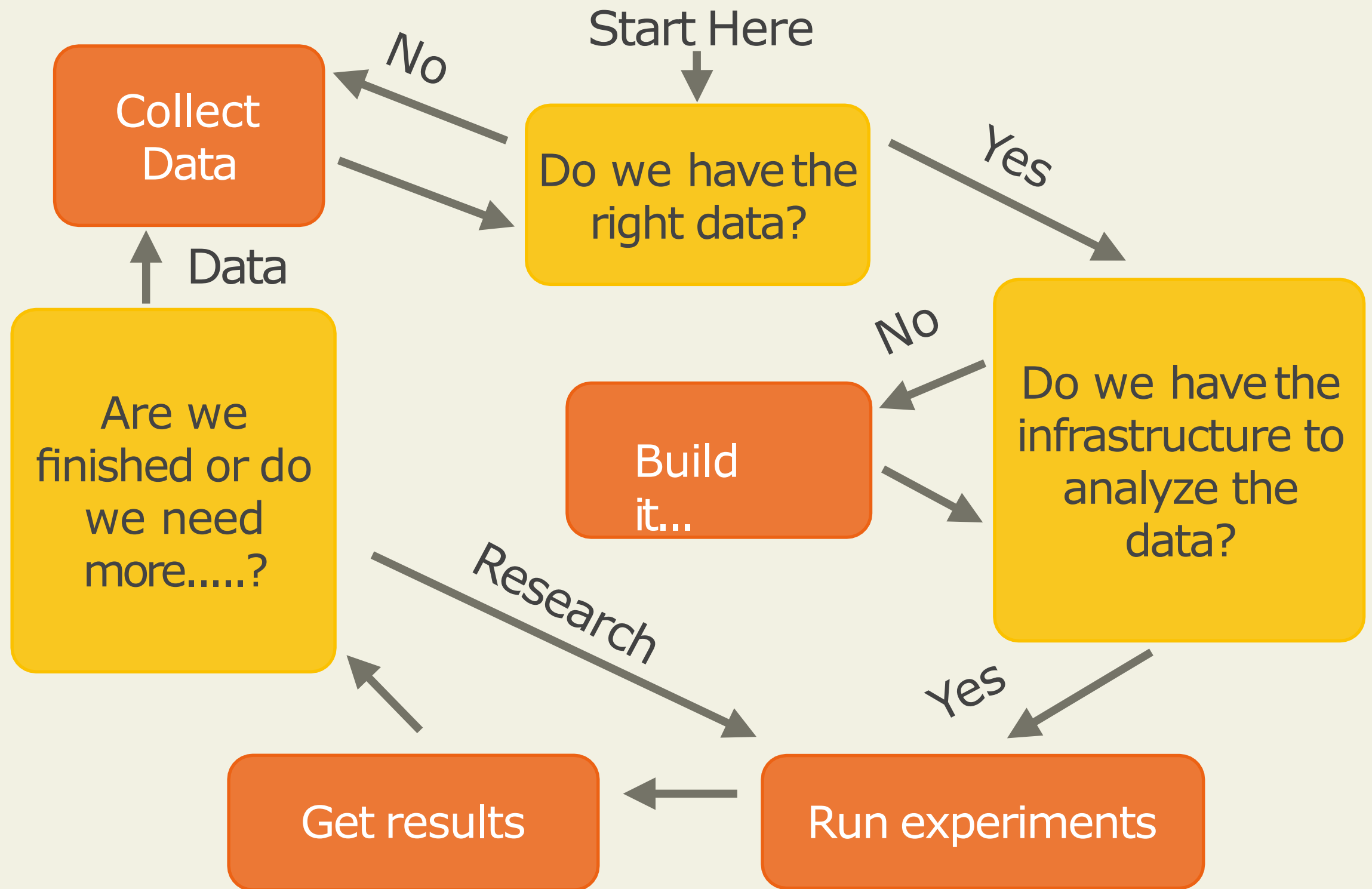
Regular Demos

Defined workflow  
with iterations

Backlog of  
experiments

Trips to Hawaii

That's doesn't  
sound agile....



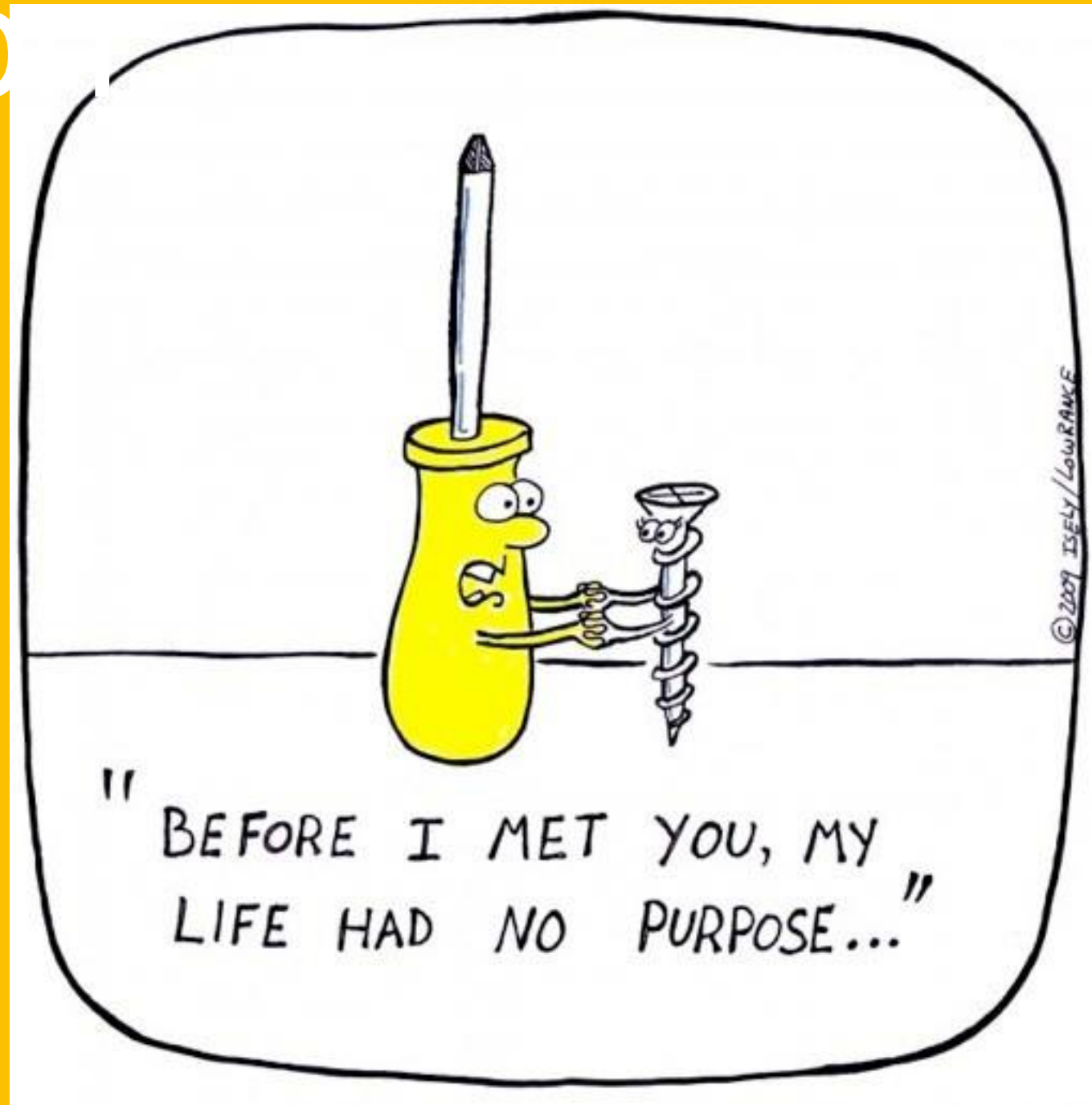


# Experiments can take a while...

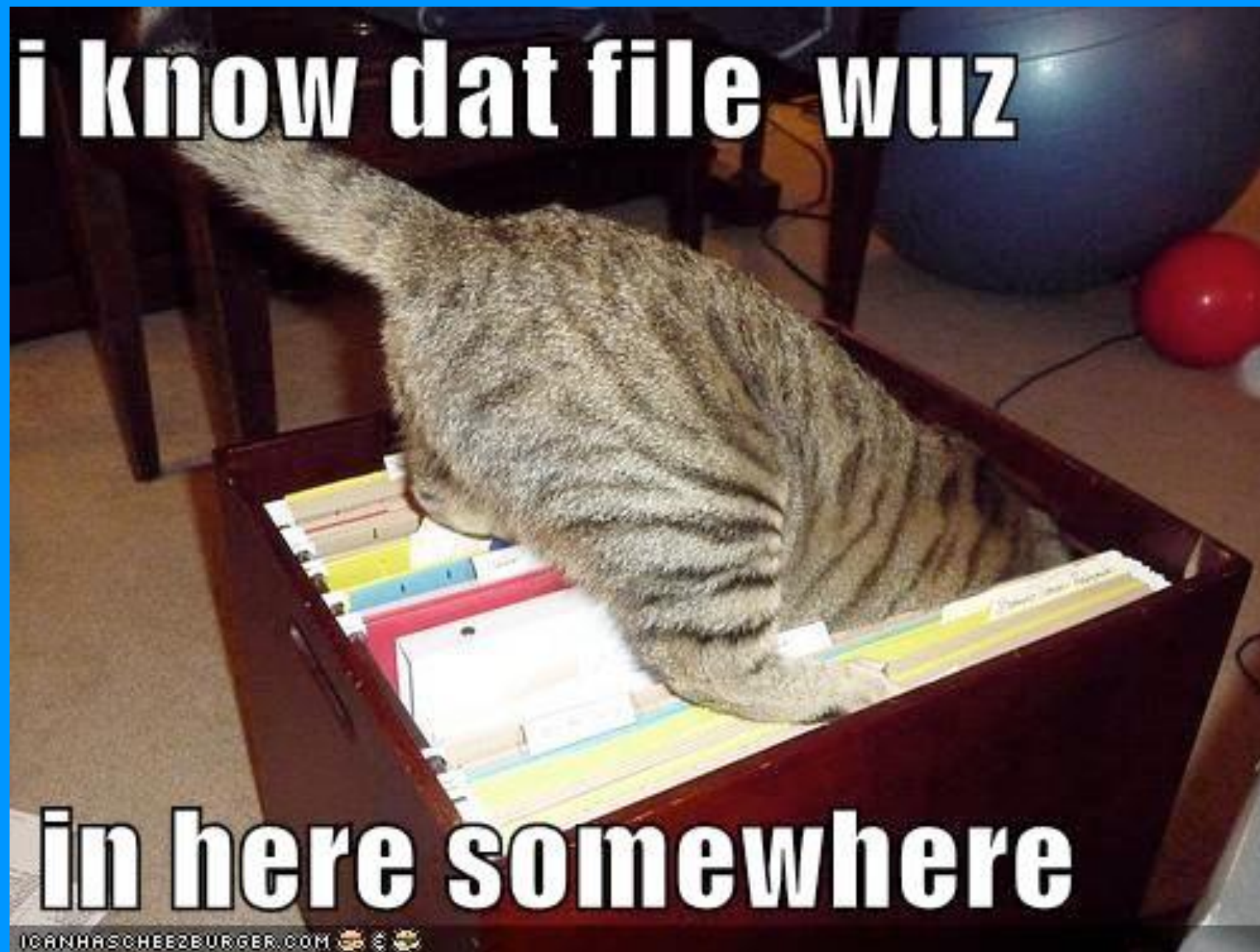




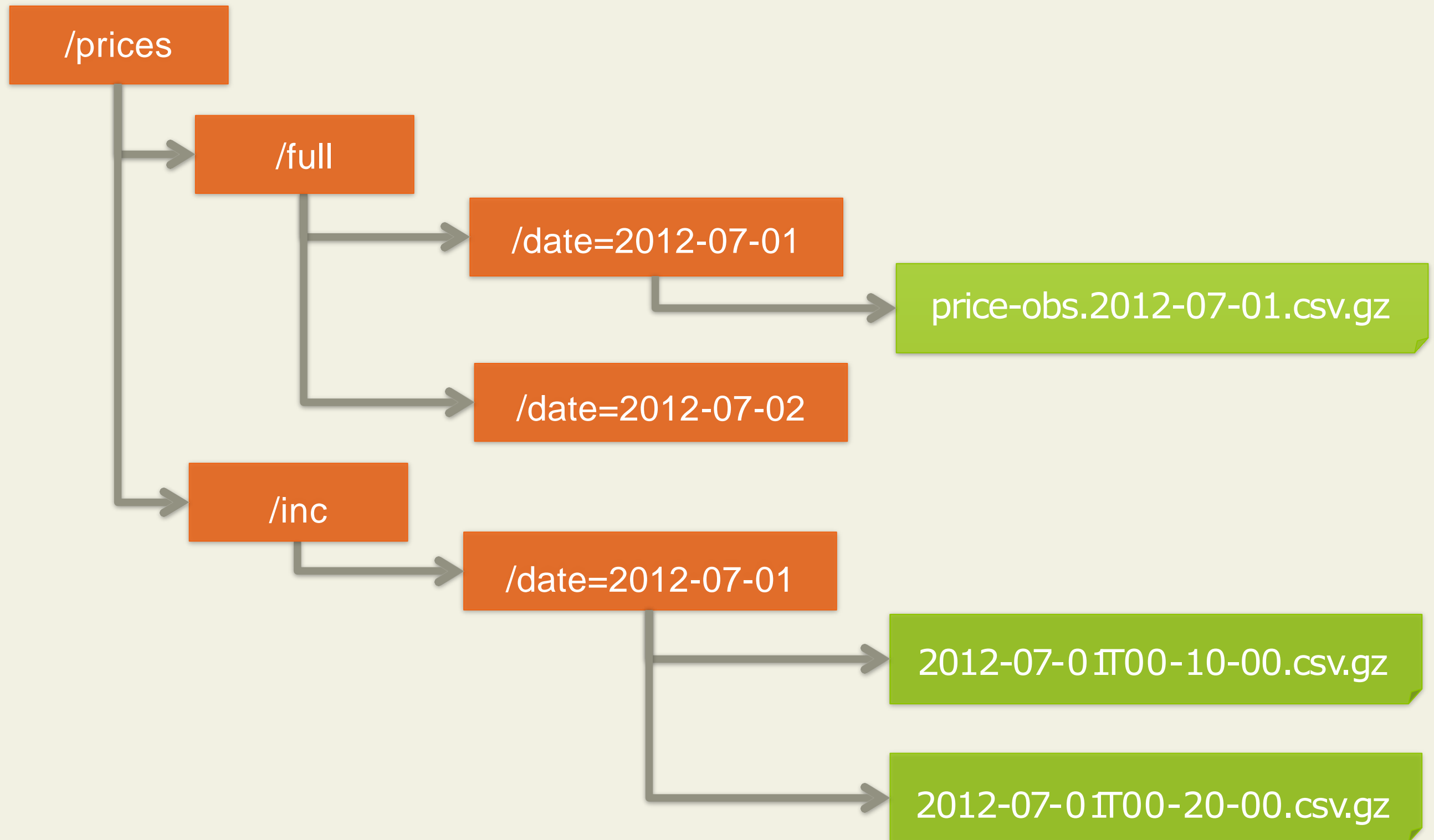
# Take tools out of the equation



# Focus on feeds and files



# Format & storage standards





# Where is your golden set?



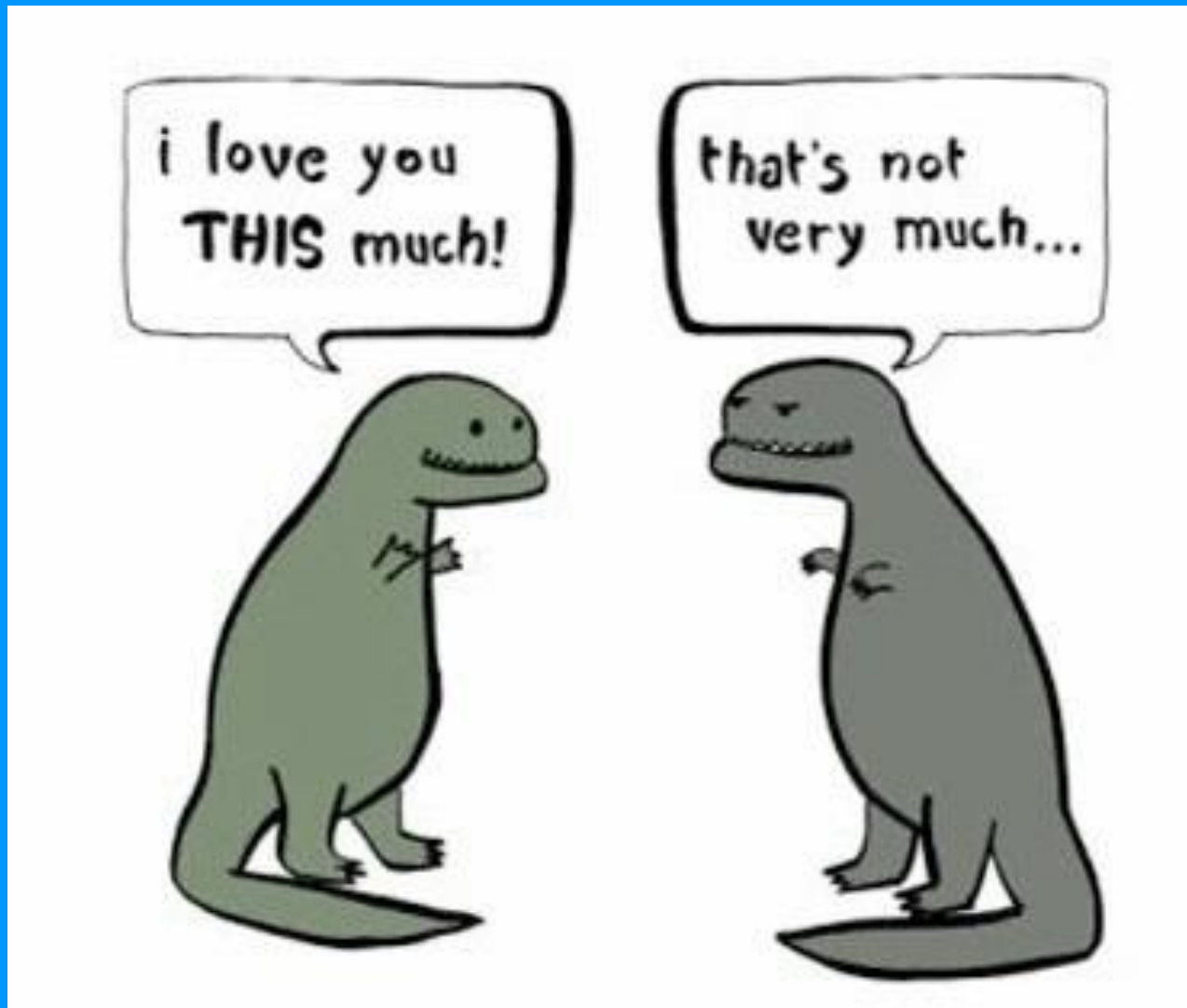




Trust



What are they  
doing all day?



# Building trust

# Their motivations



image src:

[http://www.fredhoogervorst.com/oni\\_app/local/upload/03897400db.jpg](http://www.fredhoogervorst.com/oni_app/local/upload/03897400db.jpg)



# Their motivations

Hard problems  
to solve



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[http://www.fredhoogervorst.com/oni\\_app/local/upload/03897400db.jpg](http://www.fredhoogervorst.com/oni_app/local/upload/03897400db.jpg)



# Their motivations

Hard problems  
to solve



My work in the  
wild serving  
customers

image src:

[http://www.fredhoogervorst.com/oni\\_app/local/upload/03897400db.jpg](http://www.fredhoogervorst.com/oni_app/local/upload/03897400db.jpg)



# Their motivations

Recognition for a  
job well done

Hard problems  
to solve

Being GOLD!

My work in the  
wild serving  
customers



image src:

[http://www.fredhoogervorst.com/oni\\_app/local/upload/03897400db.jpg](http://www.fredhoogervorst.com/oni_app/local/upload/03897400db.jpg)



# Their motivations

Recognition for a  
job well done

Hard problems  
to solve



Being GOLD!

My work in the  
wild serving  
customers

Open the door to  
higher-ups

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Minimize  
time-to-  
ship



# Let them own the data





# Let me write a program



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Algorithms can't solve  
everything



# Algorithms can't solve everything



Even though we  
wish they could!

# Manual data can be awesome

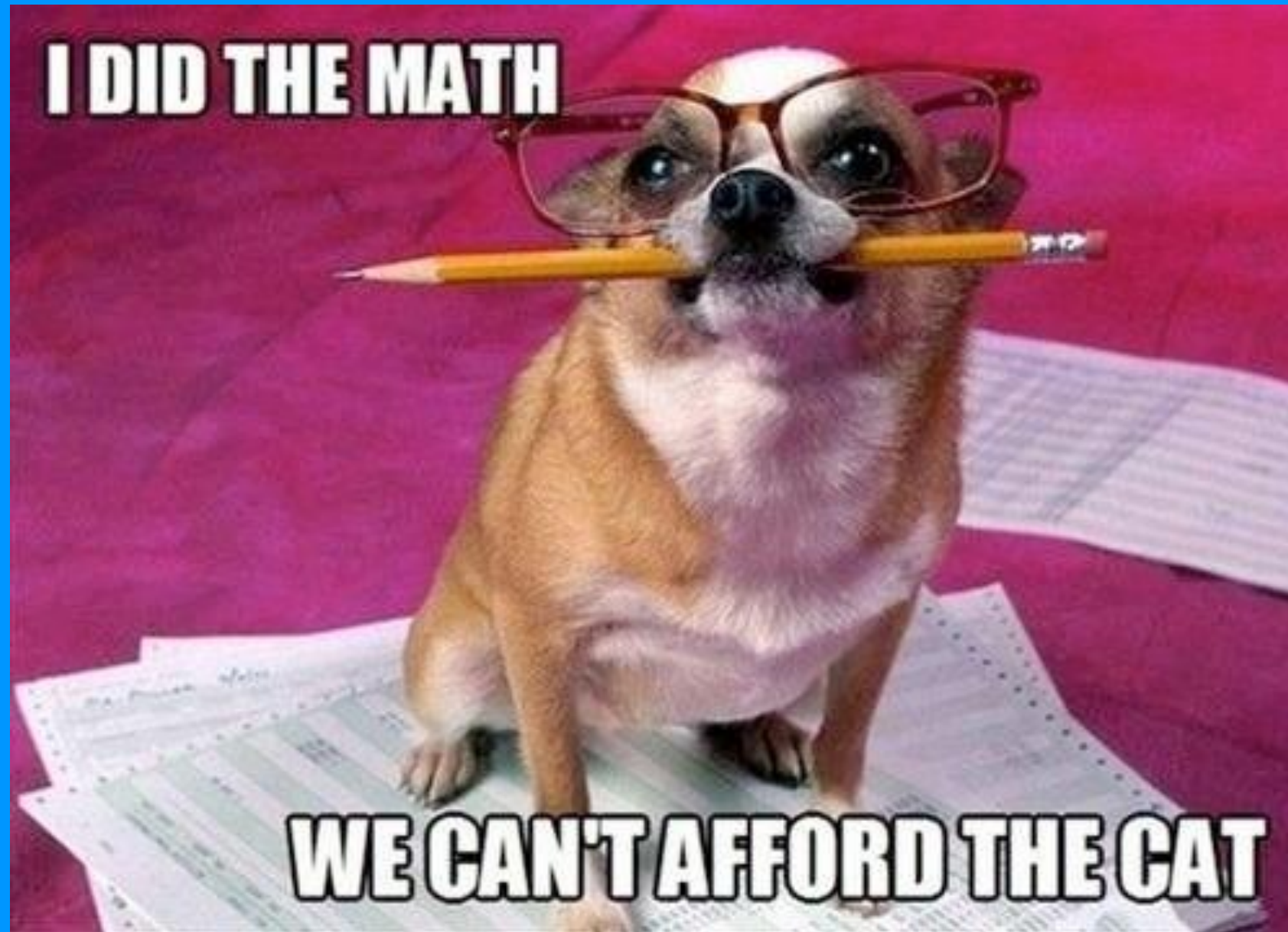


image source:

[http://www.funnyjunk.com/funny\\_pictures/4416618/LOOK+AT+DE+PUPPY/](http://www.funnyjunk.com/funny_pictures/4416618/LOOK+AT+DE+PUPPY/)



Can you do  
the  
impossible?





Data  
Miners  
aren't  
magicians



You CAN make failure look good

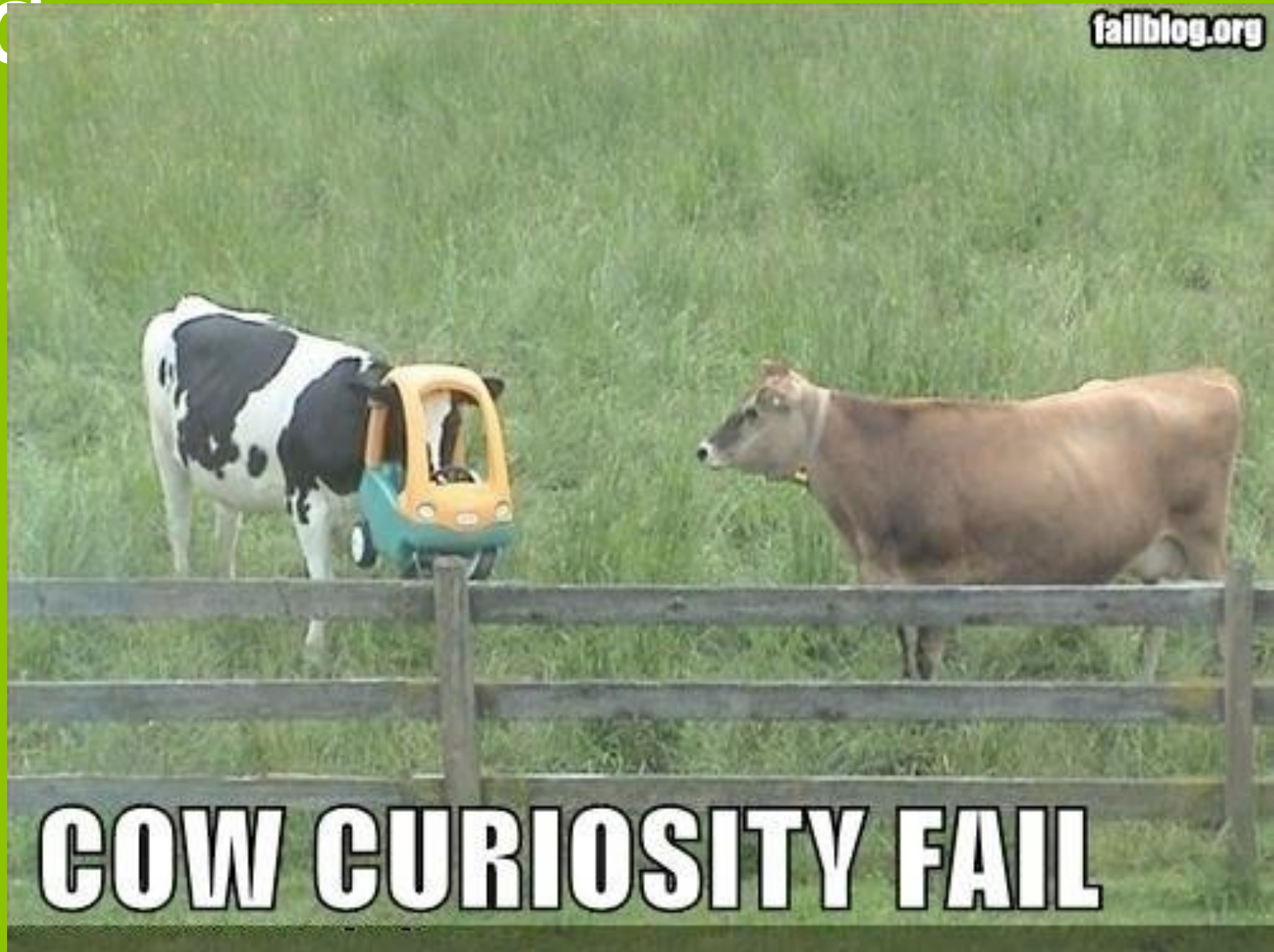


image source: <http://fightthebees.com/wp-content/uploads/2011/11/cow-fail.jpg>

Your  
challenge:





# Your challenge:

Should you choose  
to accept it....



Your  
challenge:  
Take a difficult problem and  
transform it into a feature

Should you choose  
to accept it...

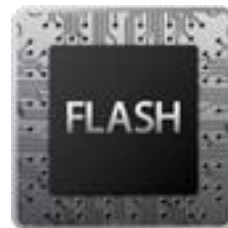


# HARD: Value Estimation



1.7GHz dual-  
core Intel  
Core i5

\$300



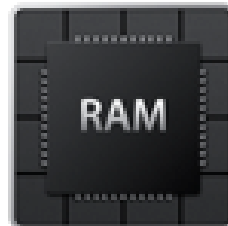
256GB flash storage

\$250



Intel HD  
Graphics  
4000

\$100



8GB SDRAM

\$200



Apple premium

\$200

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Estimated Value:

**\$1050**

# EASIER: Comparing Products

## How it Compares



**Apple MacBook Air 13.3"**

MacBook Air 13.3 (Mid 2012) Core i5  
1.8 GHz 4 GB RAM 128 GB HDD

**\$1,099**



**Apple MacBook Air 11.6"**

MacBook Air 11 (Mid 2012) Core i5  
1.7 GHz 4 GB RAM 128 GB HDD

**\$1,036**



**Lenovo IdeaPad 15.6"**

Y580 Core i7 2.4 GHz 8 GB RAM  
1.02 TB HDD

**\$1,000**



**Lenovo IdeaPad 13.3"**

Yoga 13 Core i5 1.7 GHz 8 GB RAM  
128 GB SSD

**\$1,115**



# Think with your business hat



# How do you surface ideas &

I thought your idea  
to use my idea was  
a great idea.

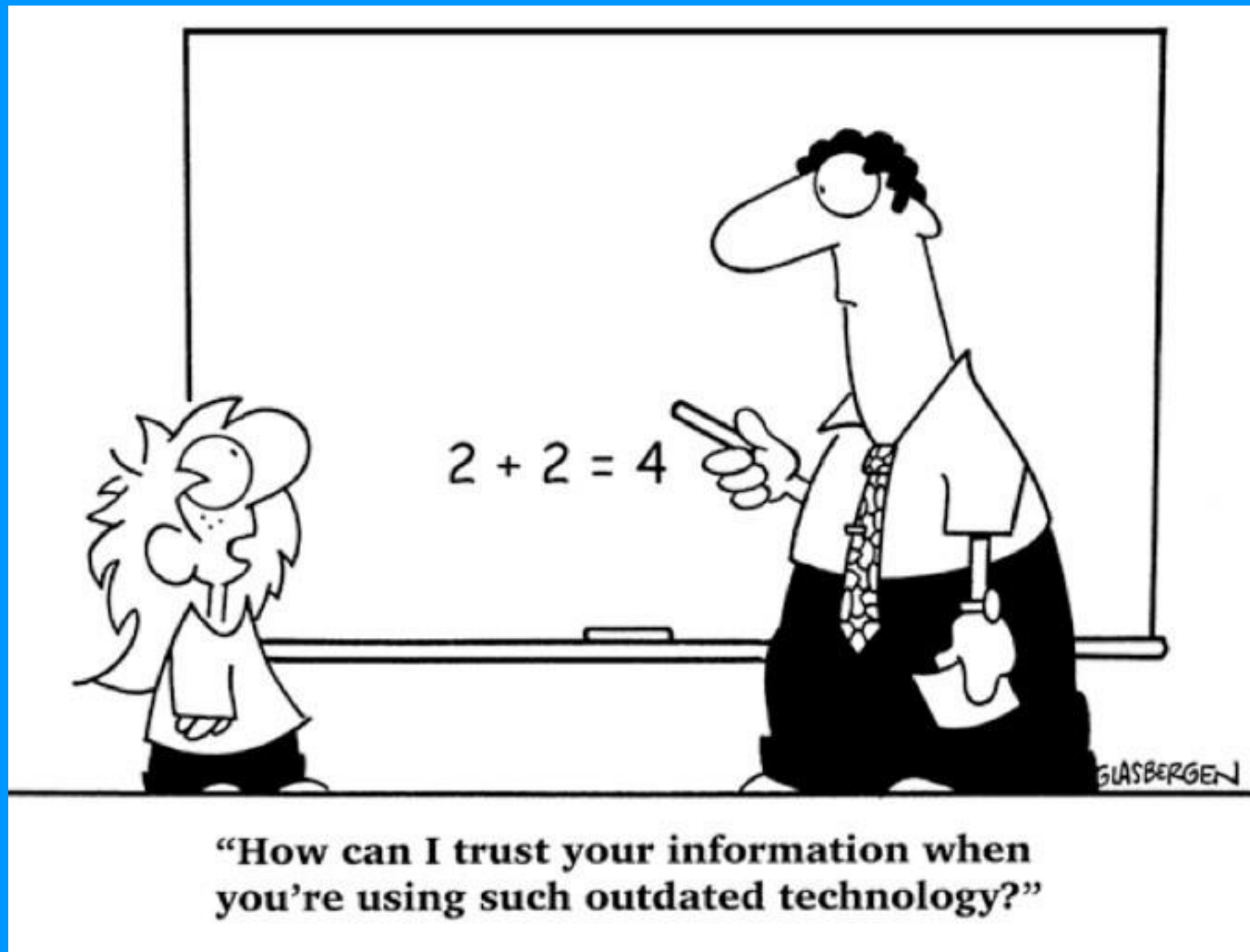


your  cards  
someecards.com

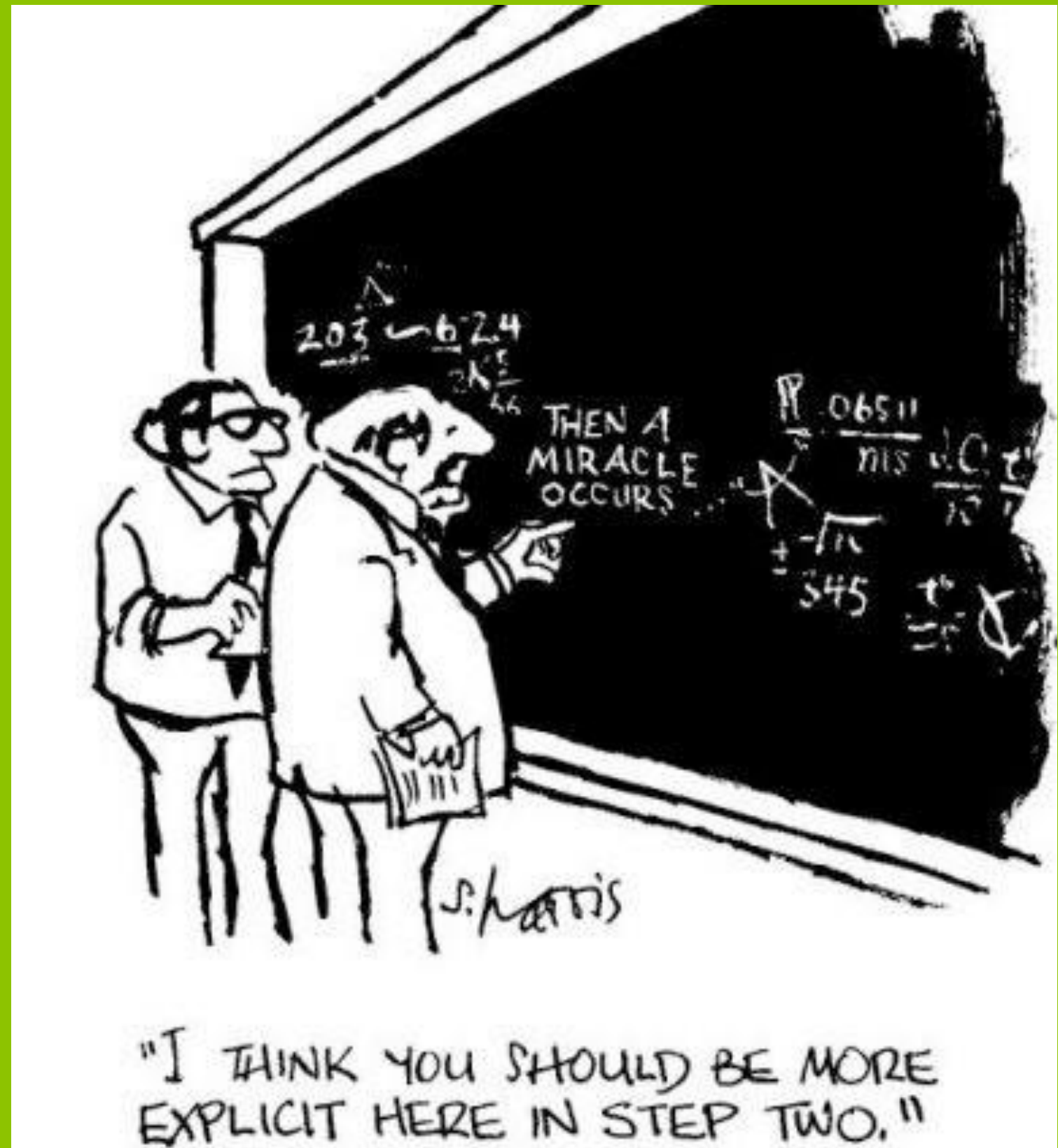
image source:

[http://static.someecards.com/someecards/usercards/1327680406361\\_4248272.png](http://static.someecards.com/someecards/usercards/1327680406361_4248272.png)

# Show 'em



And  
show 'em  
often



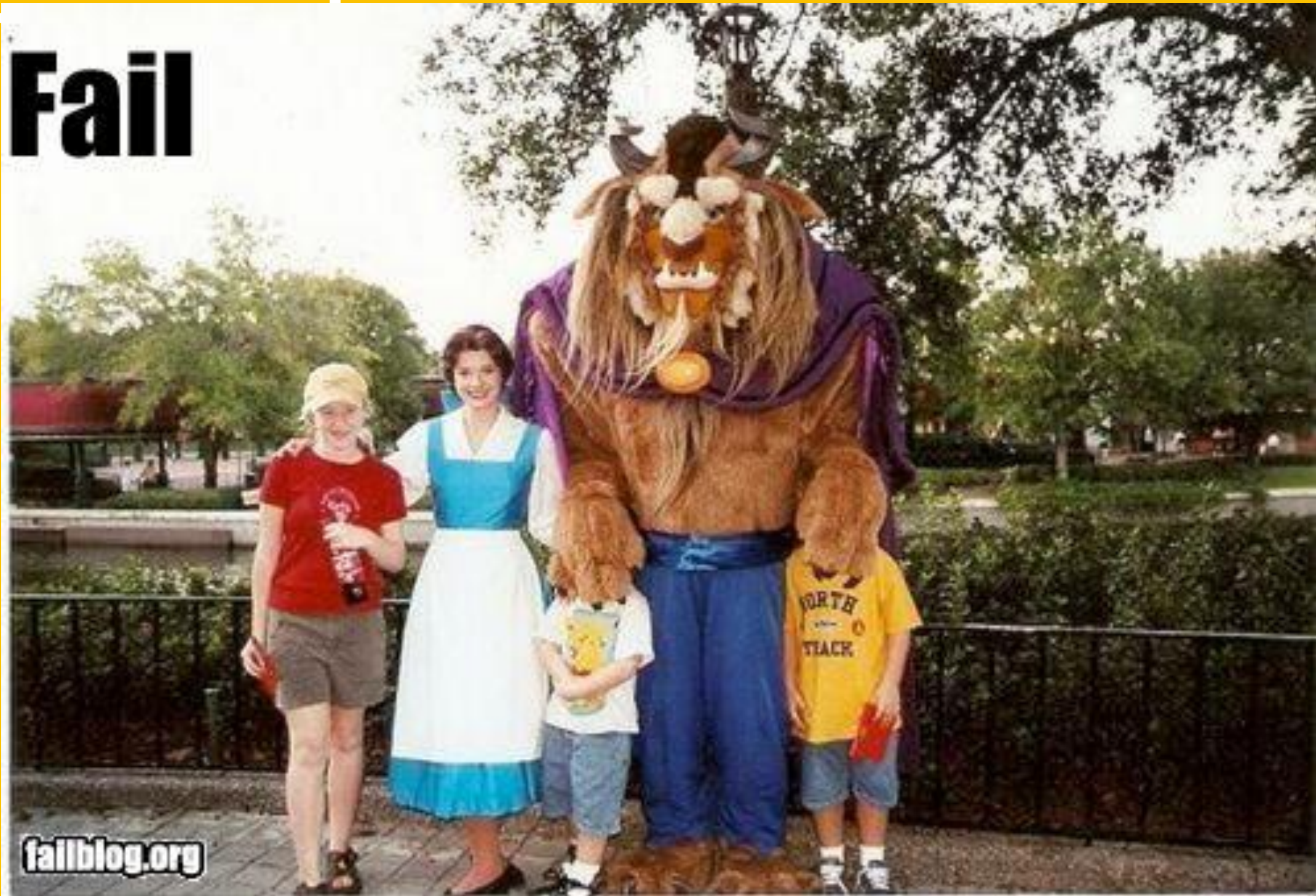


# Negative results happen



# The journey is the

# Fail

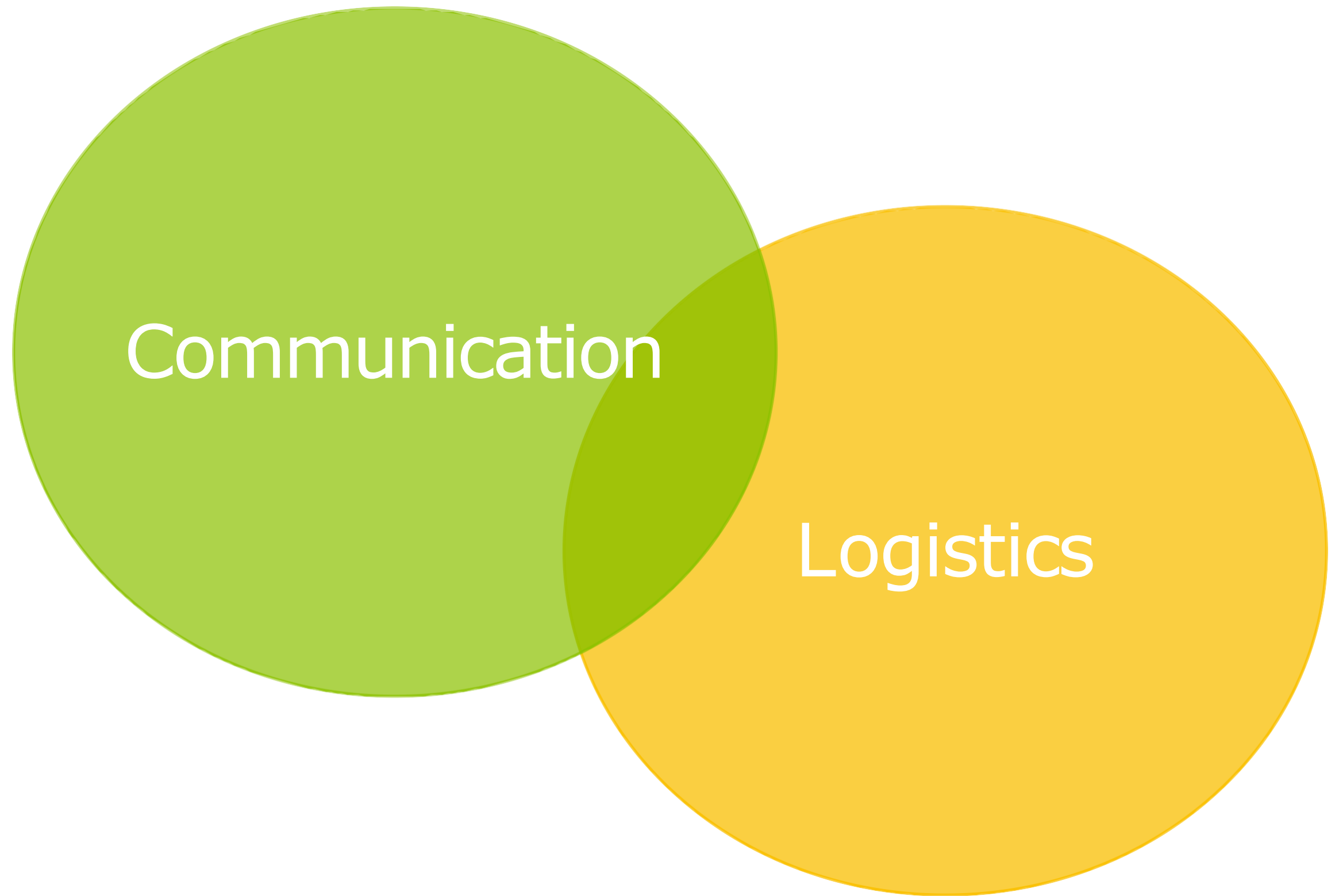


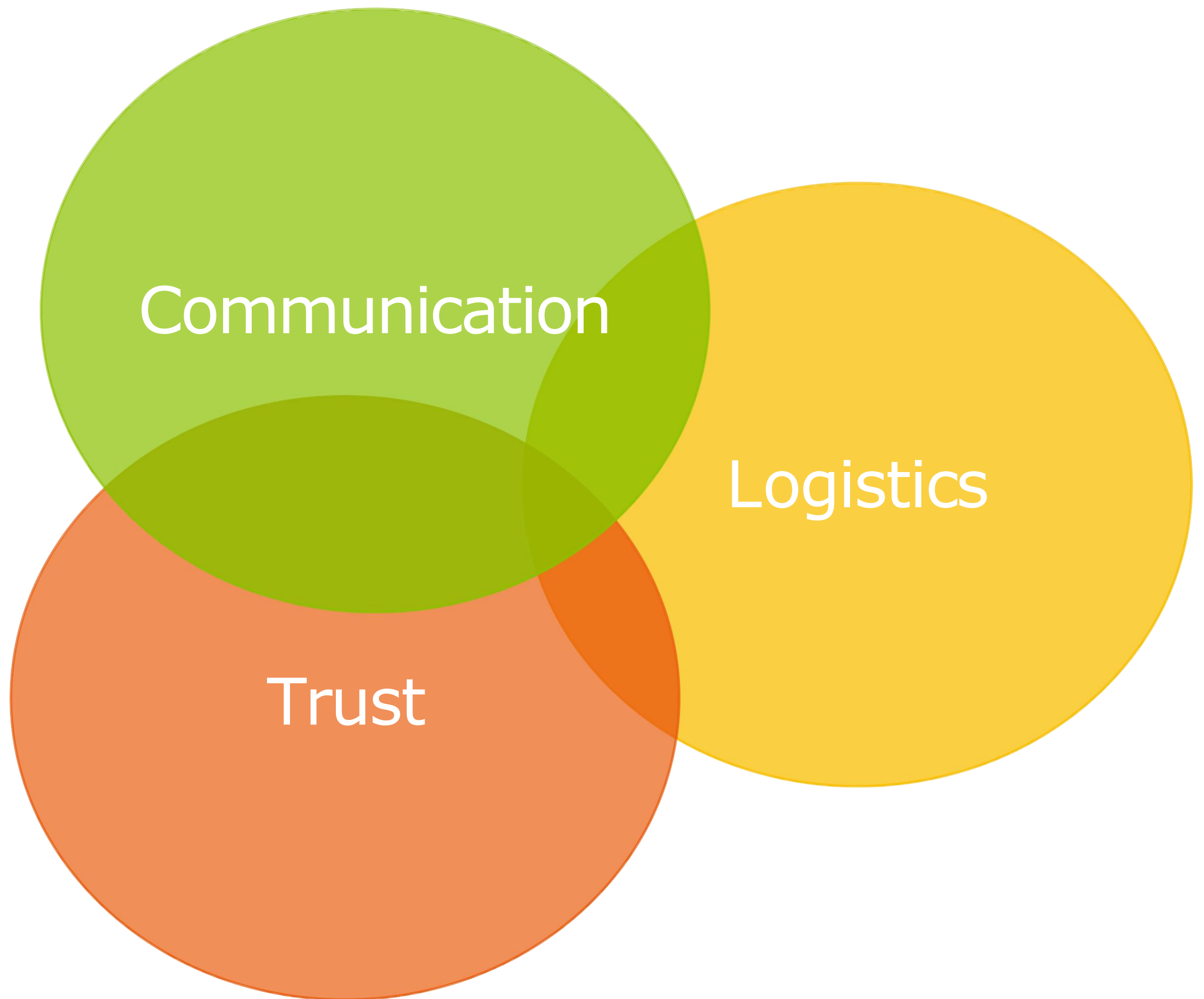




Communication







Communication

Logistics

Trust

# Questions

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[http://katemats.co](http://katemats.com)  
[m@katemats](mailto:m@katemats)



May the forces of evil  
get lost on the way  
to your doorstep.

# Questions

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[http://katemats.co](http://katemats.com)  
[m](mailto:m@katemats) @katemats