Design
for
IMPACT

ROTHAMSTED
RESEARCH

THROW IT OUT

Poor experimental design

Poor experimental design

- No control groups

Poor experimental design

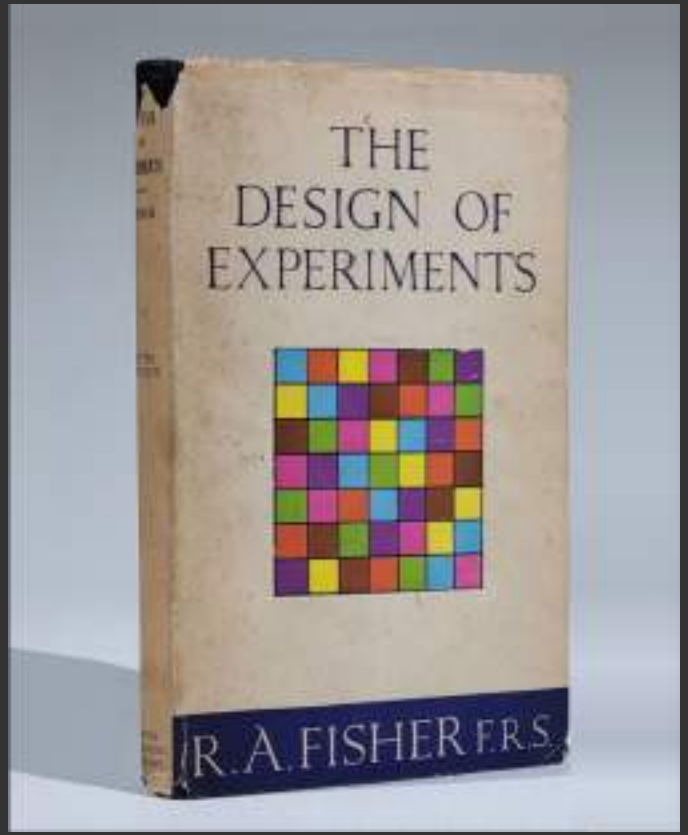
- No control groups
- Low sample size

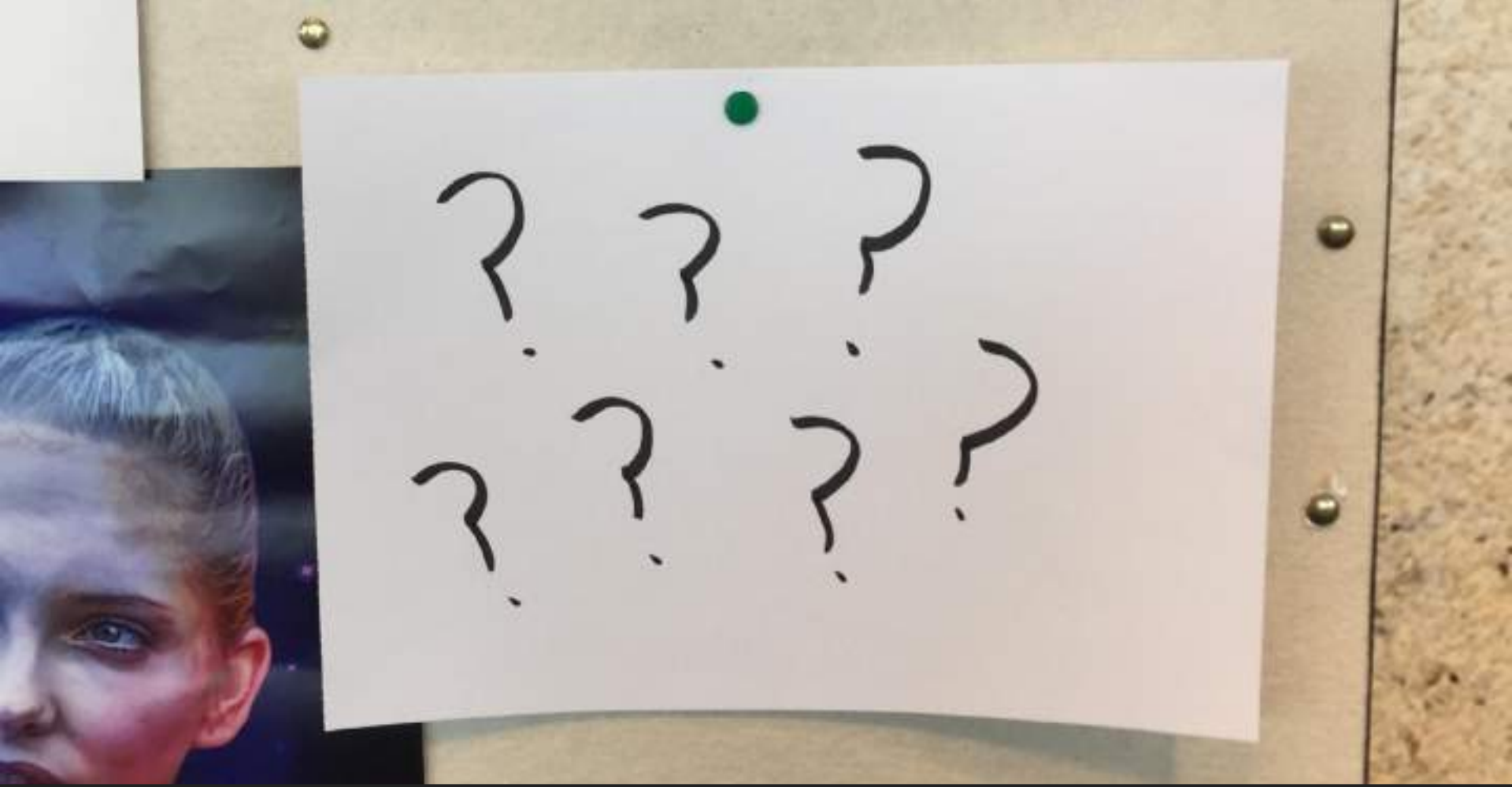
Poor experimental design

- No control groups
- Low sample size
- Dodgy randomization

Poor experimental design

- No control groups
- Low sample size
- Dodgy randomization
- Crappy hypotheses 💩


THE
DESIGN OF
EXPERIMENTS
R. A. FISHER F.R.S.



design

Conversion
DESIGN

We'll cover

We'll cover

- What Conversion Design is

We'll cover

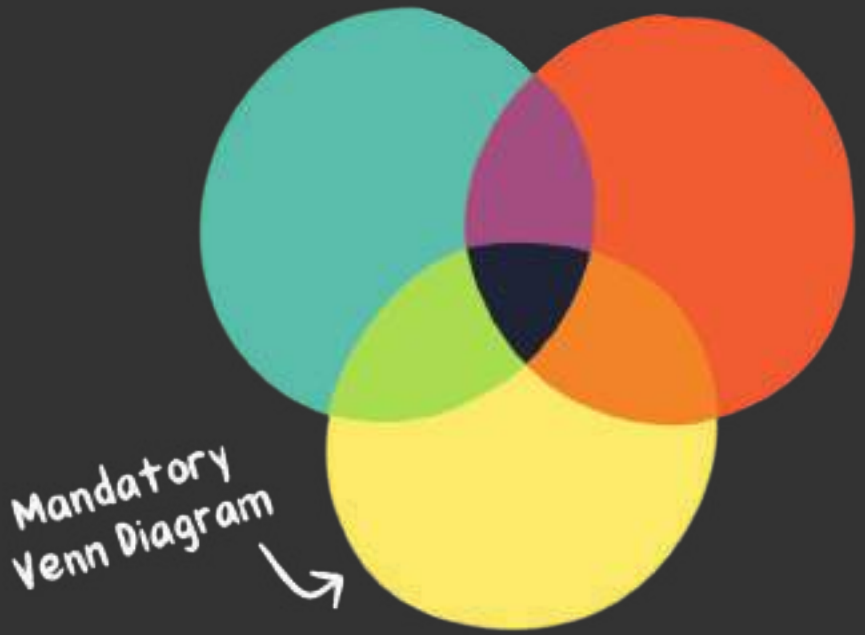
- What Conversion Design is
- The Conversion Design process

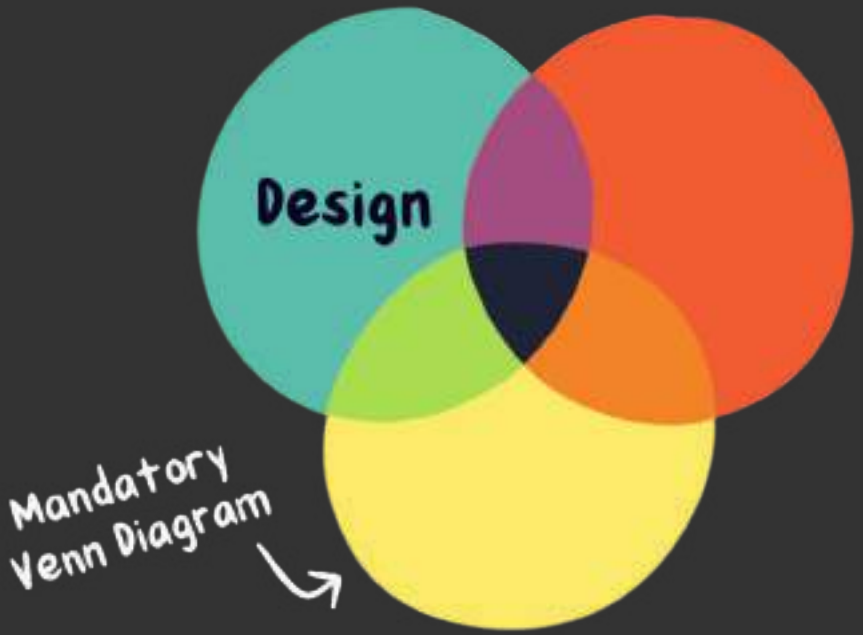
We'll cover

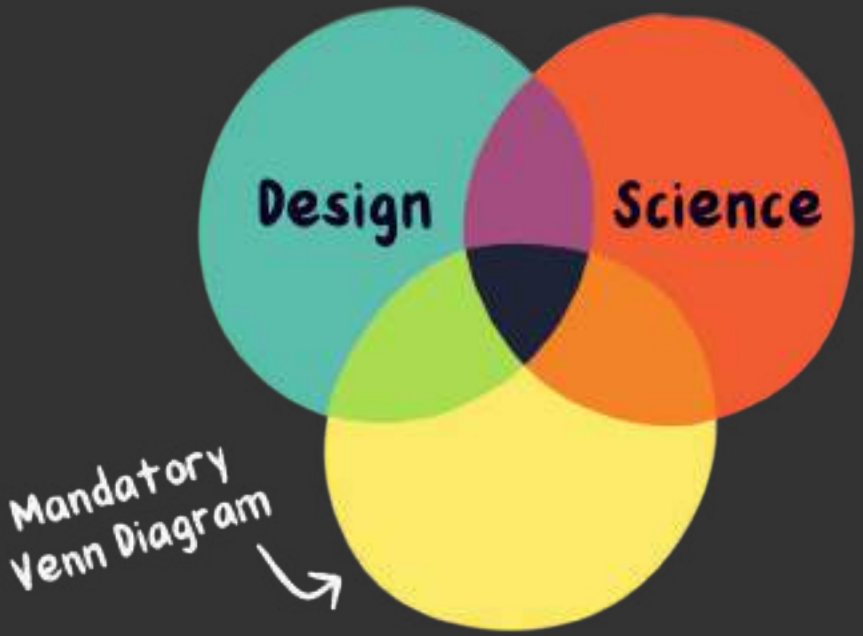
- What Conversion Design is
- The Conversion Design process
- How it drives growth

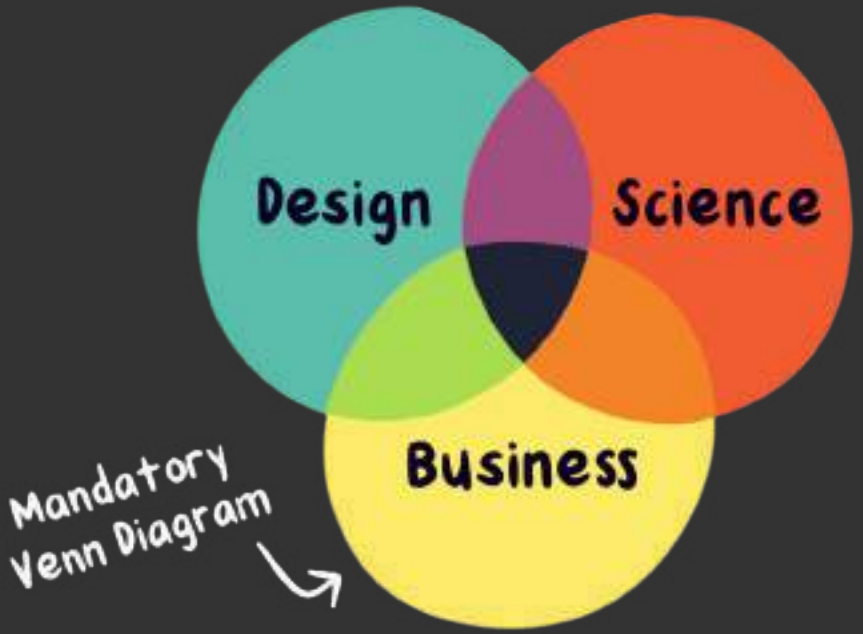
LET'S GET THIS PARTY
STARTED!

What is…
Conversion Design?

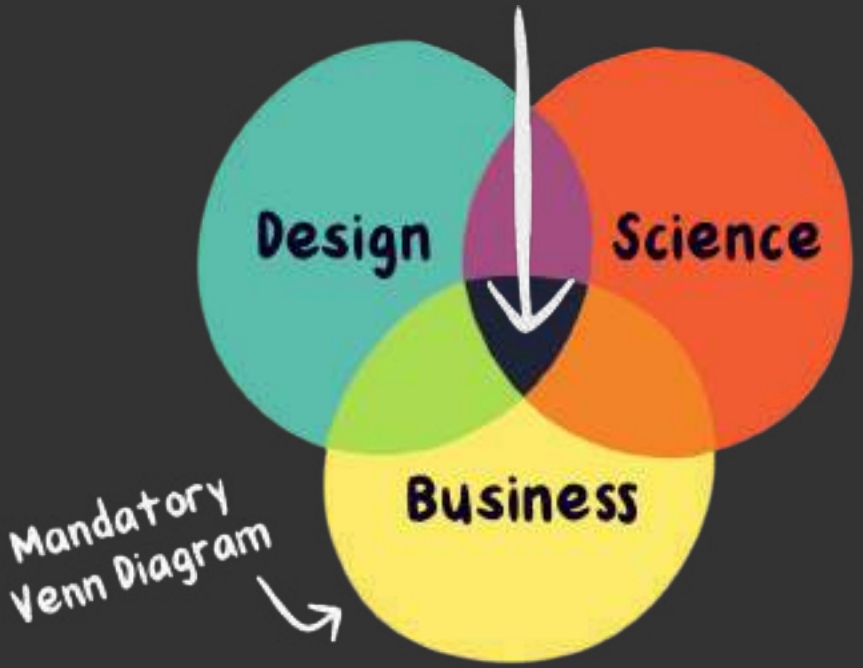

Mandatory
Venn Diagram


Design
Mandatory
Venn Diagram

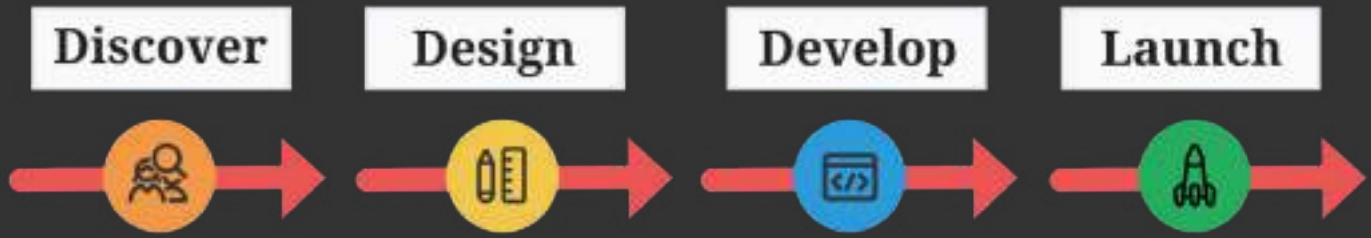

Design
Science
Mandatory
Venn Diagram


Design
Science
Business
Mandatory
Venn Diagram

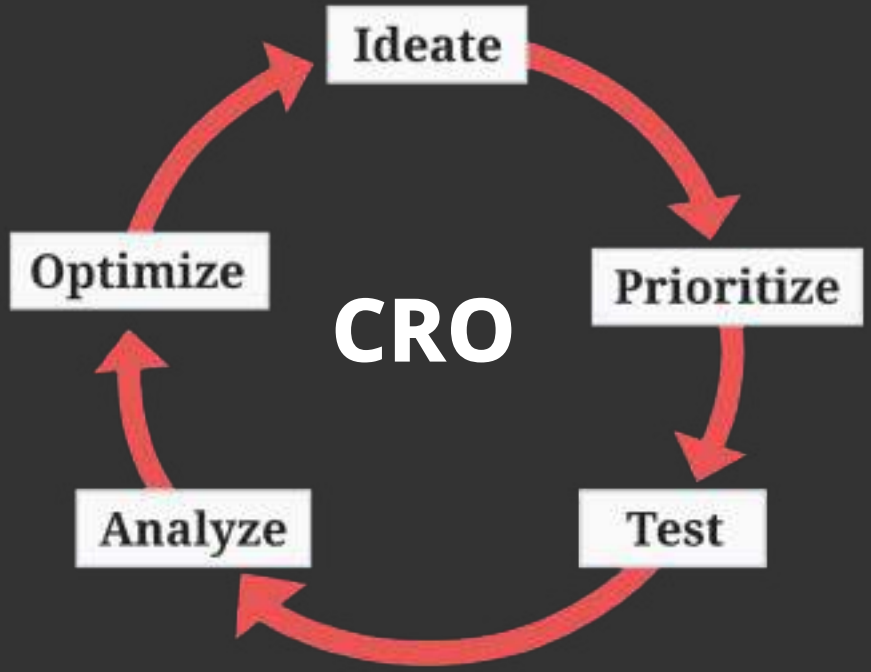
Conversion design



Product development process



Conversion rate optimization



Linear thinking

Linear thinking

1. Step-by-step

Linear thinking

1. Step-by-step
2. Simple relationships

Linear thinking

1. Step-by-step
2. Simple relationships
3. Clear progress

Systems thinking

Systems thinking

1. Dynamic

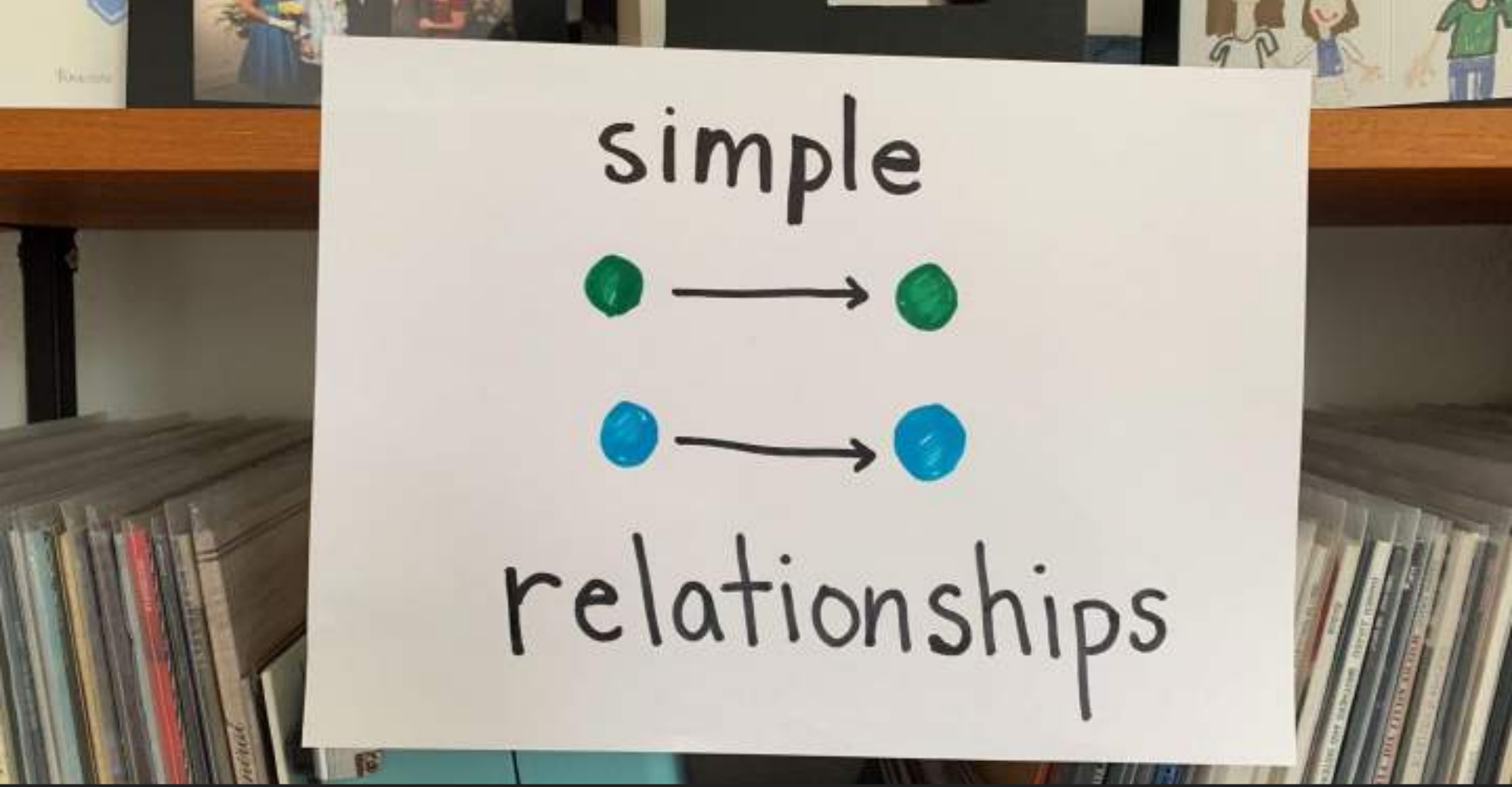
Systems thinking

1. Dynamic
2. Complex relationships

Systems thinking

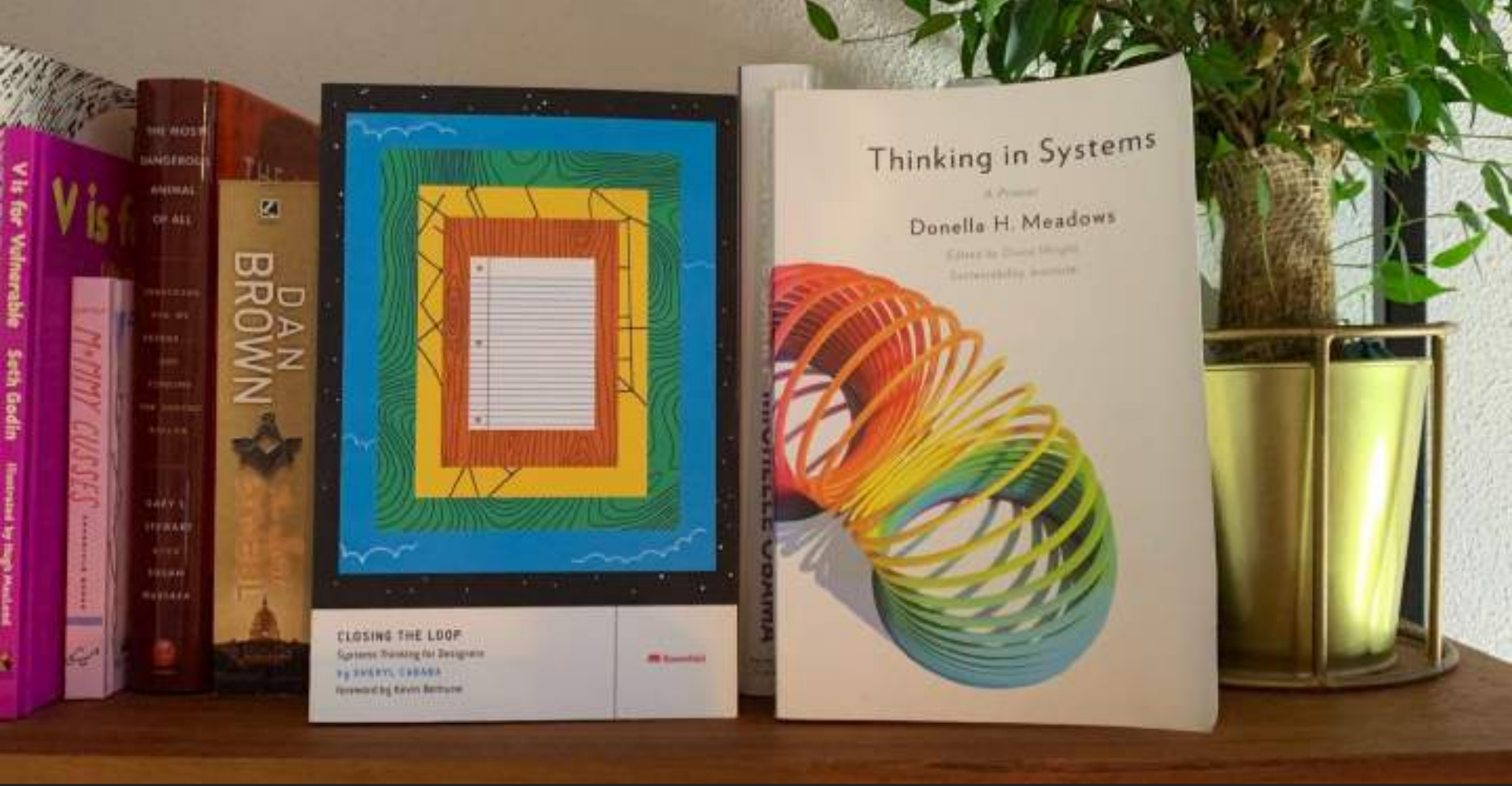
1. Dynamic
2. Complex relationships
3. Realistic progress

embrace
COMPLEXITY
SALLY ROONEY
NORMAL PEOPLE
UNDER NEW MANAGEMENT
DAVID BURKUS
THE COMPOUND EFFECT
DARREN HARDY
ROBIN DIANGELO
WHITE FRAGILITY


simple
relationships

Think in both ways

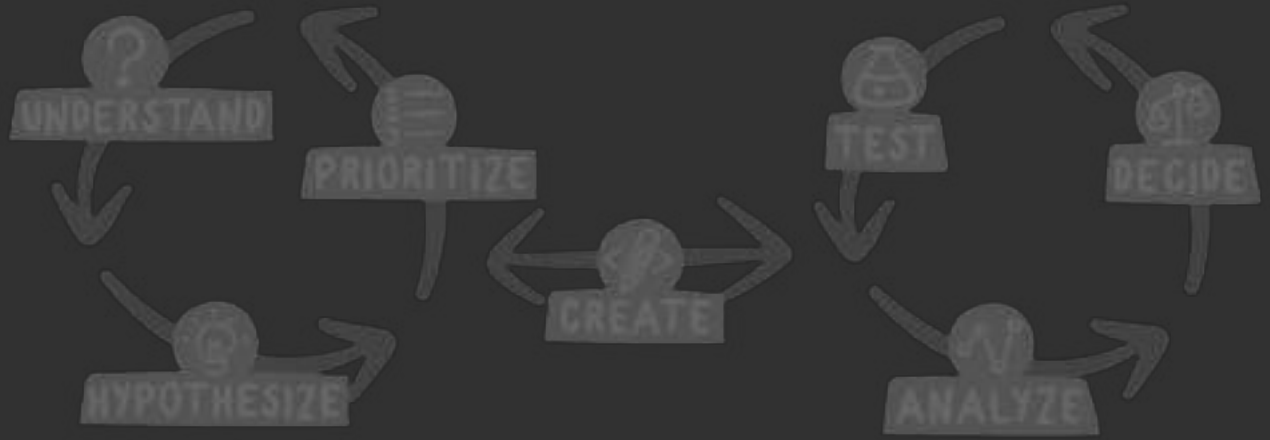
Make things
Better!
NOT JUST DIFFERENT


V is for Vulnerable
Seth Godin
DAN BROWN
CLOSING THE LOOP
Thinking in Systems
Donella H. Meadows

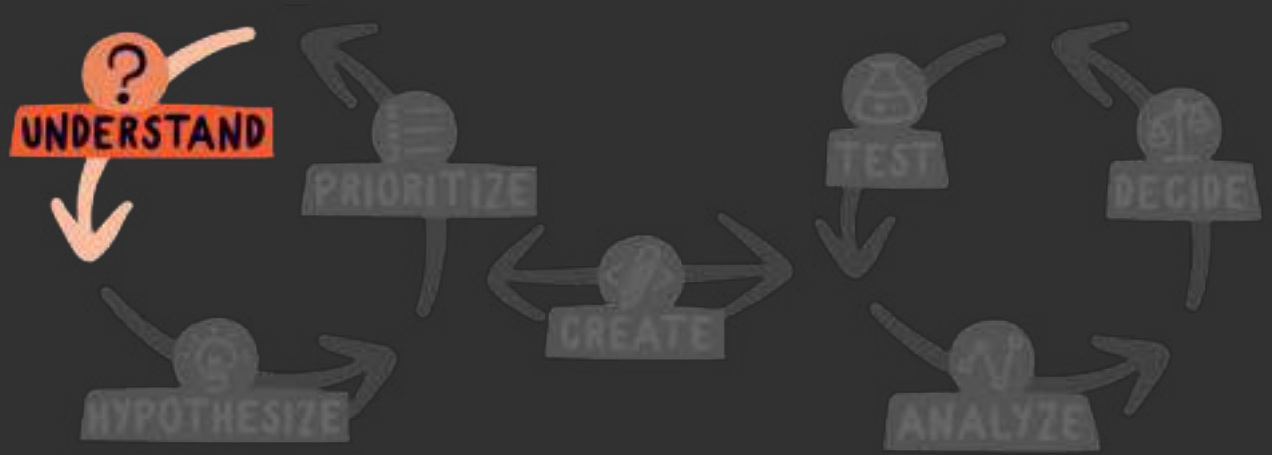
We'll cover

- ~~What Conversion Design is~~
- The Conversion Design process
- How it drives growth

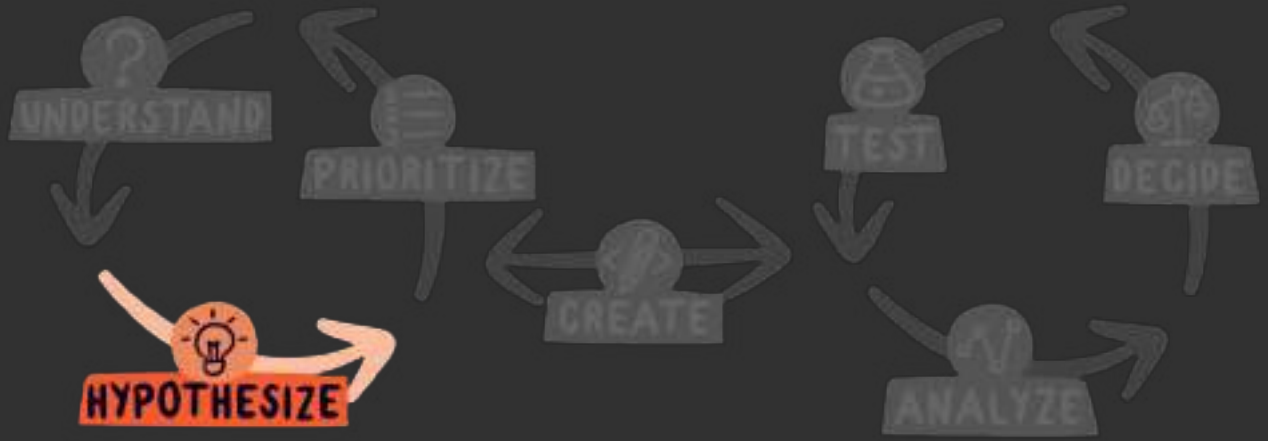
Conversion design process



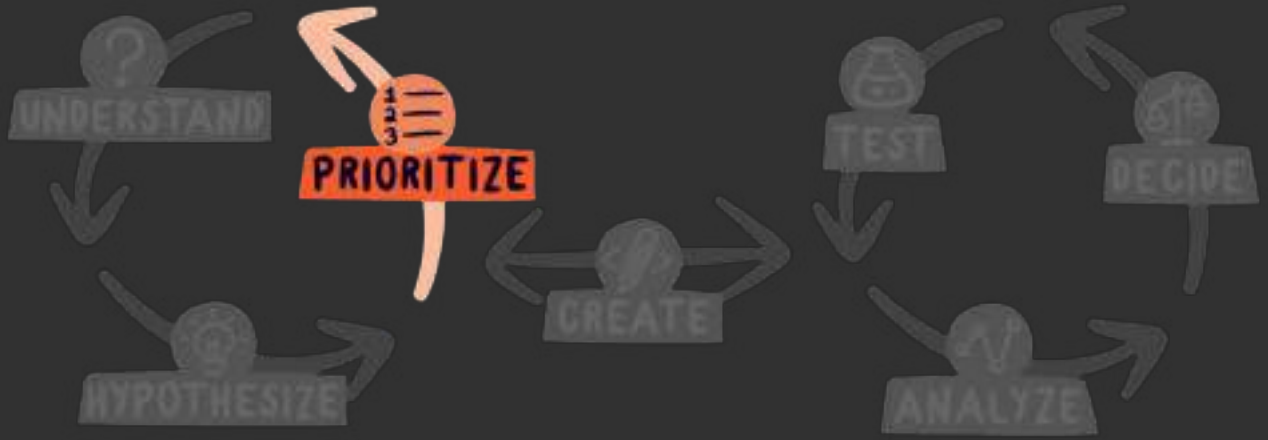
Conversion design process



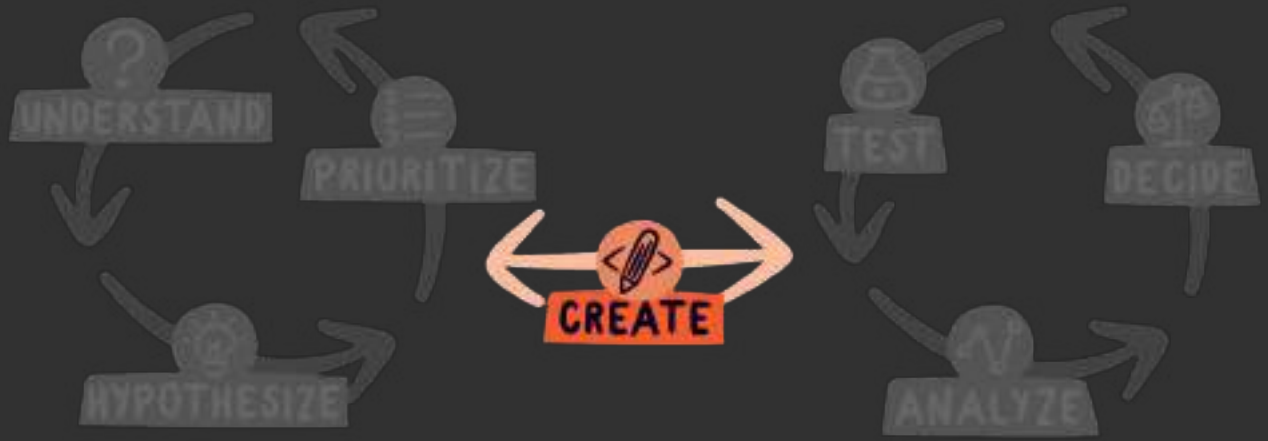
Conversion design process



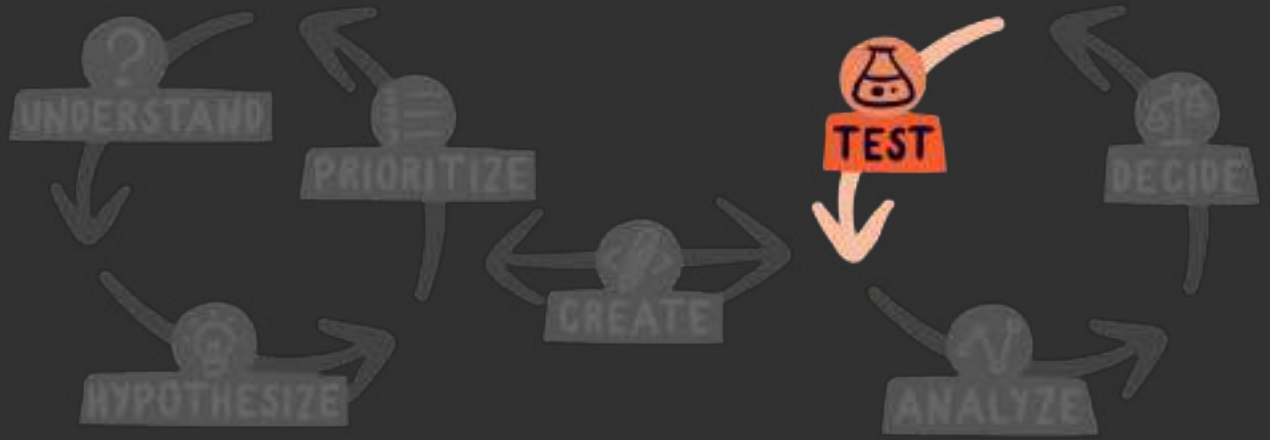
Conversion design process



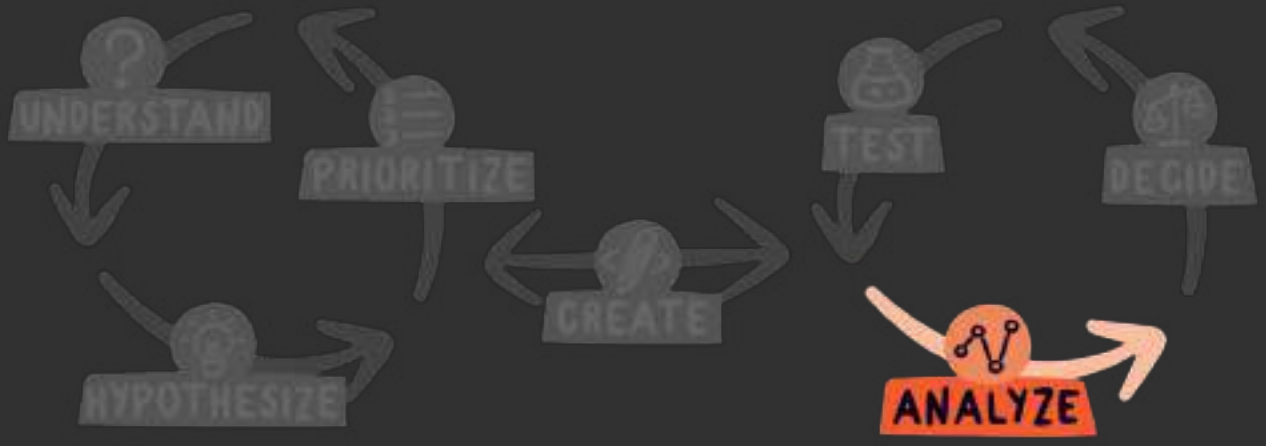
Conversion design process



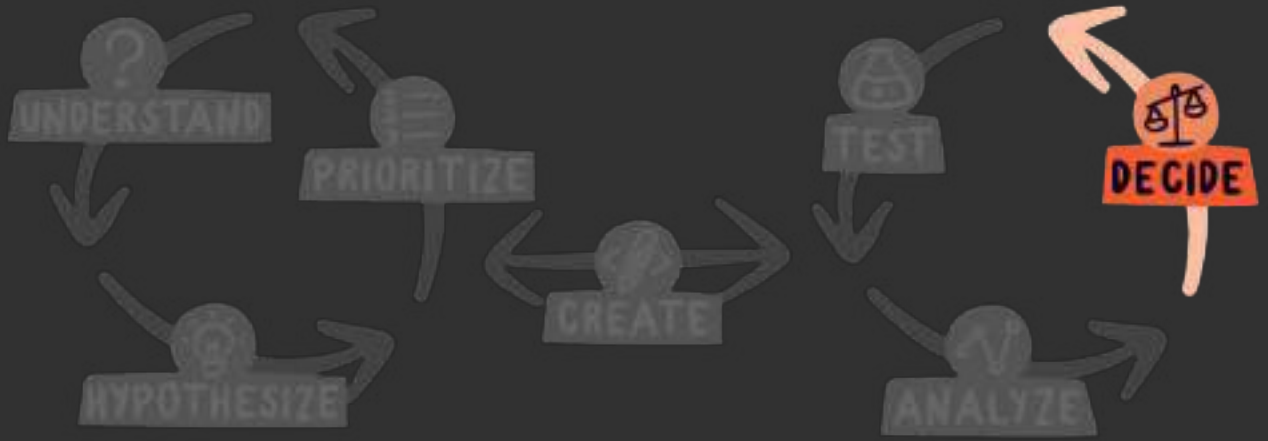
Conversion design process



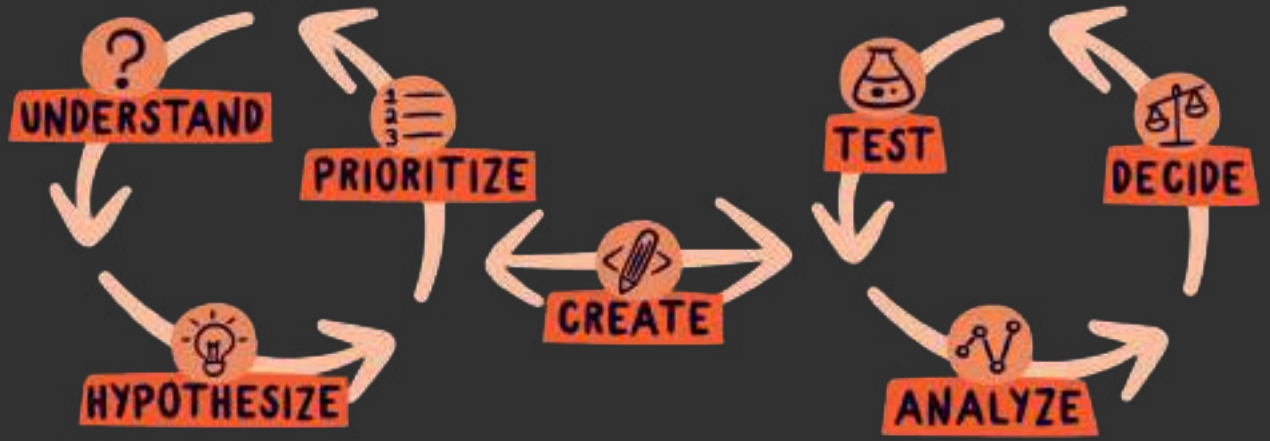
Conversion design process



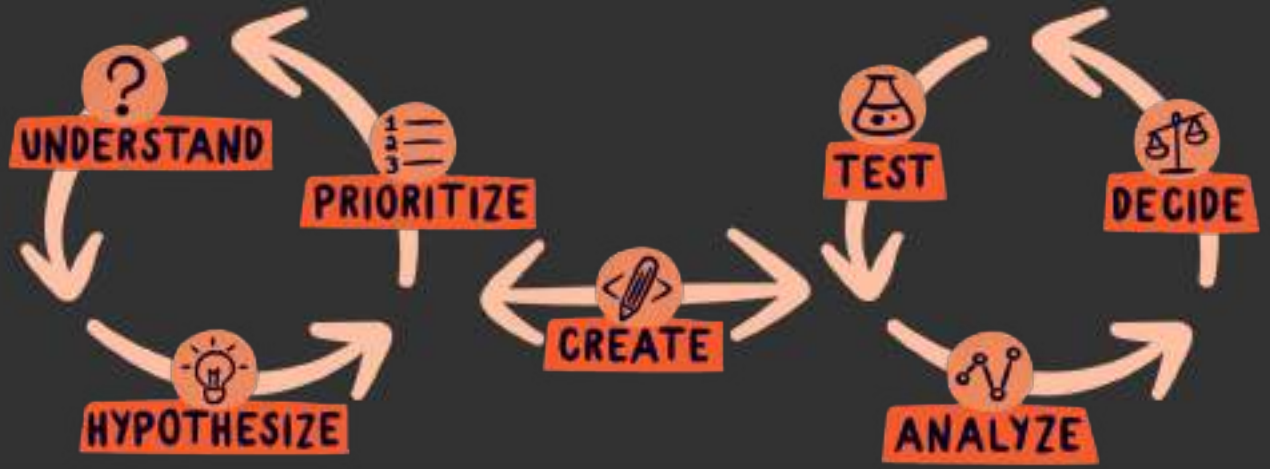
Conversion design process



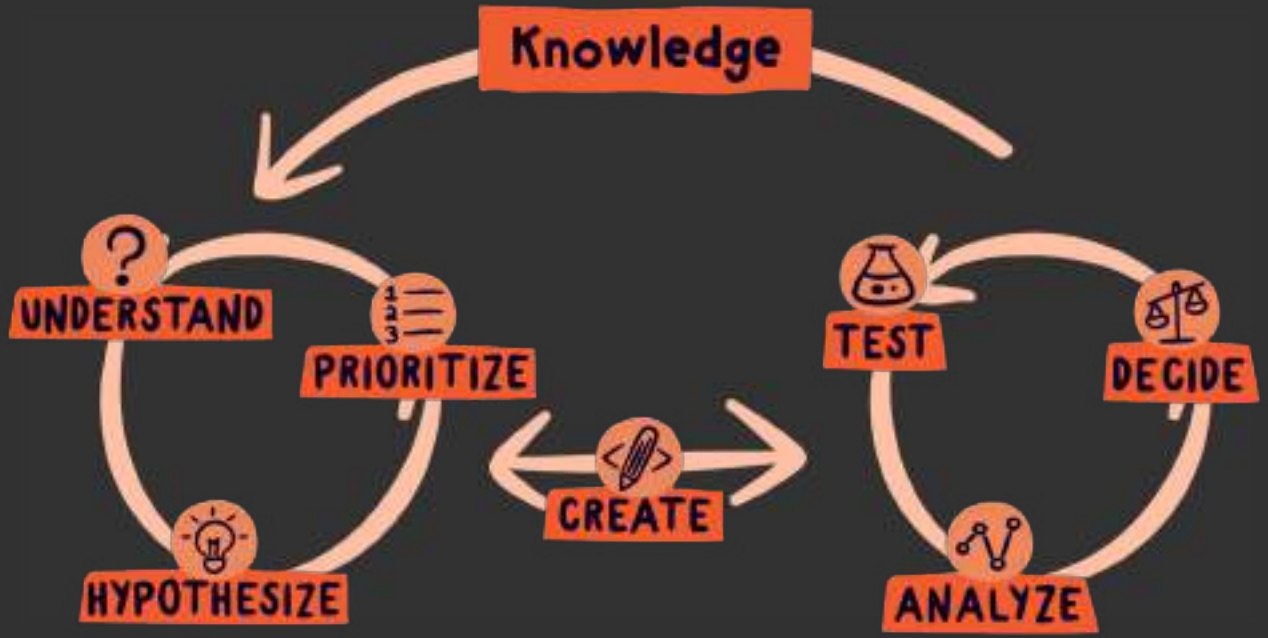
Conversion design process

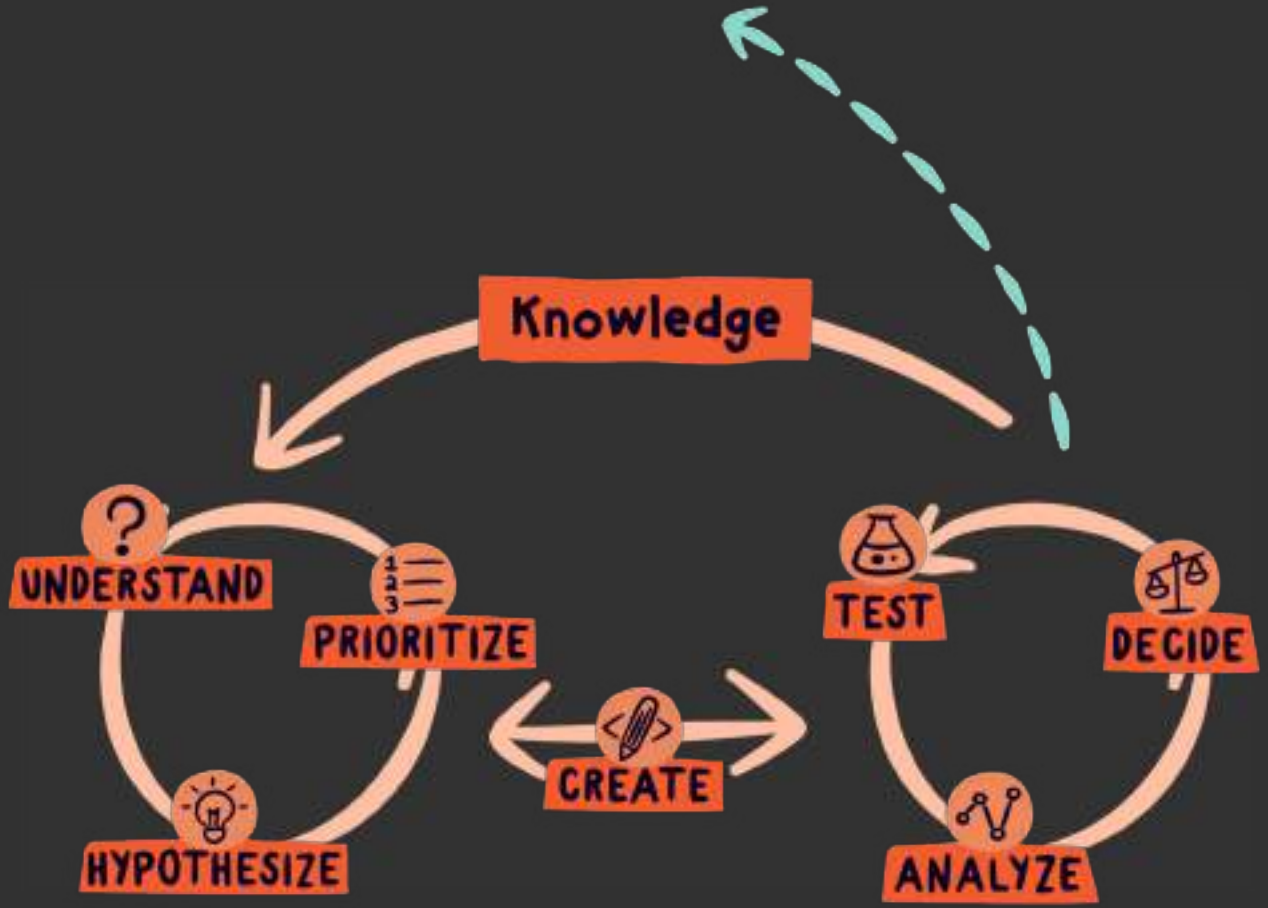


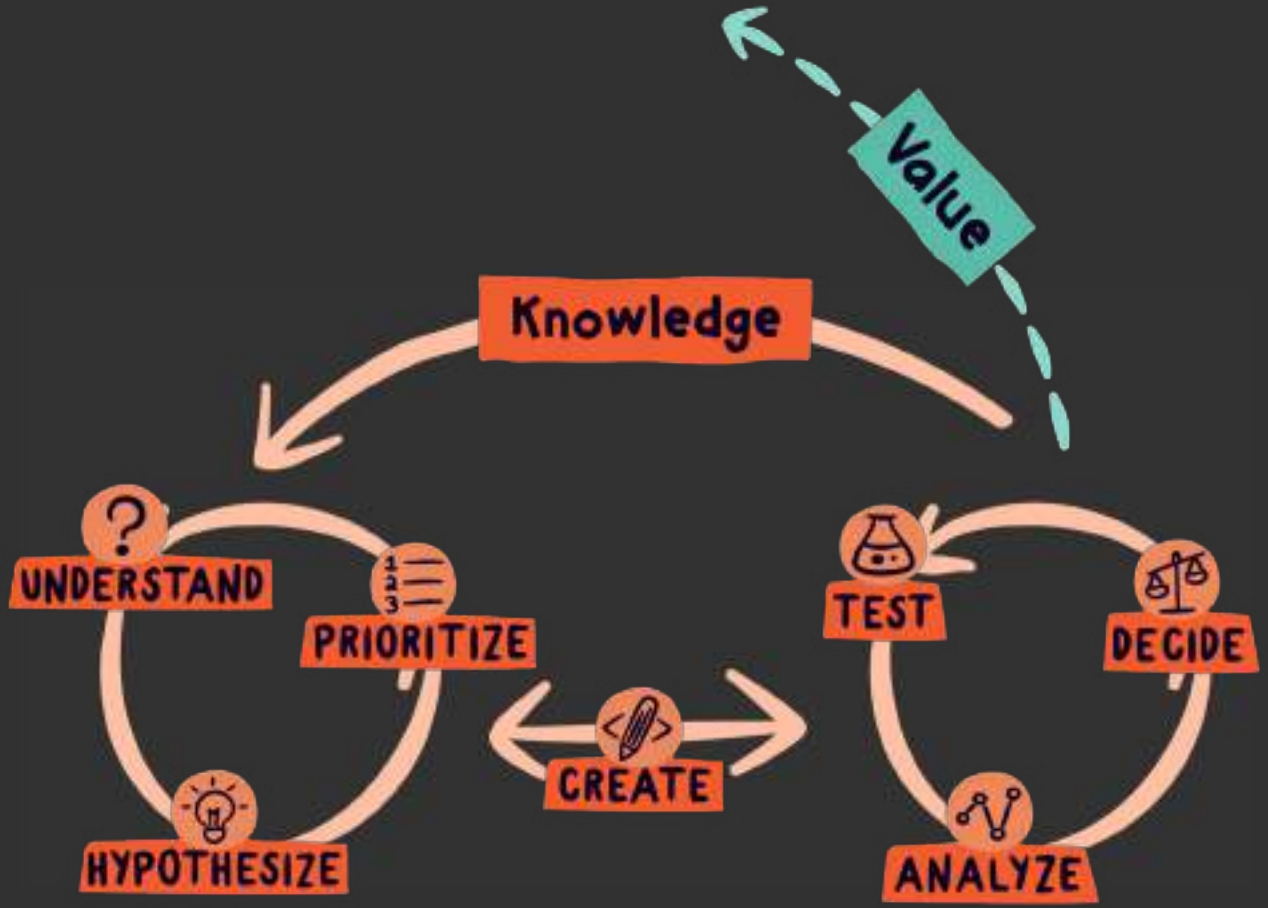
Conversion design process



Conversion design process

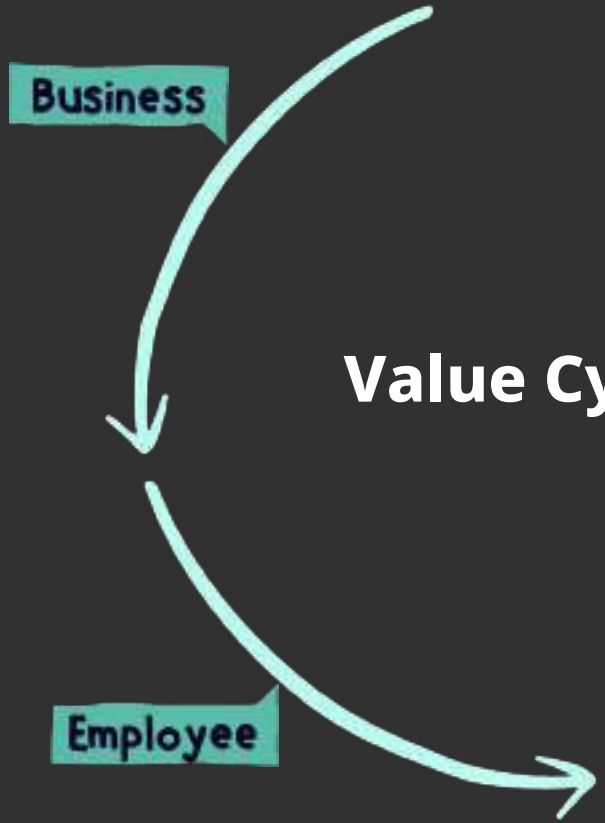



Knowledge
UNDERSTAND
PRIORITIZE
HYPOTHESIZE
CREATE
TEST
DECIDE
ANALYZE

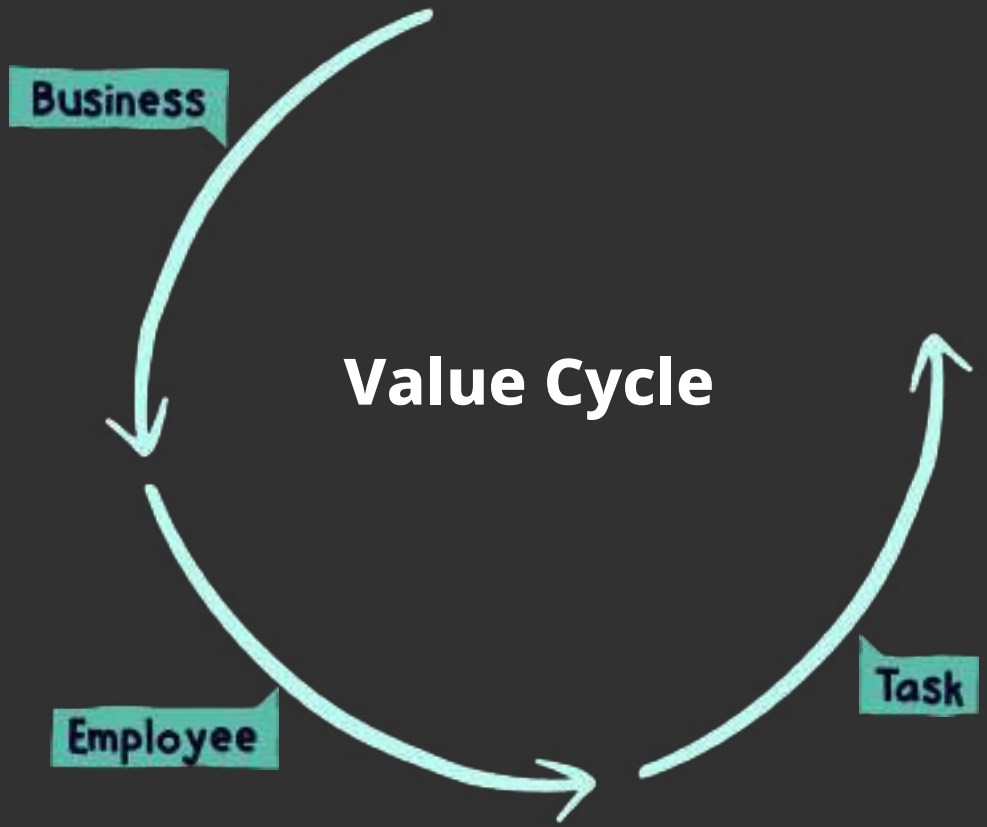

Value
Knowledge
UNDERSTAND
PRIORITIZE
HYPOTHESIZE
CREATE
TEST
DECIDE
ANALYZE

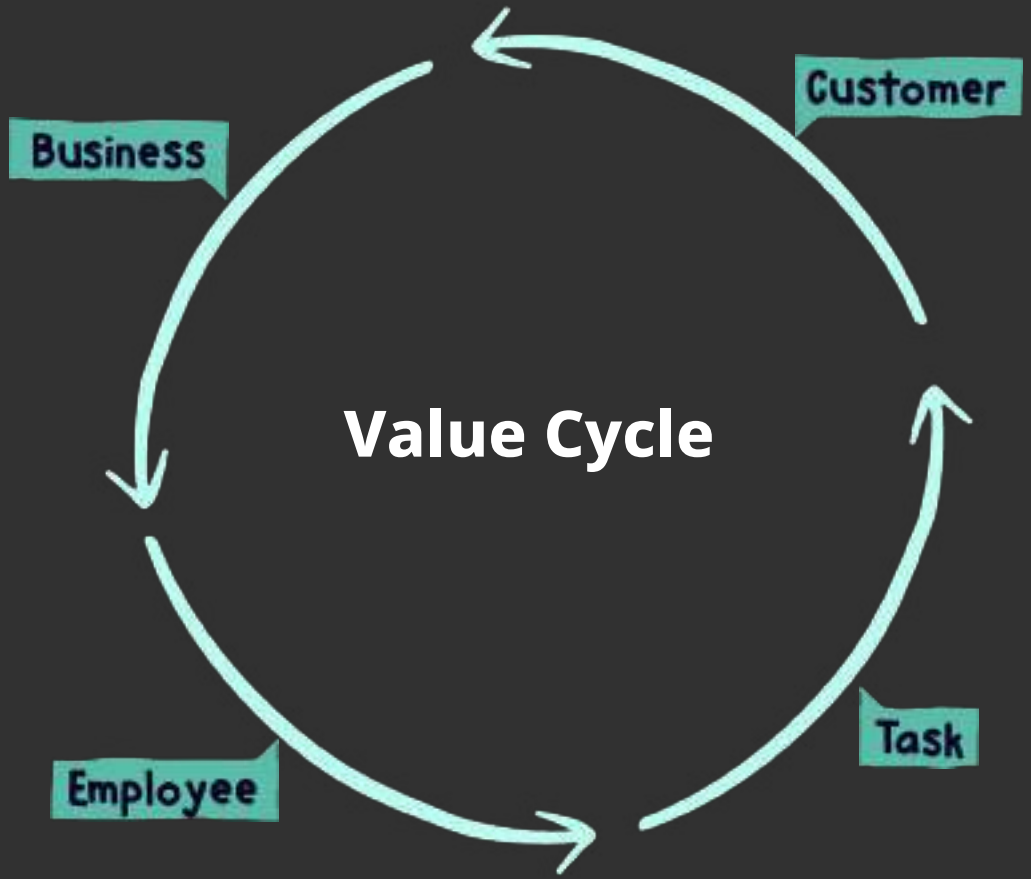
Value Cycle

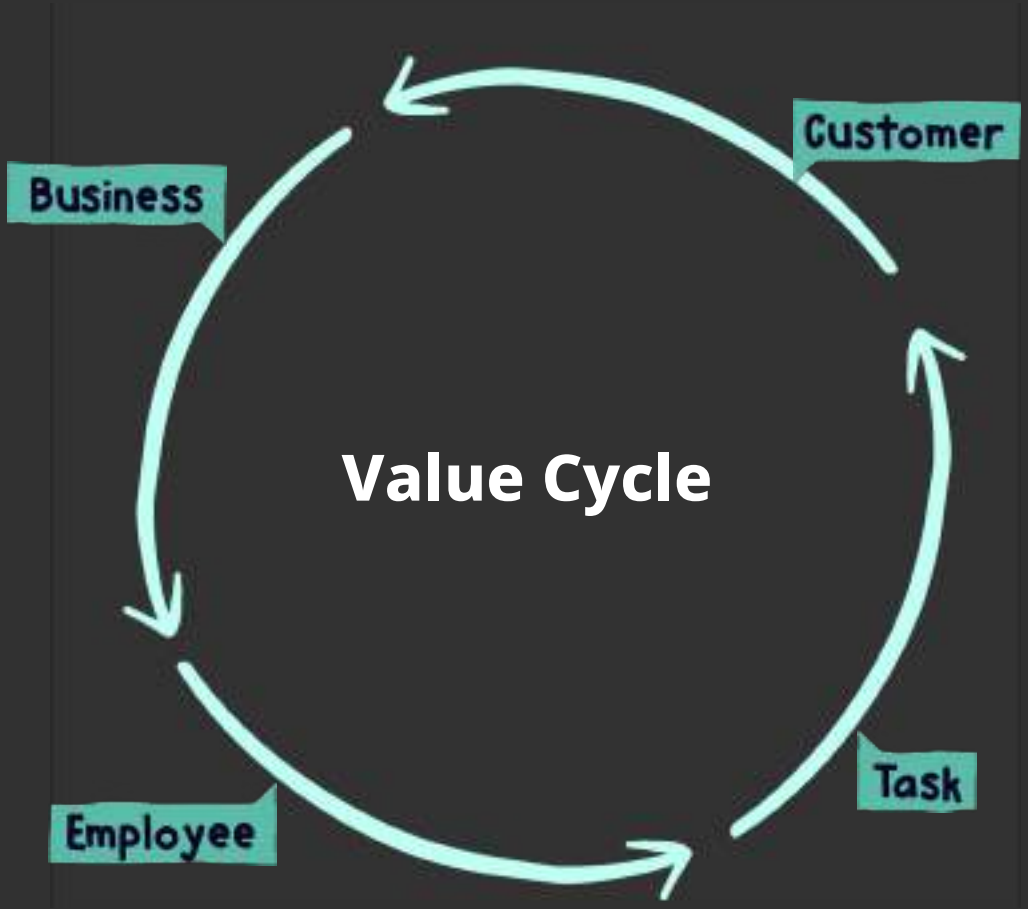
Value Cycle

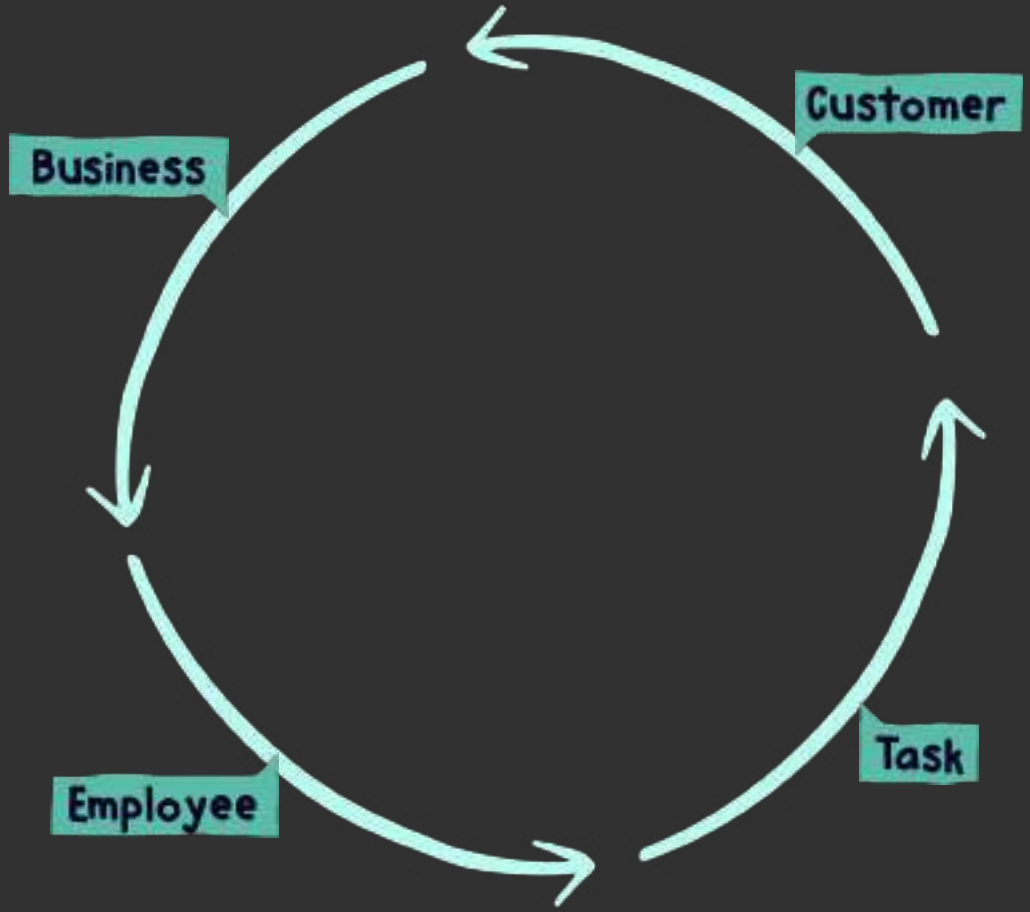


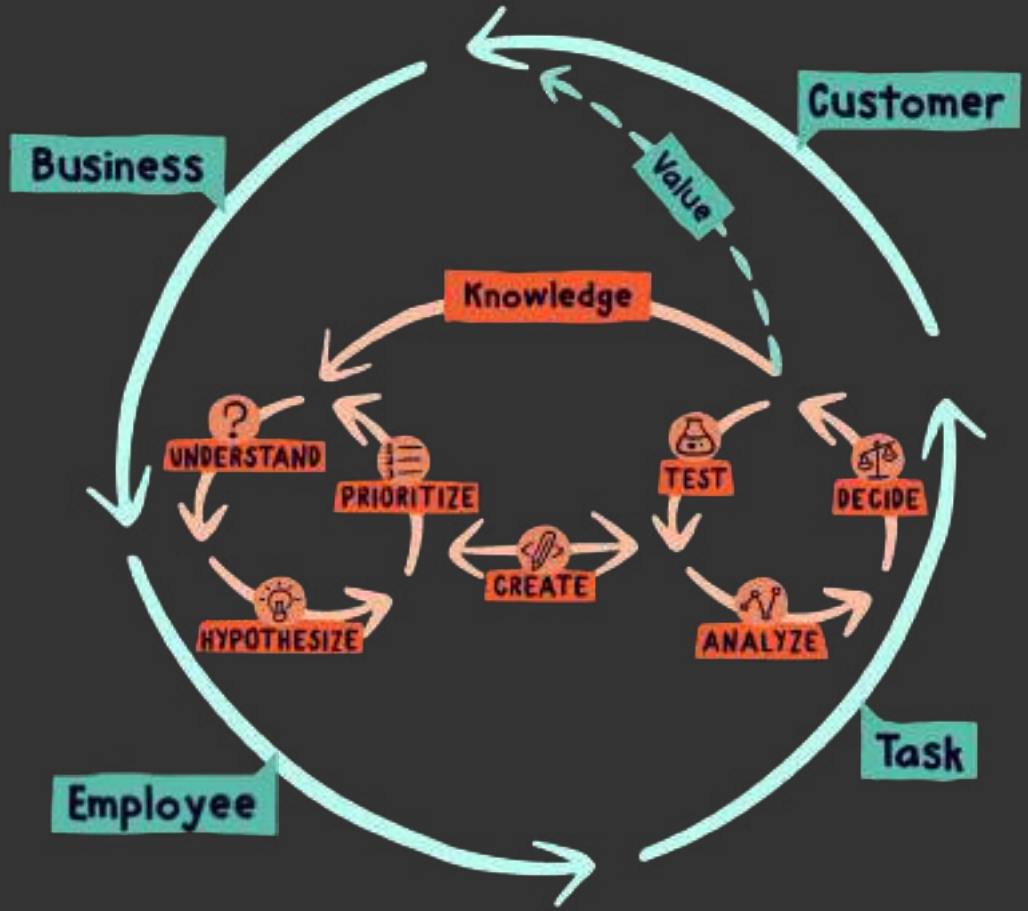
Value Cycle

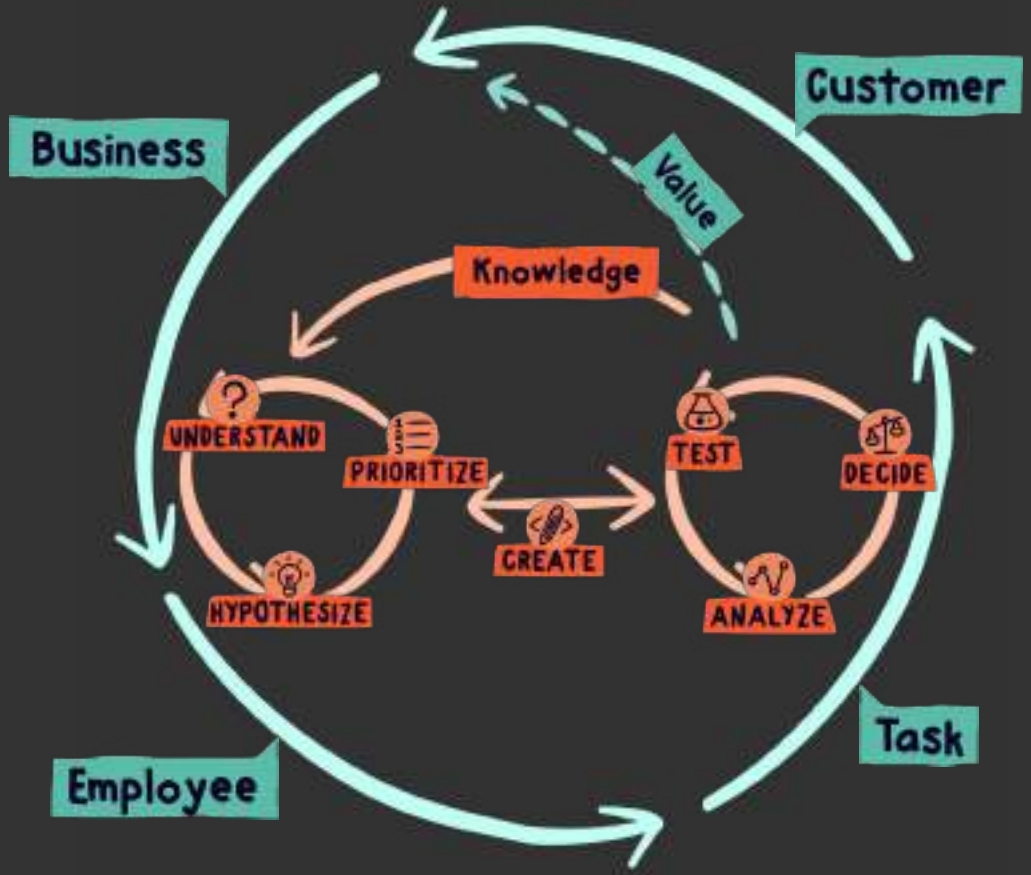

Business
Value Cycle
Task
Employee


Customer
Business
Value Cycle
Task
Employee


Value Cycle
Customer
Task
Employee
Business


Customer
Business
Employee
Task


Business
Customer
Value
Knowledge
UNDERSTAND
PRIORITIZE
TEST
DECIDE
CREATE
HYPOTHESIZE
ANALYZE
Employee
Task


Customer
Business
Value
Knowledge
UNDERSTAND
PRIORITIZE
TEST
DECIDE
CREATE
HYPOTHESIZE
ANALYZE
Task
Employee

We'll cover

- ~~What Conversion Design is~~
- ~~The Conversion Design process~~
- How it drives growth

Research strategy

Research strategy

Research strategy

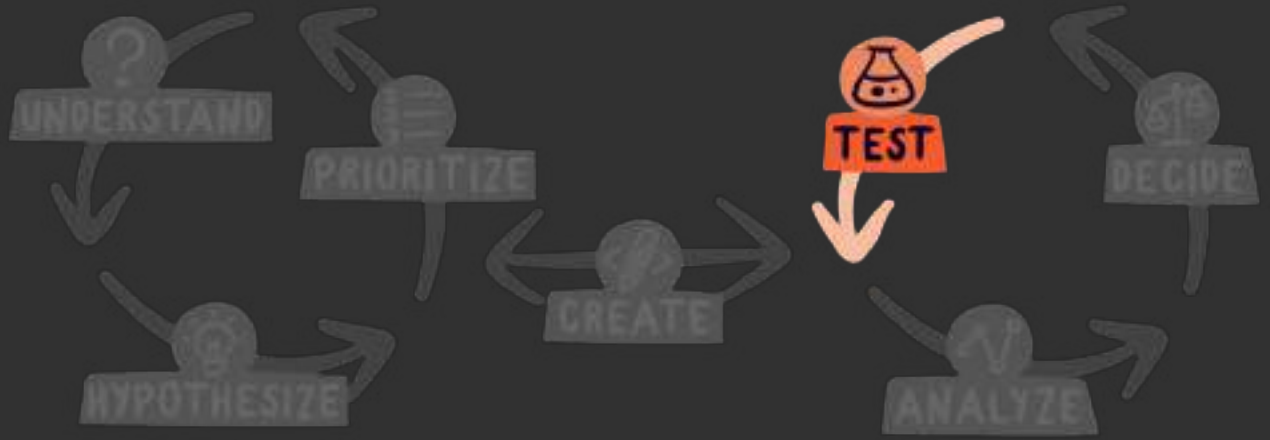
Research strategy

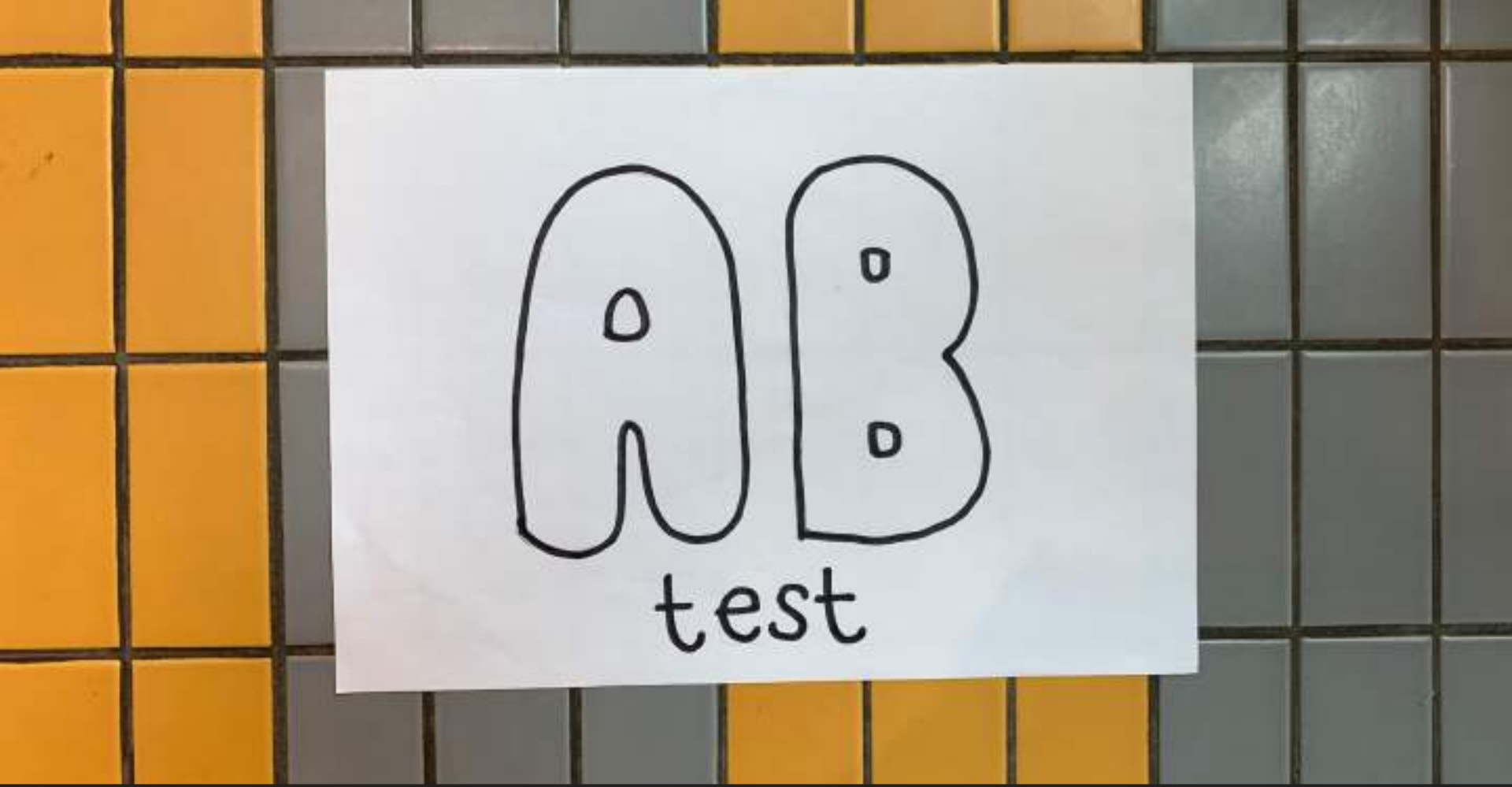
Research strategy

Research strategy

Research strategy

Conversion design process




AB
test

Hierarchy of evidence

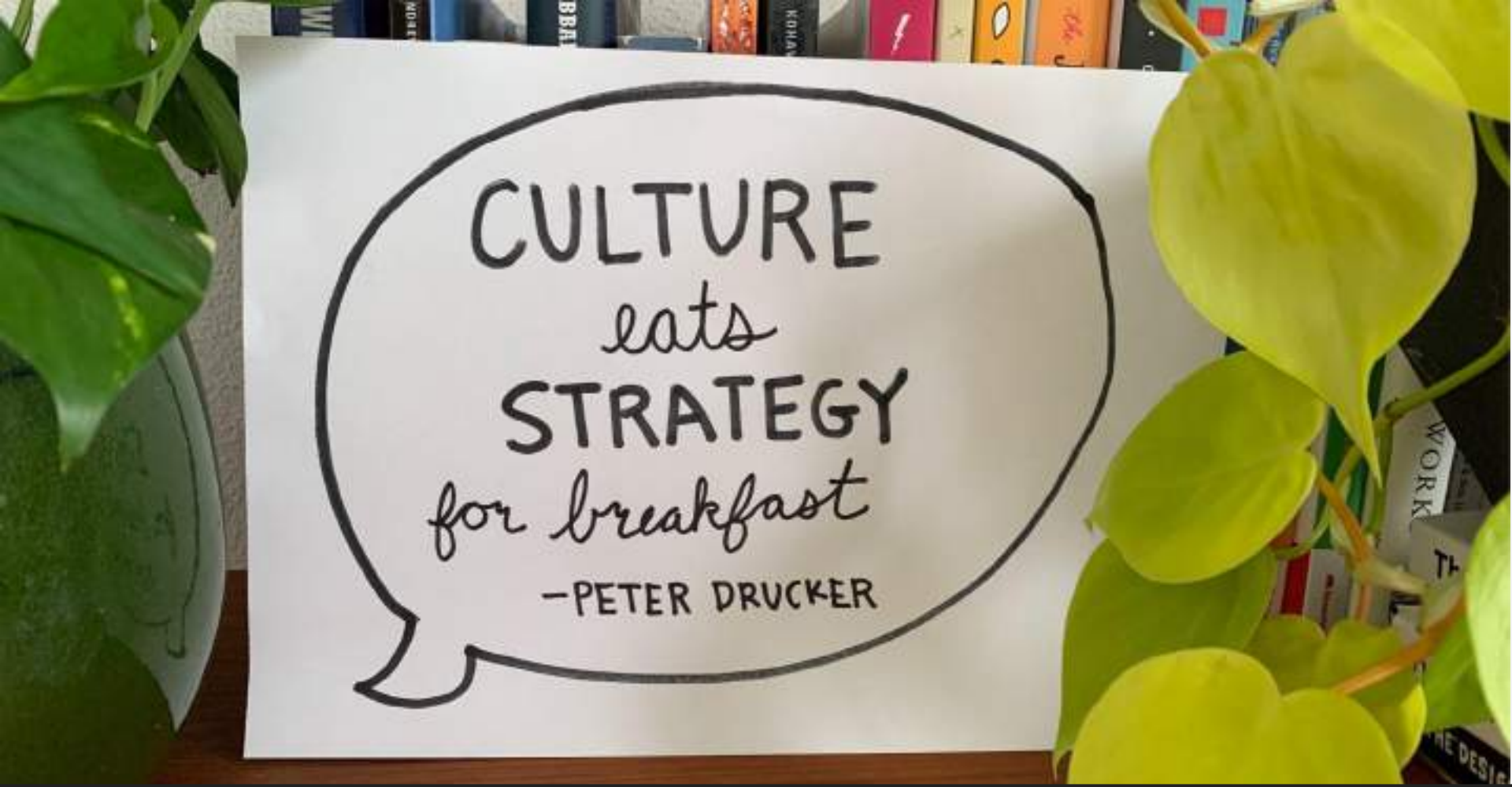
Hierarchy of evidence

Hierarchy of evidence

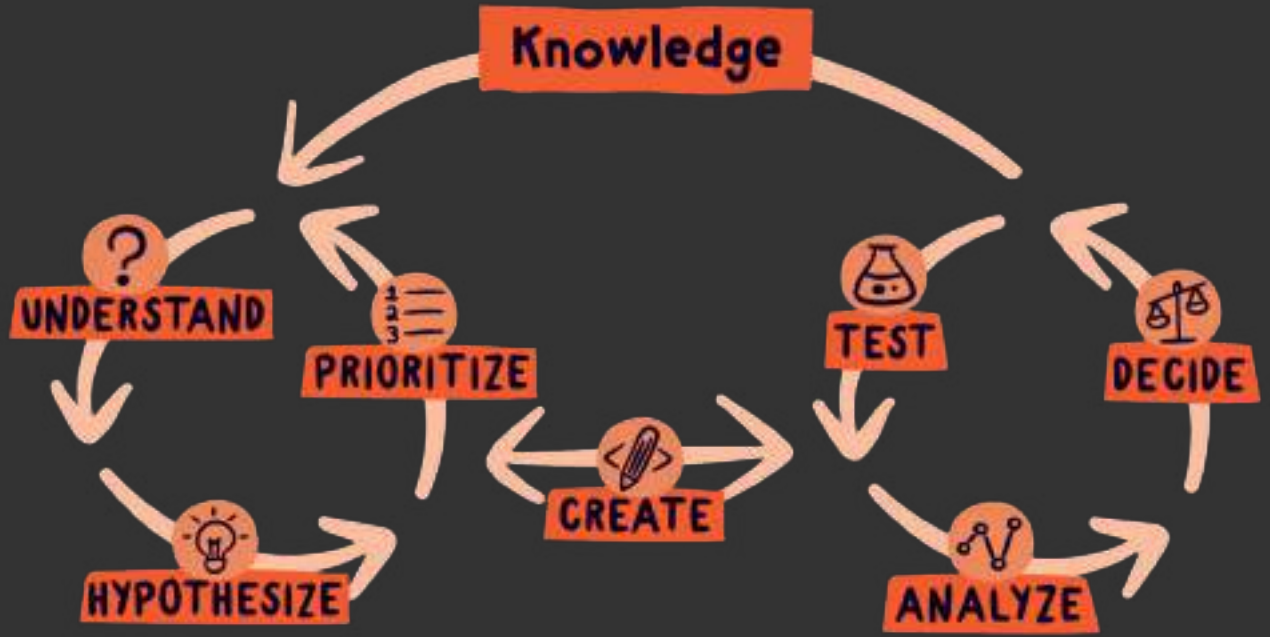
Hierarchy of evidence

Value
Systematic Review
Randomized Controlled Experiment
Observational Study
Expert Opinion
RELIABILITY
AVAILABILITY

Good experimental design


CULTURE
eats
STRATEGY
for breakfast
-PETER DRUCKER

Conversion design process



amazon

amazon

Google

amazon

Google

Booking.com

amazon

Google

Booking.com

Meta

amazon

Google

Booking.com

Meta

Microsoft

amazon

Google

Booking.com

Meta

Microsoft

Uber

amazon

Google

Booking.com

Meta

Microsoft

Uber

airbnb

amazon

Google

Booking.com

Meta

Microsoft

Uber

airbnb

NETFLIX

Our success at Amazon

“

Our success at Amazon is a function of how many **experiments**

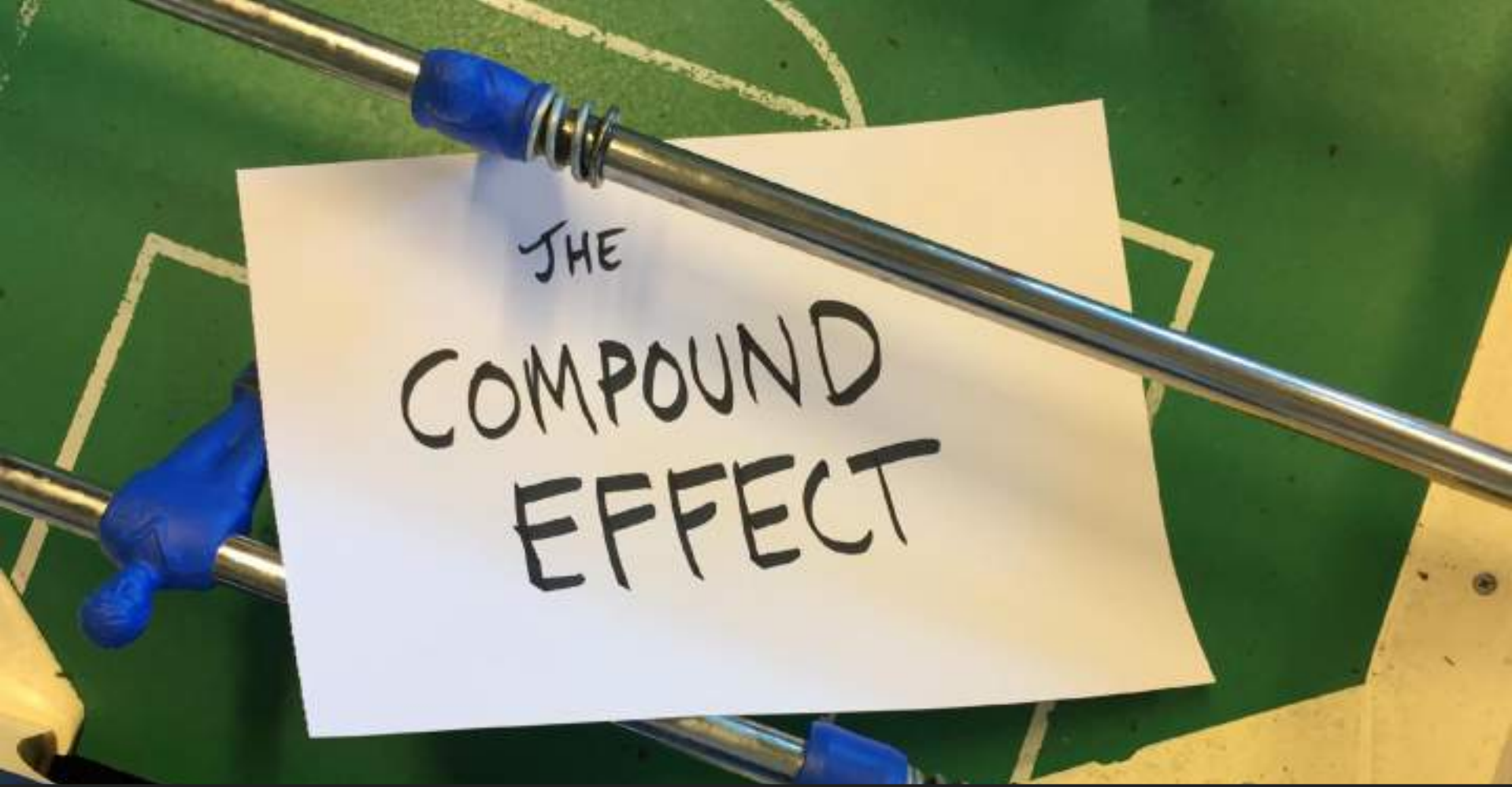
“

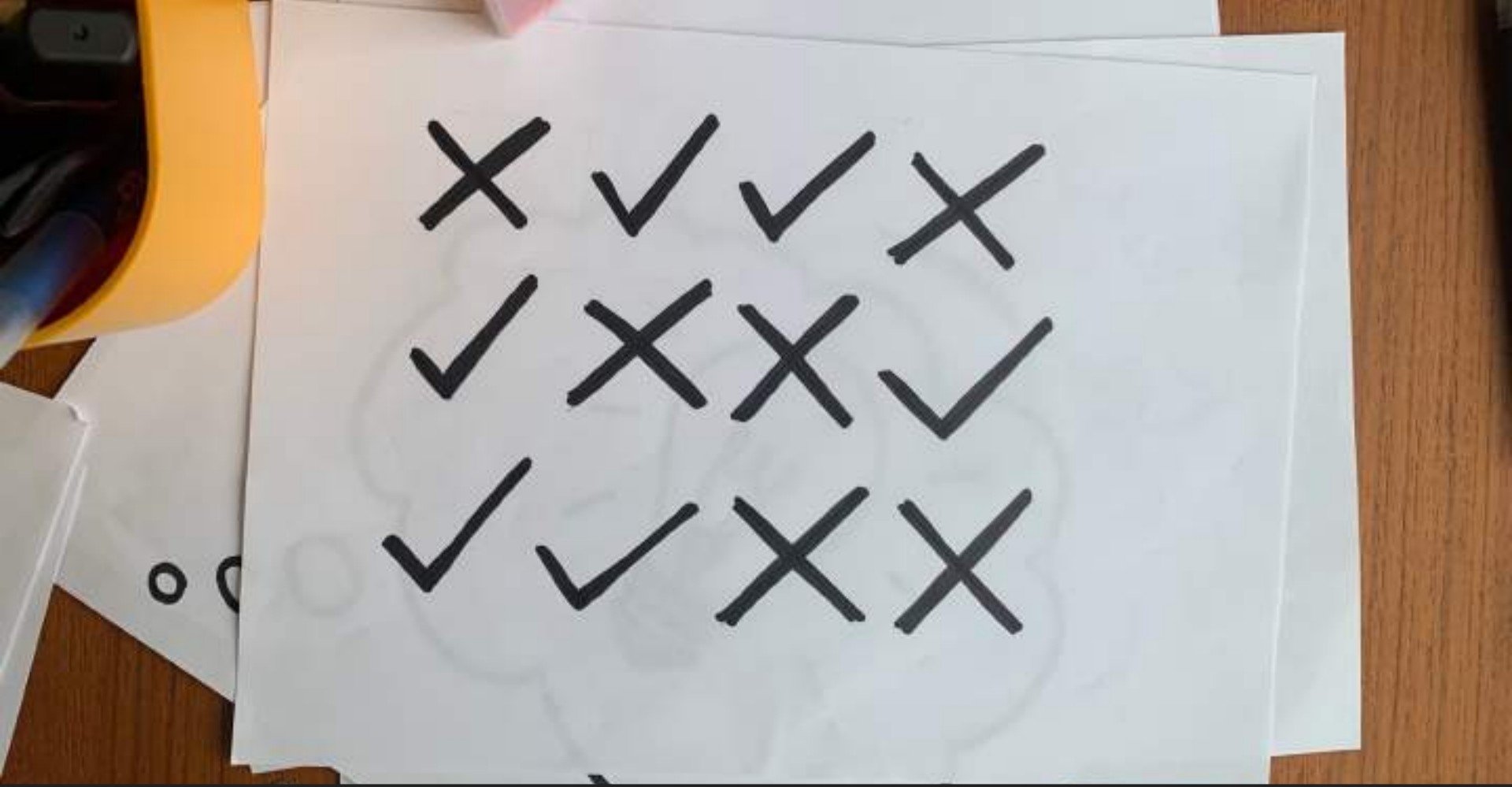
Our success at Amazon is a function of how many **experiments** we do per year, per month, per week, per day.

“

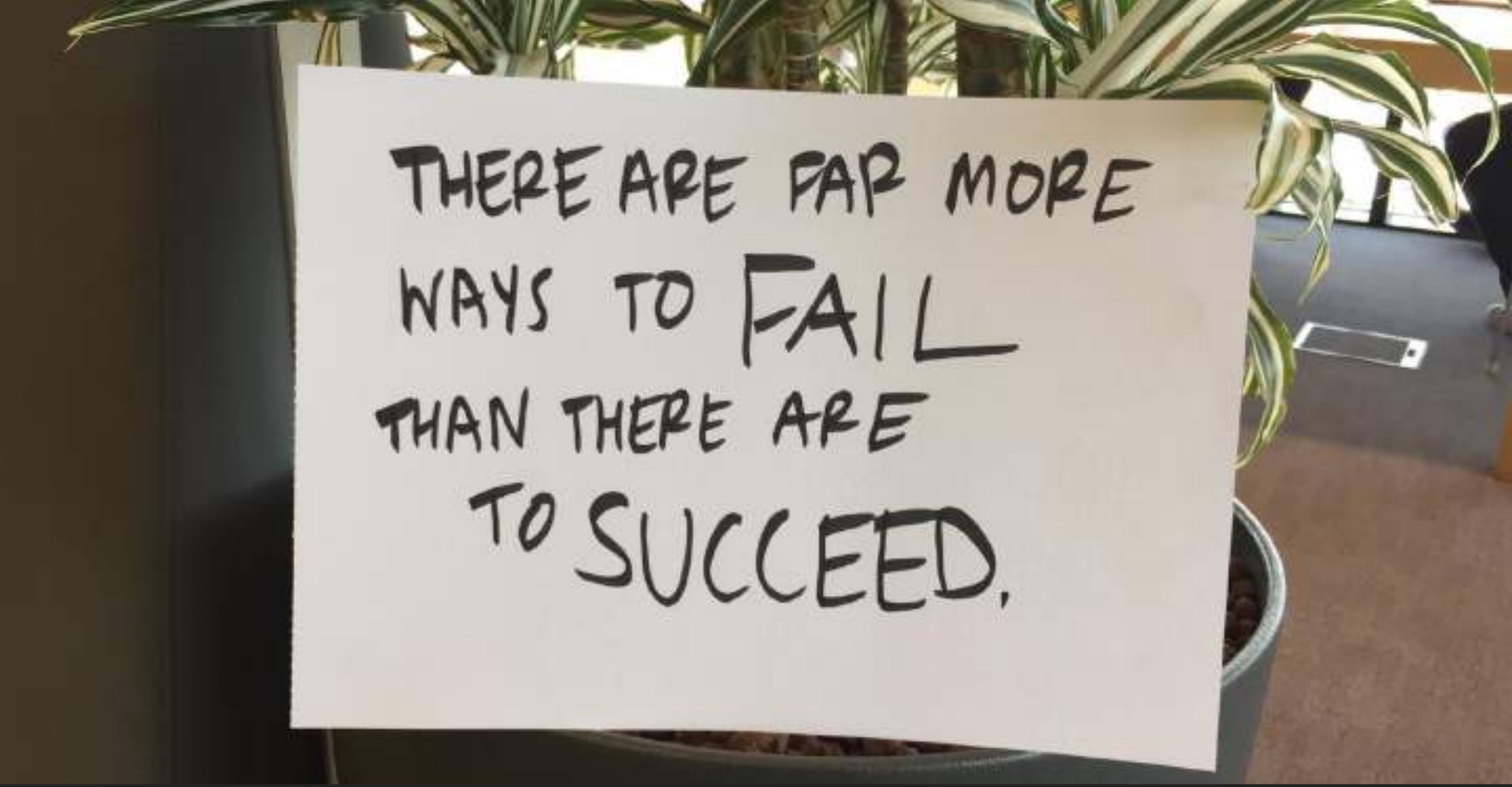
Our success at Amazon is a function of how many **experiments** we do per year, per month, per week, per day.

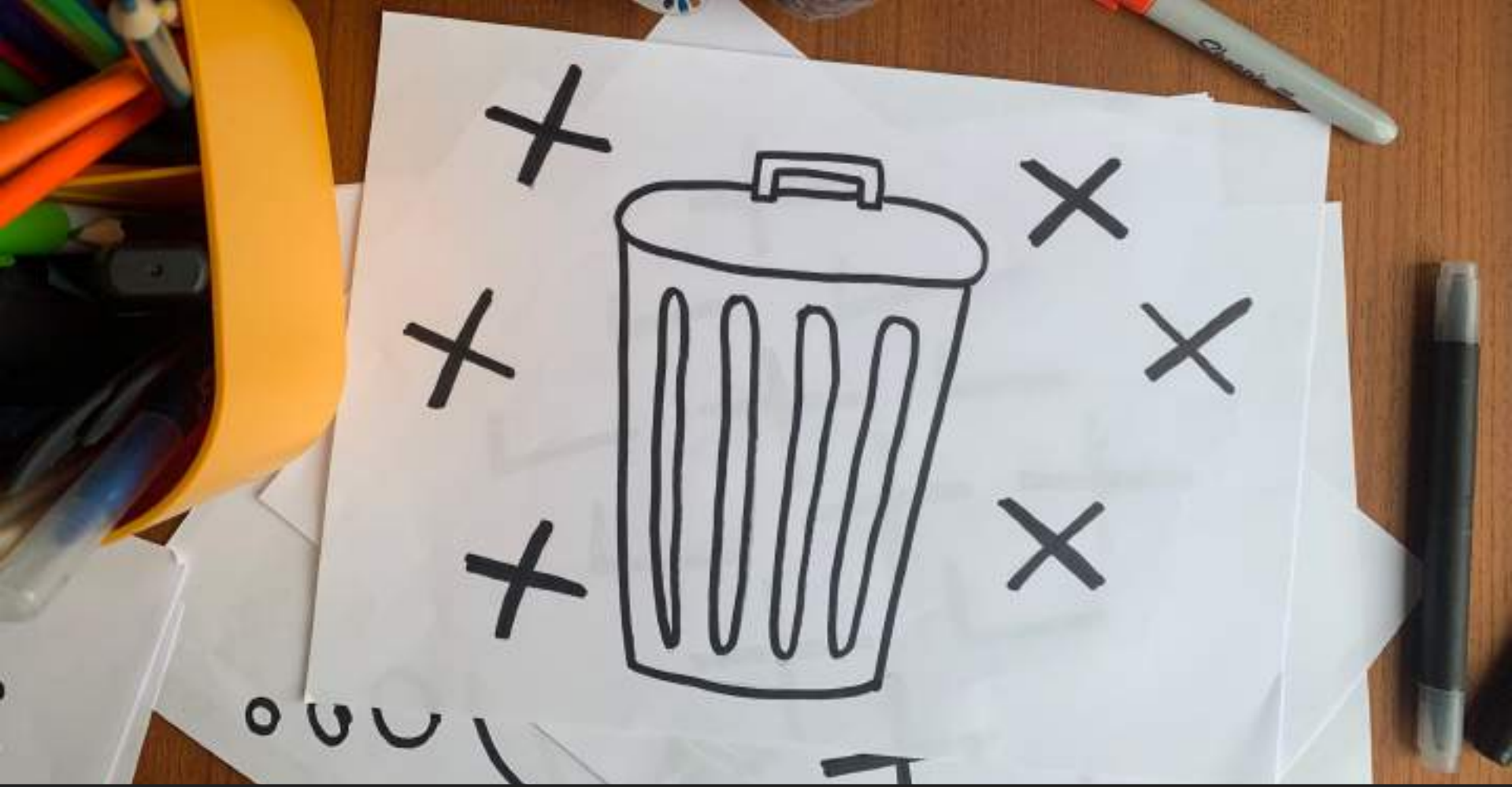
– Jeff Bezos

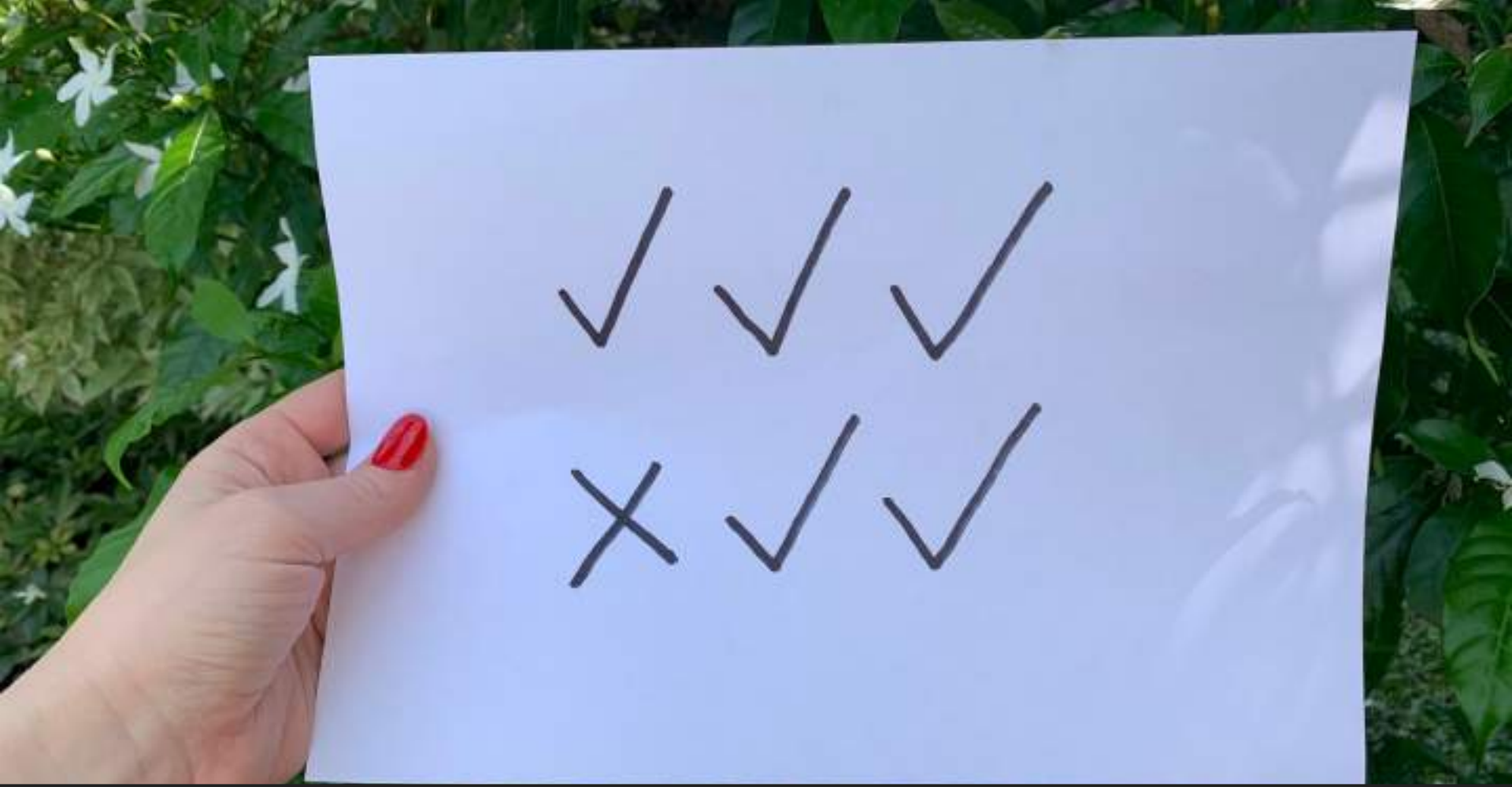

THE
COMPOUND
EFFECT

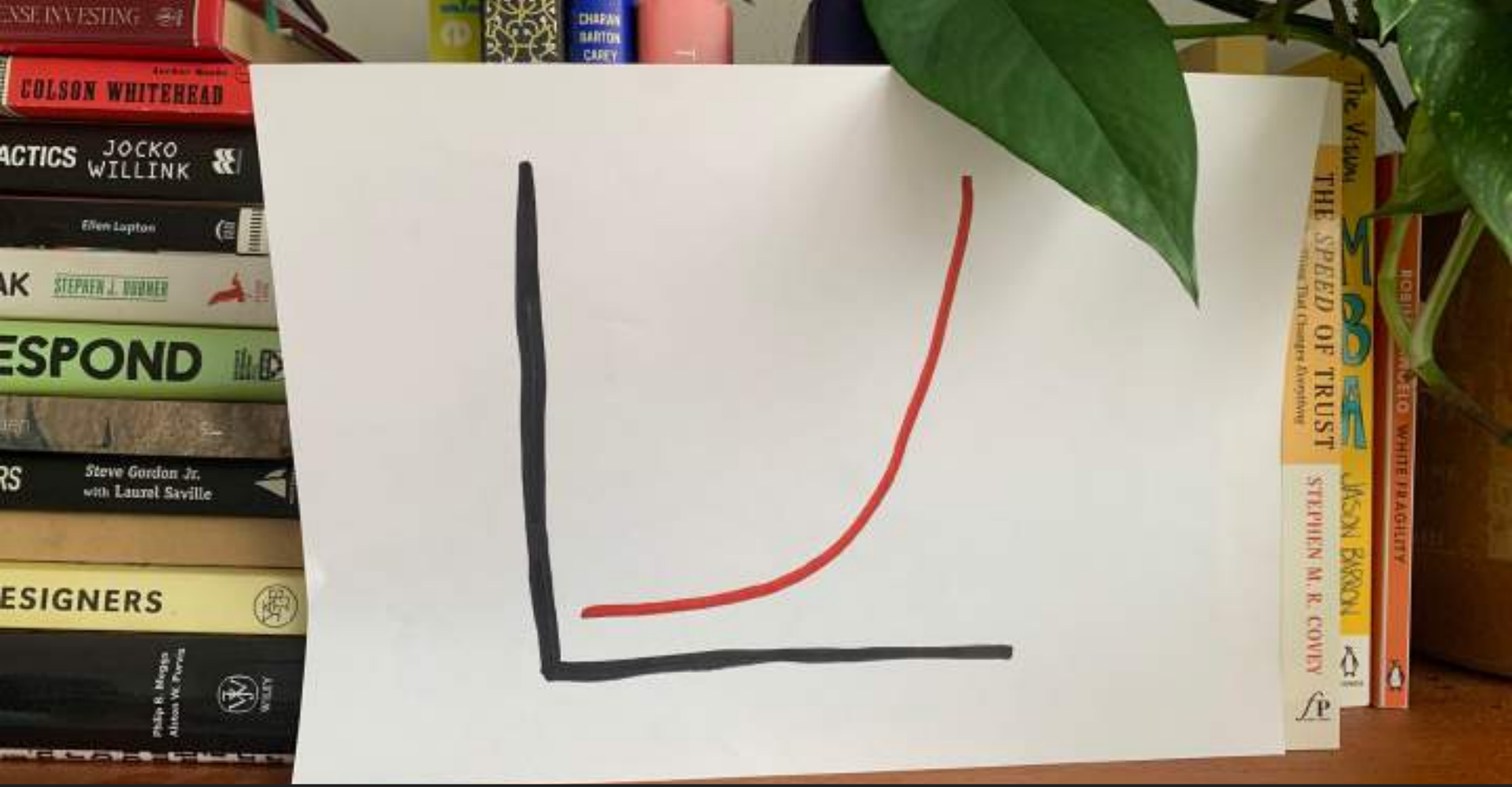


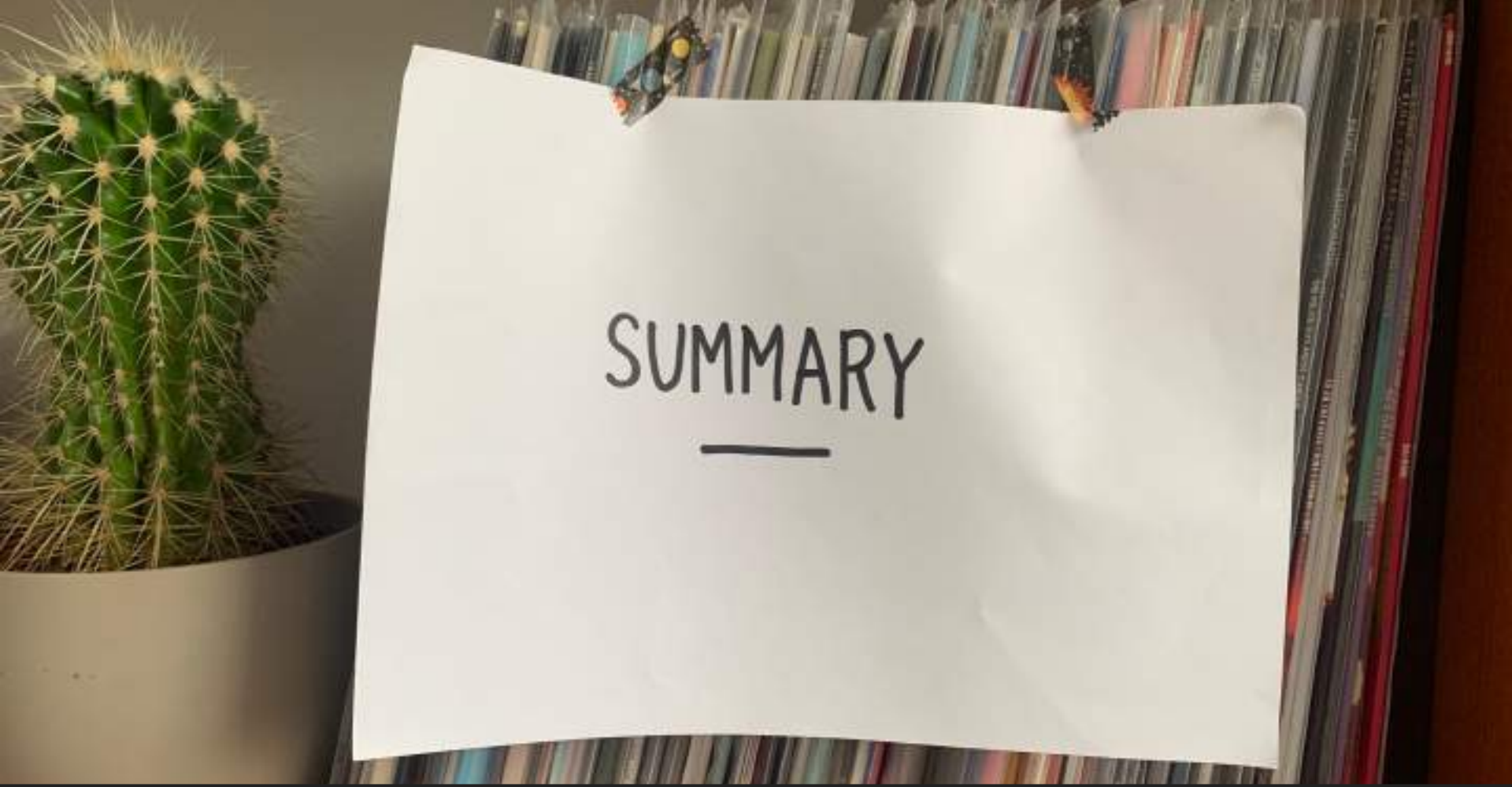
DARREN HARDY


THERE ARE FAR MORE
WAYS TO FAIL
THAN THERE ARE
TO SUCCEED.

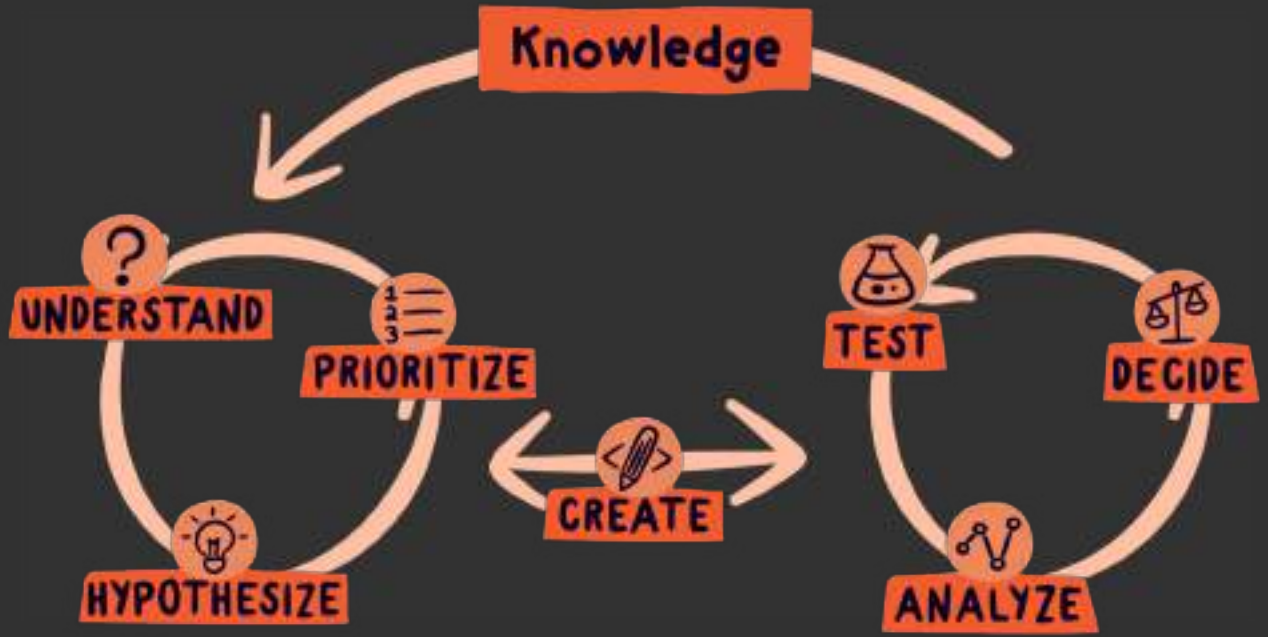




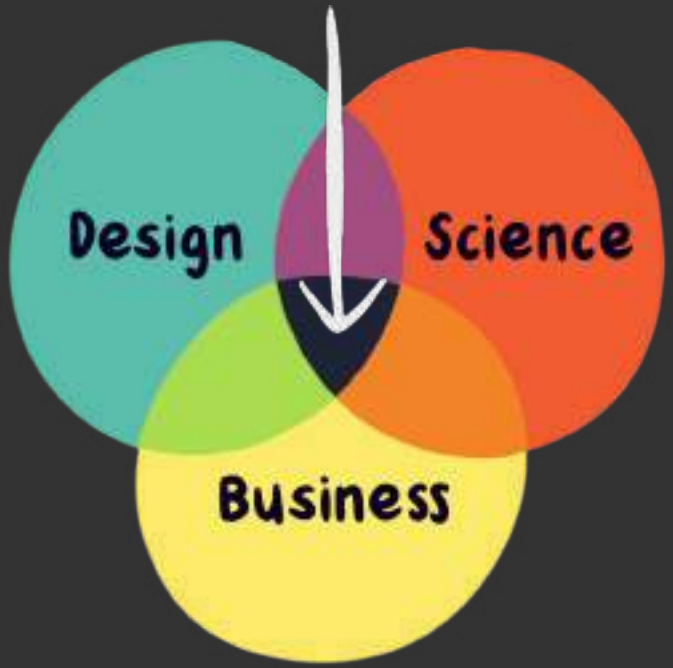

COLSON WHITEHEAD
JOCKO WILLINK
Ellen Lupton
STEPHEN J. DUBNER
ESPOND
Steve Gordon Jr.
with Laurel Saville
ESIGNERS
Philip R. Meggs
Alston W. Purvis
WILEY
CHARAN
BARTON
CAREY
THE SPEED OF TRUST
STEPHEN M. R. COVEY
JASON BARON
ROBIN DIANGELO WHITE FRAGILITY


SUMMARY

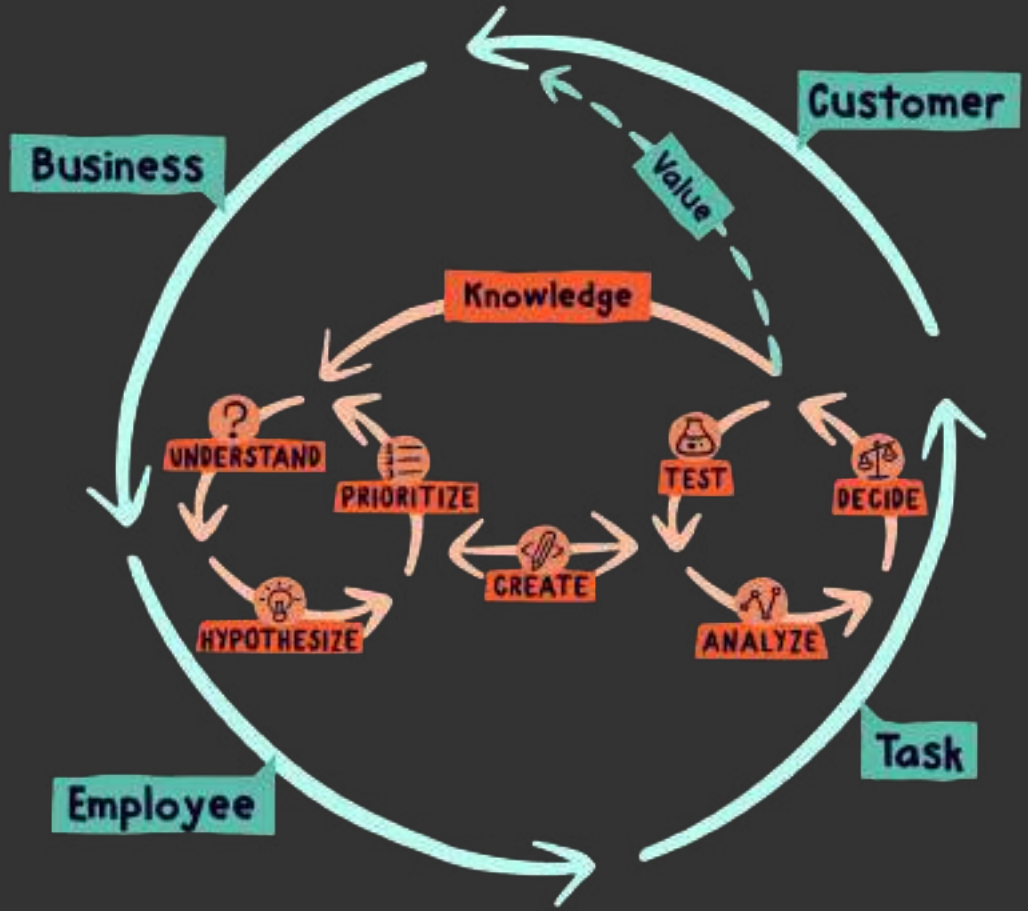
Conversion design process



Conversion design



Value
Systematic Review
Randomized Controlled Experiment
Observational Study
Expert Opinion
RELIABILITY
AVAILABILITY


Business
Customer
Value
Knowledge
UNDERSTAND
PRIORITIZE
TEST
DECIDE
CREATE
HYPOTHESIZE
ANALYZE
Employee
Task

HYPOTHESIS

Design Like You're Right

Baseline State The current state is... [description of how].

Research Insight Based on... [research], [observation], or [evidence].

Variant We believe that... [description of testable idea].

Problem Statement This is a [problem or opportunity] because... [connection about the value it can create]

Prediction If, we [proposed change] to [independent variable (ies)] then [expected impact] on [dependent variable(s)]

VALIDATE

Test Like You're Wrong

Null Hypothesis Statistic The change is tested against the current state. The concept but is that the change has no effect.

However, if the effect outlined in Section 2 is observed, we will...

- change our minds.
- reject the current state and
- adopt the change as the new current state.

Otherwise, we will reject the change and keep things in their current state.

Metrics & Math This test is designed to find an impact on...

[_____] goal metric or s...
[____]% minimum detectable effect or s...
[____]% significance level and a...
[____]% statistical power after...
[_____] visitors, and...
[_____] over time.

Test Type ○ Superiority (Make things better.) ○ Non-Inferiority (Don't make things worse.)

CREATE

Make With Care

Assumptions In this experiment, we assumed... [most consequent that guided the implementation].

DECIDE

Do What's Right

Stakeholder Benefits This will be good for [stakeholder] because...
This will be good for [stakeholder] because...
This will be good for [stakeholder] because...

Drivers & Guardrails We anticipate a [insert positive or negative change] effect on [driver metric].

We will not implement this change if it has [insert positive or negative change(s)] impact on [most guarded metric(s)].

Ethics I, [your name], stand behind the ethics of this t... and I confirm that it is not

- misleading
- discriminatory
- manipulative

I understand that even if something is not illegal... can still be unethical. I am aware of biases that c... influence my decisions, and I take ownership of t... thinking and intent behind this experiment.

Sign Here

CHECKLIST

When Good Ideas Fail

A non-exhaustive checklist to triage failed experiments.

DESIGN & EXPERIENCE

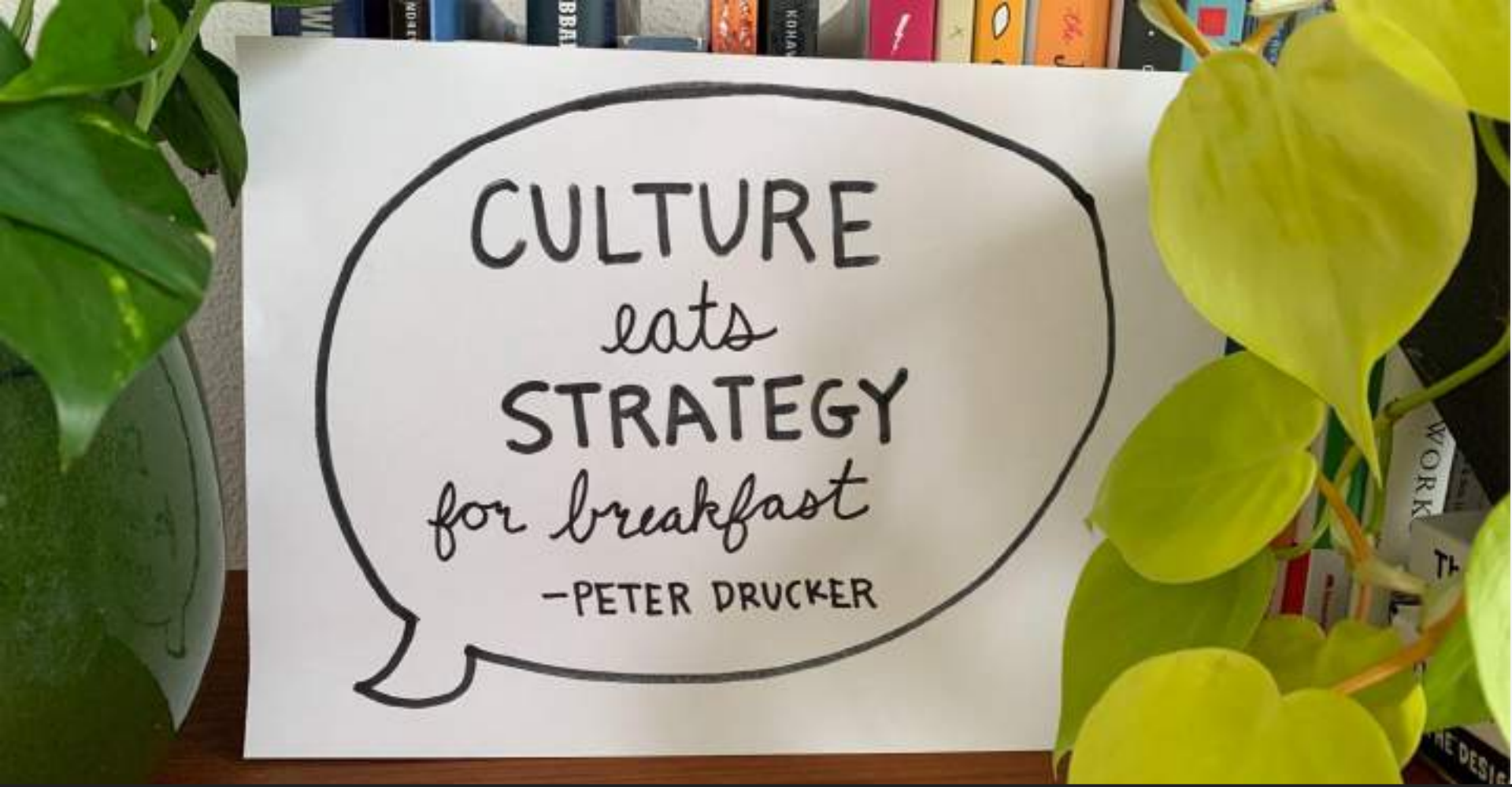
- ☐ Color contrast ratios
- ☐ Screen reader navigation
- ☐ Keyboard-only navigation
- ☐ Typography & legibility
- ☐ Color usage
- ☐ Information architecture
- ☐ Visual hierarchy
- ☐ Proximity & UI placement
- ☐ Content reading level
- ☐ Content scannability
- ☐ Form/data accuracy
- ☐ Affordances & interactions
- ☐ Framing & motivation
- ☐ Amount of content on device

ENGINEERING & TECH

- ☐ Sample code mismatch (AB/B)
- ☐ Page load time (/ms)
- ☐ Time to interactive (/TTI for apps)
- ☐ Errors & warnings
- ☐ Validation performance
- ☐ Loading time
- ☐ Load error
- ☐ Layout shift/re-flickers
- ☐ Algorithm quality & training data

AUDIENCE & CONTEXT

- ☐ Language
- ☐ Country
- ☐ Currency
- ☐ Payment (or lack)
- ☐ Size type (new vs. returning)
- ☐ Audience/persona mismatch (signed in/out)
- ☐ Network speed
- ☐ Device type & screen size
- ☐ Browser type
- ☐ Improving system versions
- ☐ Habitual preferences
- ☐ Purchasing motivation & objectives
- ☐ Profile creator (direct, PPC, social)


CULTURE
eats
STRATEGY
for breakfast
-PETER DRUCKER

Make things
Better!
NOT JUST DIFFERENT

The End.
thank you!

ErinDoesThings.com

Book ships within the EU

Go to RosenfeldMedia.com for global shipping.