

# Experiment-Driven Product Development

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**SPRINGER NATURE**

**How do you know if you're building  
the right thing?**

You don't. Until much later.

# How do you avoid making the wrong decisions?

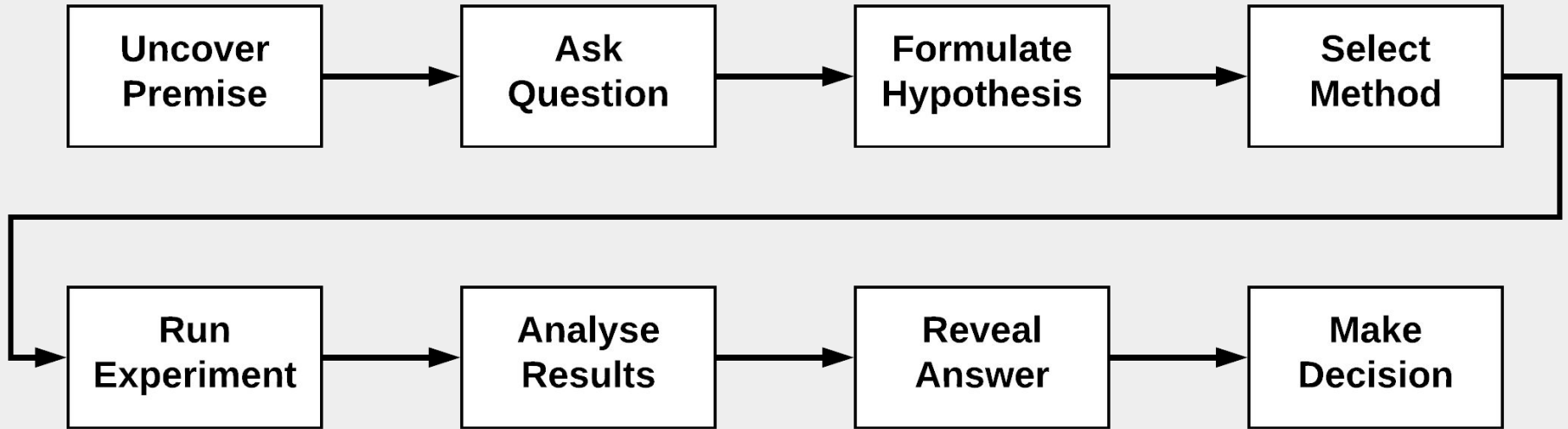
You can't.

# How do you minimise the time and effort spent on the wrong things?

Experiment-Driven Product Development (XDPD).

# What is Experiment-Driven Product Development?

**An evolution of agile/lean product development that places the emphasis on *questions* rather than *solutions*.**



**What do I mean by an experiment?**



**Experiment != A/B test**

**Experiments are not just for R&D  
'innovation' teams**

**Experiments are a structured way of asking questions.**

- What are we trying to **discover**?
- **Why** is it important for us to find this out?
- What are we going **to do**?
- What **change or difference** are we expecting to see?
- How will we **measure** the result?
- How **precise** do we need the result to be?
- How **certain** do we need to be?

**This is not easy.**

**Detailed roadmaps**

**Guaranteed successes**

**No wasted effort**

~~Detailed roadmaps~~

~~Guaranteed successes~~

~~No wasted effort~~

**So why on Earth should I use this approach?**



# Focus on results.

**Stop obsessing  
over pet solutions.**

**Listen to your  
users - at scale.**

# Data\* as a stakeholder.

\* specifically 'user activity' data

**Challenge your  
assumptions.**

**Reduces the cost  
of failure.**

**Evidence over  
opinions.**

**We are scientists  
for product  
development.**



**Observe.**

**Hypothesise.**

**Experiment.**

**Analyse.**

*(repeat to fade)*

# Principles of XDPD

**Involve the whole  
team, not just data  
scientists.**

**Data *informed*, not  
data driven.**

**Simplest  
Useful  
Thing**

# Simplest Useful Thing

## Product/User POV:

- Simple = easy to use
- Useful = fulfils a need

# Simplest Useful Thing

## Developer's POV:

- What can we do with what we have available to us, now?
- What's the simplest thing we could build in order to test our hypothesis/answer our question?

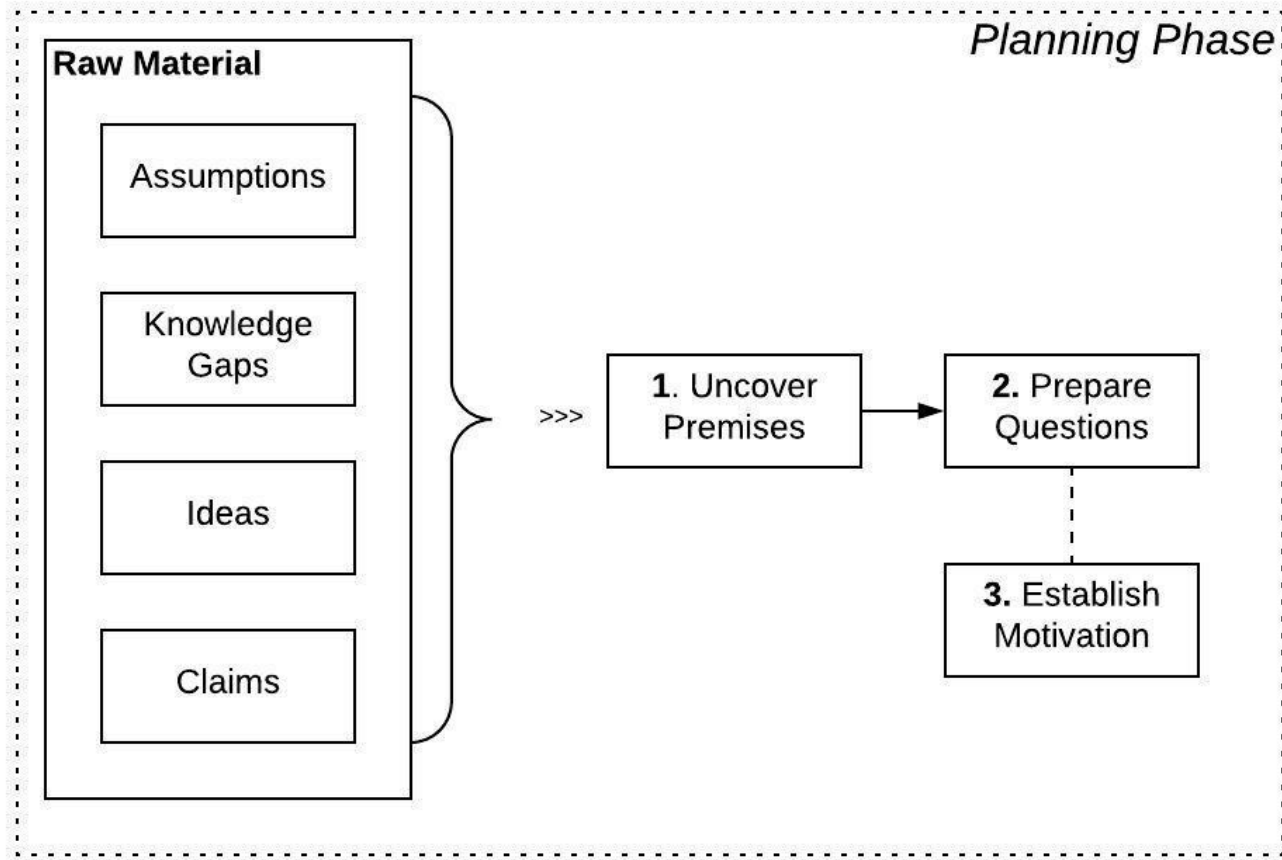
# Simplest Useful Thing

## Experiment POV:

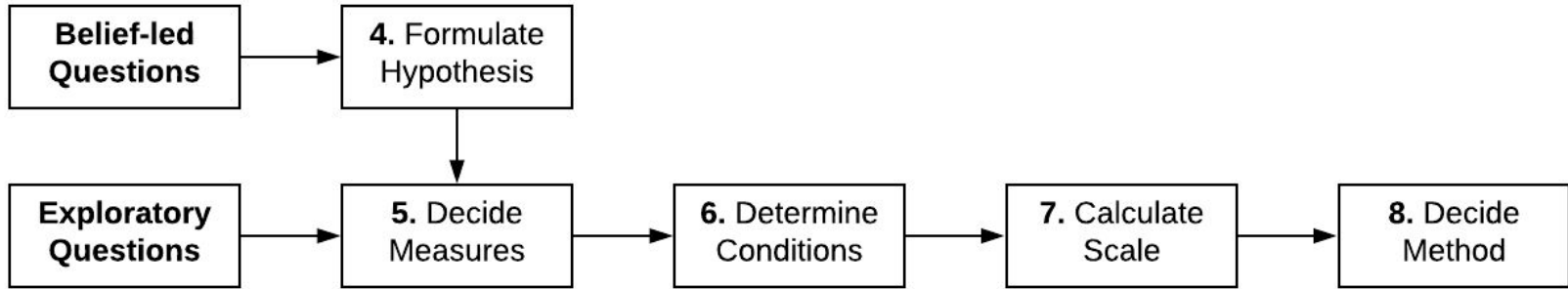
- What's the simplest method we could use, in order to learn?
- What's the lowest cost way to learn, that would still ensure reliable evidence?

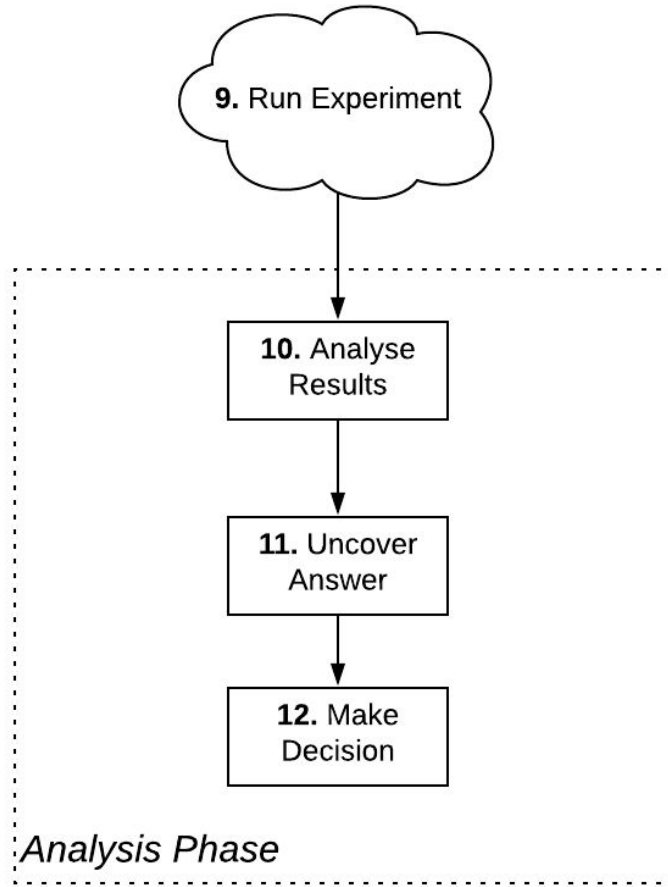


# Experiment-driven product development in practice



*Design Phase*





**Don't validate ideas.**

**Test hypotheses.**

**Design the experiment scale and conditions *before* choosing a method.**

**How certain & how precise do you need to be?**

**NO PEEKING!**

# <Experiment name>

## Background

**Question:** <What do we want to know?>

**Why:** <Details of the question & background information>

**What:** <What are we going to do e.g. A/B test, UX research, Data analysis>

**Hypothesis:** <What are we going to do? What change are we expecting to see? How will we measure success?>

**Headline result:** <What have we learned?>

## Experiment details

### Measures

- <Measure, including current rate if applicable>

### Conditions

- A. <A condition - new behaviour>
- B. <B condition - existing behaviour>

### Details

- <What is our Minimum Detectable Effect threshold? (e.g. 1%)>
- <How big a sample does each condition need?>
- <Therefore, how long will we run the experiment at a minimum? E.g. 24 hours>
- <What subset of the data will we use? E.g. config.nnn>
- <Event name/filters>



# Email first on popup experiment

## Background

**Question:** Can we drive more email sign ups by moving the sign up card to the front of the popup?

**Why:** Only ~2% of users that see recommendations see the email sign up card on the popup. We think showing the card earlier would increase sign ups.

**What:** A/B experiment.

**Hypothesis:** Showing the sign up card at the start of the popup (before recommendations) will lead to more email sign ups than having the card at the back, but the verification rate will not change significantly.

## Experiment details

### Measures

- Email subscribers
- Email sign up rate (subscribes / no. users seeing card)
- Email verifications
- Close + no thanks rate and CTR (as checks)

### Conditions

- A. Email sign-up last card in popup journey
- B. Email sign up 1st card in popup journey

### Details

- 24 hours\*
- `config.experiment_email_position`

\* 2017-10-05 14:00:00 - 2017-10-06 14:00:00

**Headline result:** Putting email signup card first drives far more signups (and most of these still verify) without leading to a large adverse effect on other metrics, although it does massively reduce the recommendations we display (see full writeup for more details)

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# Latest Articles sliced by Subject

## Background

**Question:** Would showing latest articles, sliced by Subject, be a more useful feature than the traditional 'Browse Articles' box?

**Why:** We want to explore ways that we can usefully slice content, to better show off the range of content within a broad-scope journal

**What:** A/B

**Hypothesis:** Displaying three of the latest articles for each top level subject will lead to a higher CTR to articles than the 'Browse Articles' box

**Headline result:** 5.4% click through to articles, compared to 4.2% with the traditional 'Browse Articles' grid of nine. "See All" for each subject received 10% UCTR, compared to 8% from previous design, and 6.7% for 'See All' for *all* SREP

## Experiment details

### Measures

- Unique pageviews on homepage
- Unique clicks on any article in each subject box
- Unique clicks to any article in 'Browse Articles' box
- Unique pageviews to any SREP article

### Conditions

- A. Users visiting the journal homepage are shown the 'Browse Articles' box and the 'Browse Subjects' box (which just has links to the scoped searches)
- B. Users visiting the journal homepage are shown four subject boxes, each with a set of the three latest articles from that subject, and a link to the scoped search page

### Details

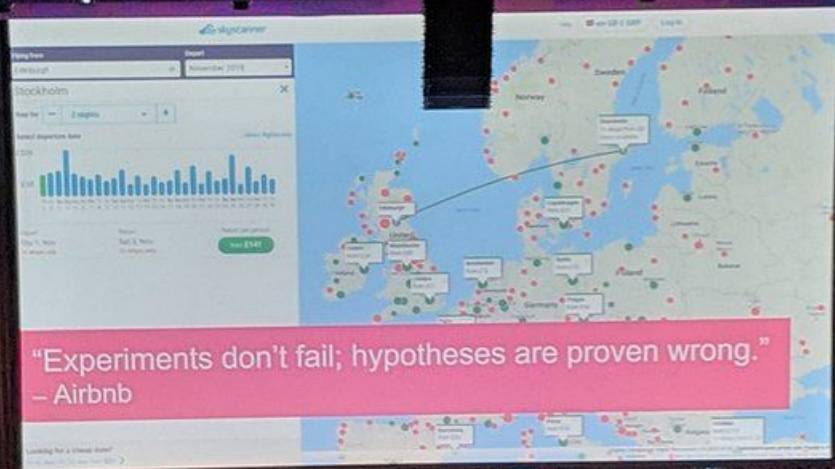
- 18-24th October (7 days)

# What have we learnt?

- *what are the raw numbers?*
- *what happened to the other 'health check' metrics?*
- *what was the significance and p value?*
- *what does this tell us?*
- *what does this mean/imply in relation to our hypothesis/question?*
- *what have we learned? What would we do differently?*
- *how does this affect our backlog of questions?*

**In summary...**

- **Focus on questions not solutions**
- **Challenge your assumptions**
- **Gather evidence**
- **Be data informed, not data driven**
- **Involve the whole team**
- **Use results to inspire new experiments**



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# Experiment-Driven Product Development

How to Use a Data-Informed Approach to Learn, Iterate, and Succeed Faster

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# Thank you.

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