



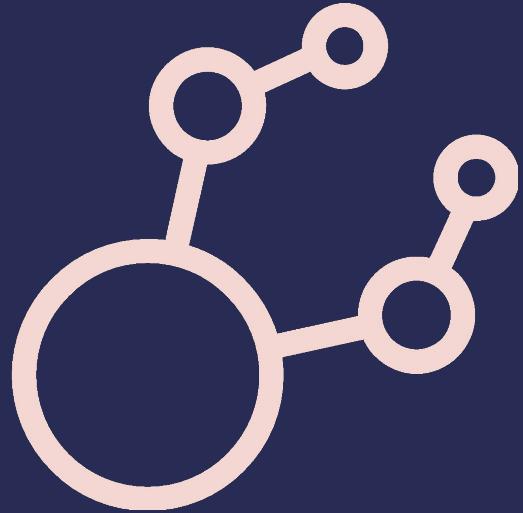
# Scrum and robotics

## What can we learn from Nomagic?

25.10.2021







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# Introduction

# Justyna Gajewska

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My biggest goal

is to find the right fit.

I am looking for candidates

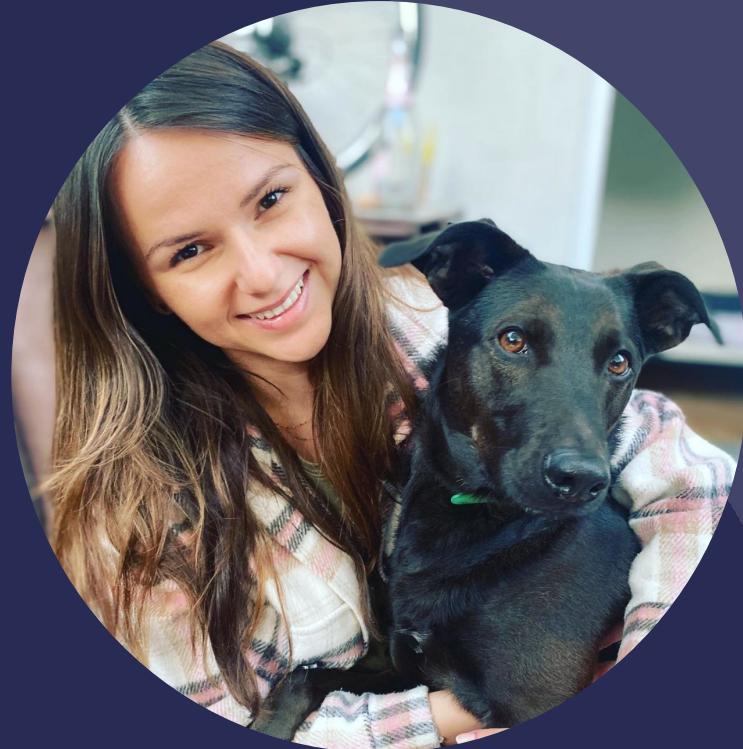
with a grace and a bit of wit.

If you want to catch me

when I am done with my work,

just go to the park.

I'll be there walking with the dog :)



# Joanna Płaskonka

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I love the robots,  
working with people, too!

My secret weapon  
is a crochet hook!

Scrum and Agile are not  
just empty words.

If you're in doubt -  
let's talk afterwards!



**... and why are we here together today?**



**No magic, no coincidence**

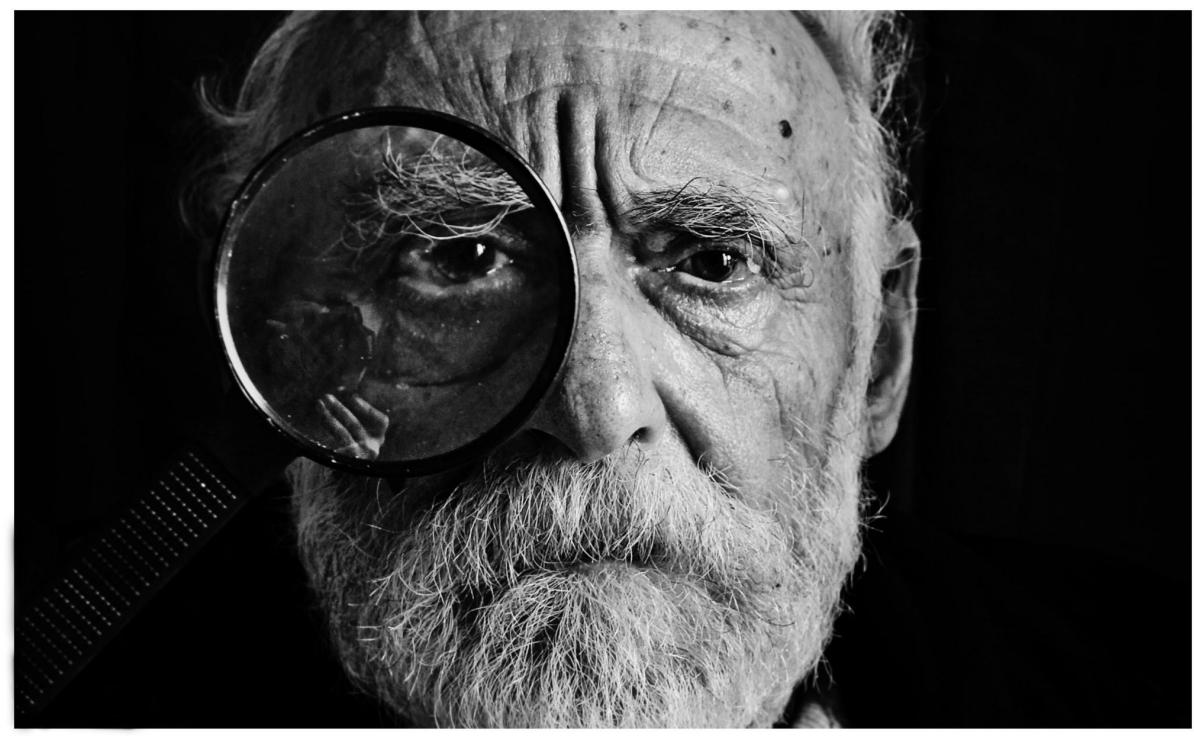
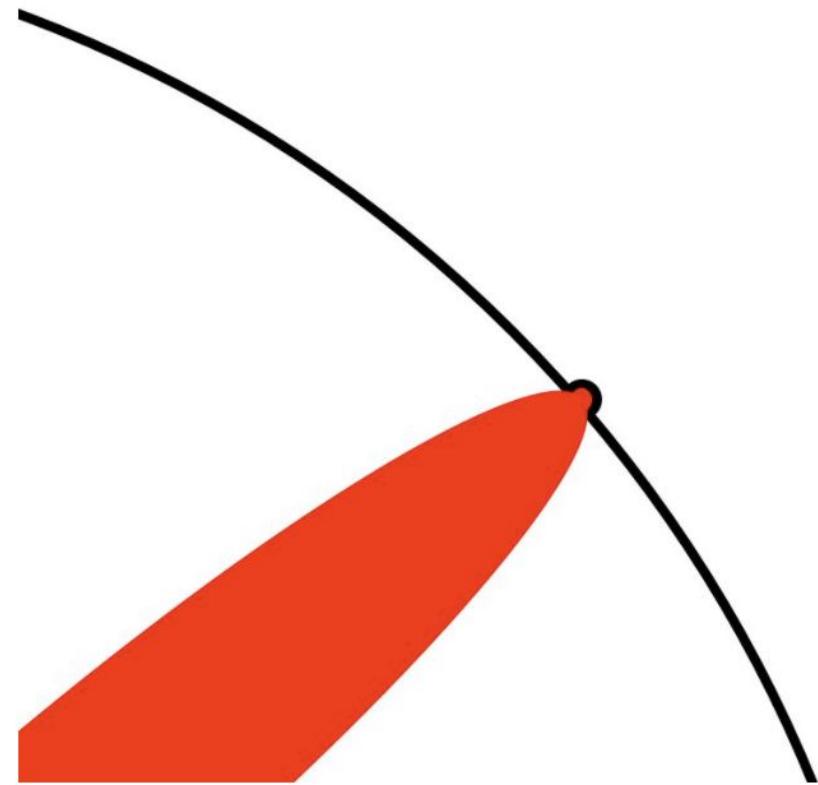
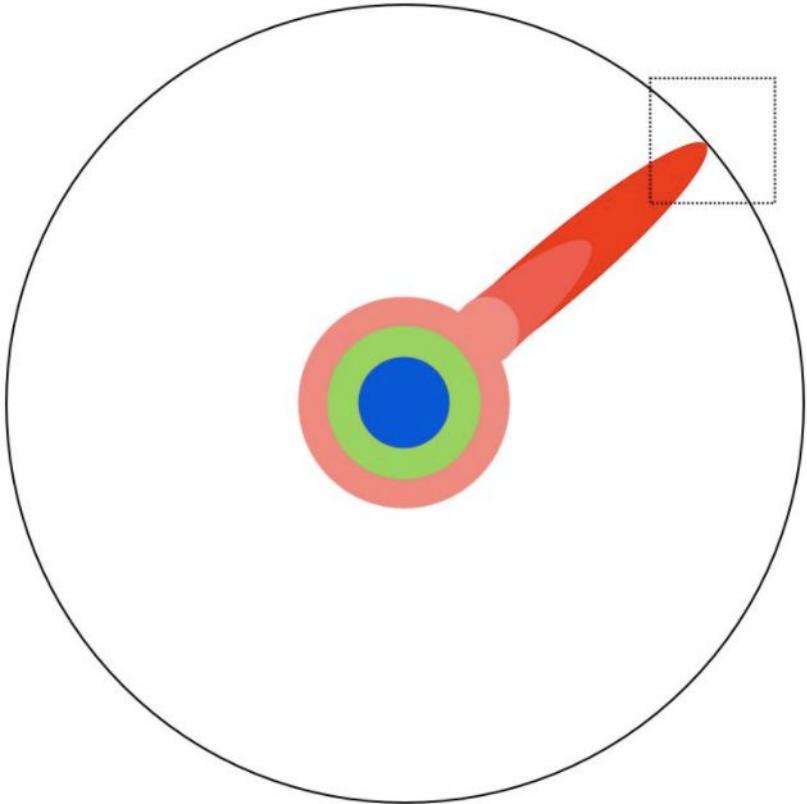


Photo by [mari lezhava](#) on [Unsplash](#)



The Illustrated Guide to a Ph.D., <https://matt.might.net/articles/phd-school-in-pictures/>

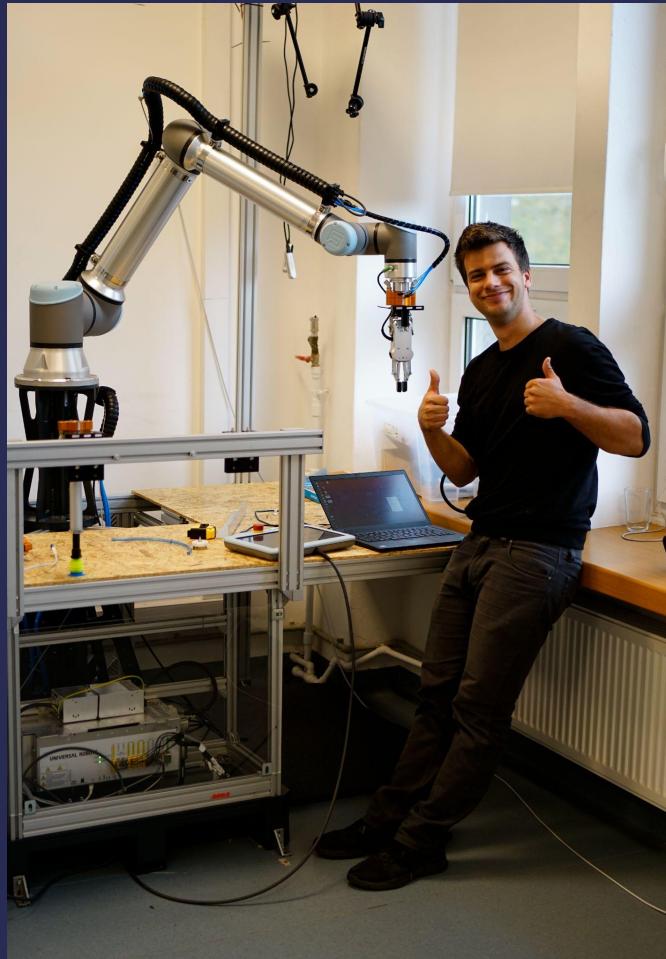
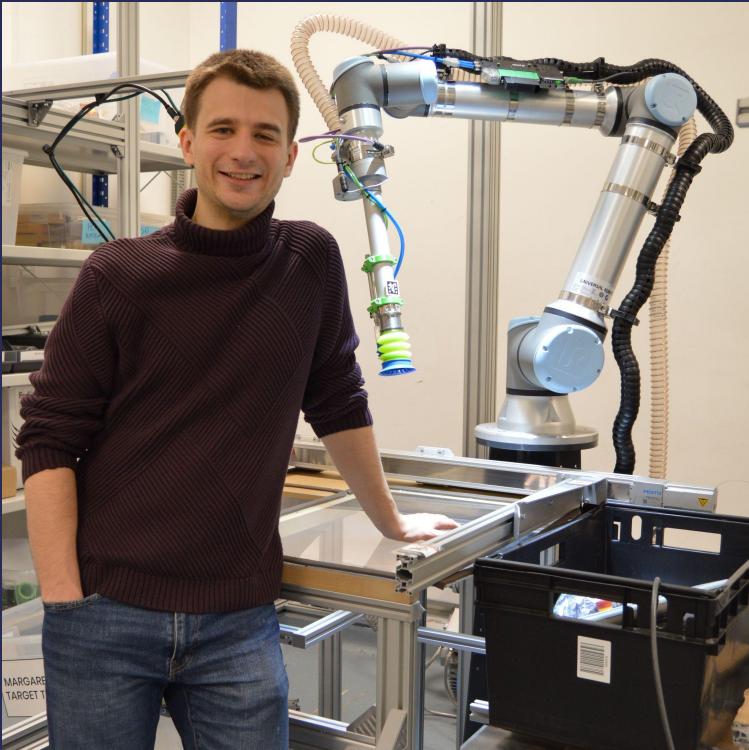
Clarke's third law:

**Any sufficiently advanced technology  
is indistinguishable from magic.**

If no magic, then... what?

# Do you love robots, too?

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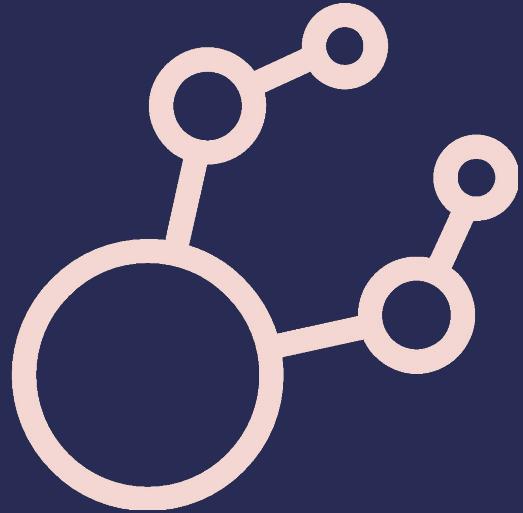
# You can touch me!

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# We also have great people :)





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**Nomagical world**

# Introducing the problem



**Fashion:** Pick and scan soft bags



**E-Commerce:**  
Pick and play tetris  
with > 100k products



**Automotive:**  
Place parts precisely  
with high quality

# It's a COMPLEX world!



# Complexity has different sources

**Unpredictable**  
**Unknown** problems  
Let's do a **brainstorming!**

What if...  
I am **curious**  
whether...

## We often hear...

We don't know – we **have to test it.**  
Did you conduct **enough tests?**  
Did you **test it on the robot?**

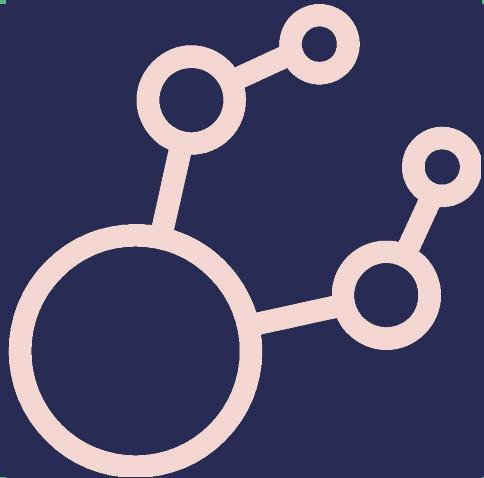
Do you have **evidence / data** supporting that?  
Don't know the impact yet – we have to **look into data...**

Curiosity

Data

Doubts

Exploration



# Hardware is hard!

# (Some of) Challenges related to HW

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- **HW is designed and manufactured – continuous deployment is not possible**
- **Copy paste does not work...**
- **Cloud solutions are not the best place to store it**
- **Safety first! – it's unlikely that your “normal” software will burn a server**
- **It is not feasible to recreate the production environment in the lab**
- **Dependencies on external factors**
- **Lack of “Full Stack Engineer” in HW world – specializations, certifications...**

# (Some of) Challenges related to HW

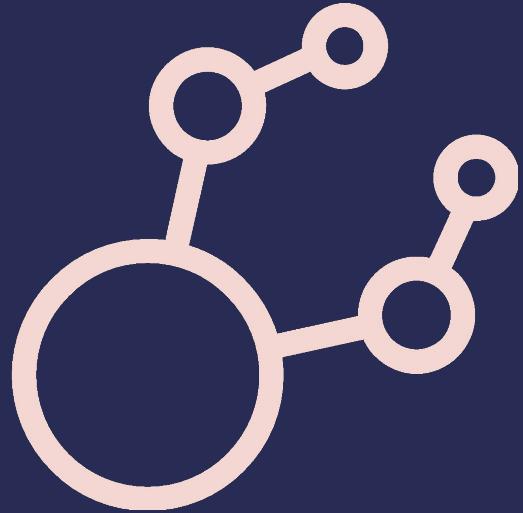
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- **Internal dependencies and difficult to have a “thin slice” of a cake - customer waits longer for a useable Increment**
- **Should we invest in SW, HW, ML or combination of them?**
- **If it does not work on real robot, it does not work (at all)**

but...

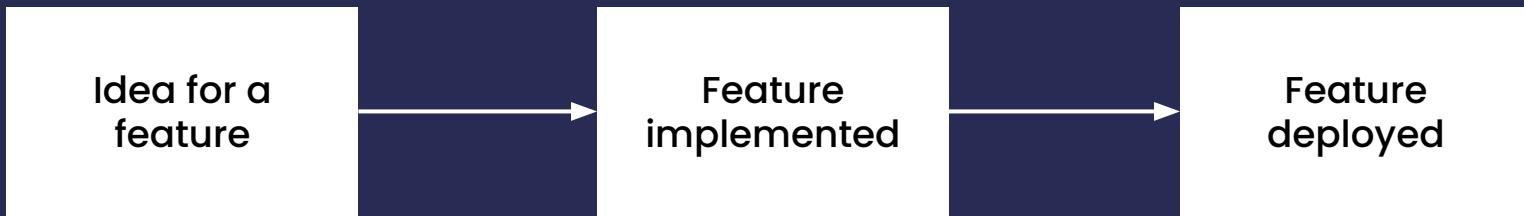
# The beauty of HW prototyping!

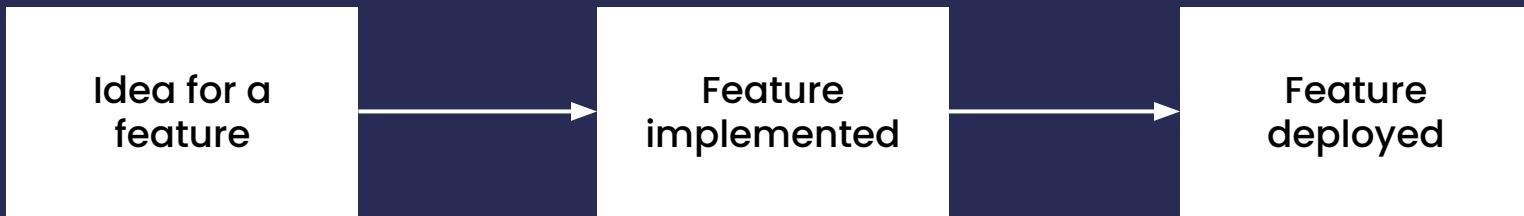




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**How do organizations  
develop their products?**





= customer

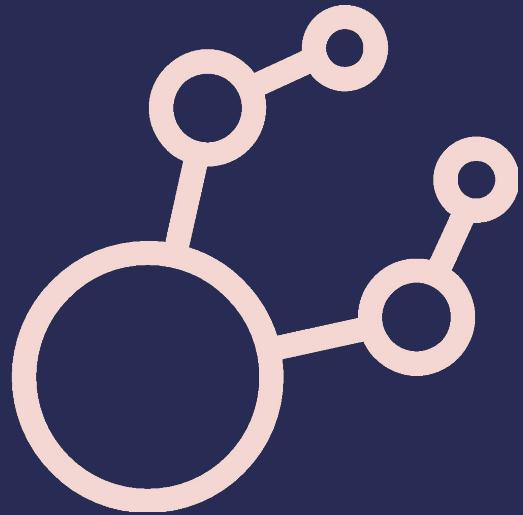




**Fantastic** machine  
that produces  
**awesome**  
features



# Really?



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**Let's do things differently**

**Goal + Evidence + Data**

**What is the problem?**

**What do you want to achieve?**

**What is your goal?**

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**How will you know that your problem is resolved or goal achieved?**

**How will you recognize that you are there?**

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**Which data will you need?**

**How and how often will you collect data?**

**Have YOU ever thought about yourself  
“I, scientist..”?**

**“Science  
=**  
**A set of hypotheses  
that haven’t been disproven  
so far”\***

**\*prof. Roman Galar**

# Hypothesis

The hypothesis is a **guess**, **certain statement**,  
**explanation** related to reality.

You try to prove it (or disprove it) by conducting  
**experiments**.

# Characteristics of a good hypothesis

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- testable and falsifiable
- logical
- positive

<https://opentext.wsu.edu/carriecuttler/chapter/developing-a-hypothesis/>

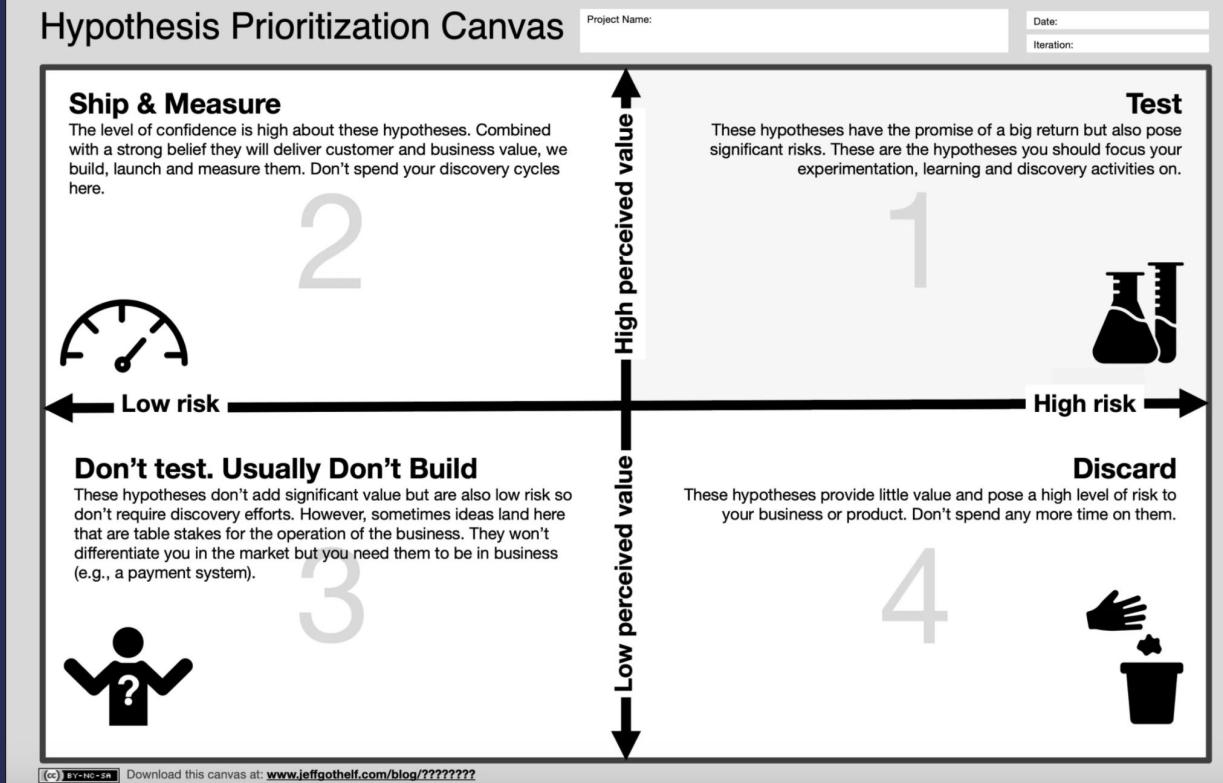
# Hypothesis statement

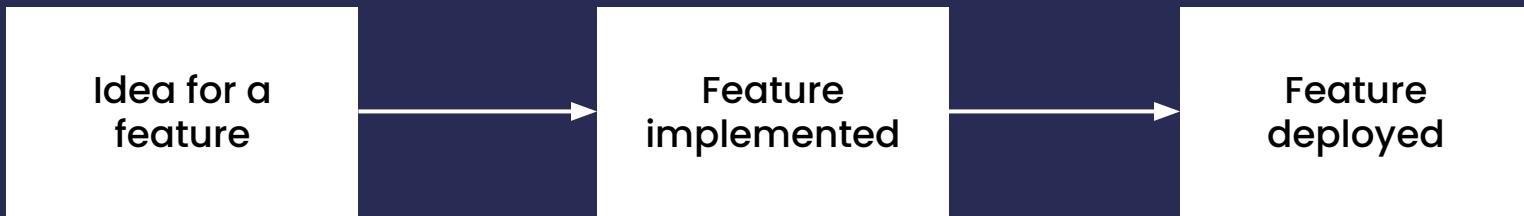
Lean UX

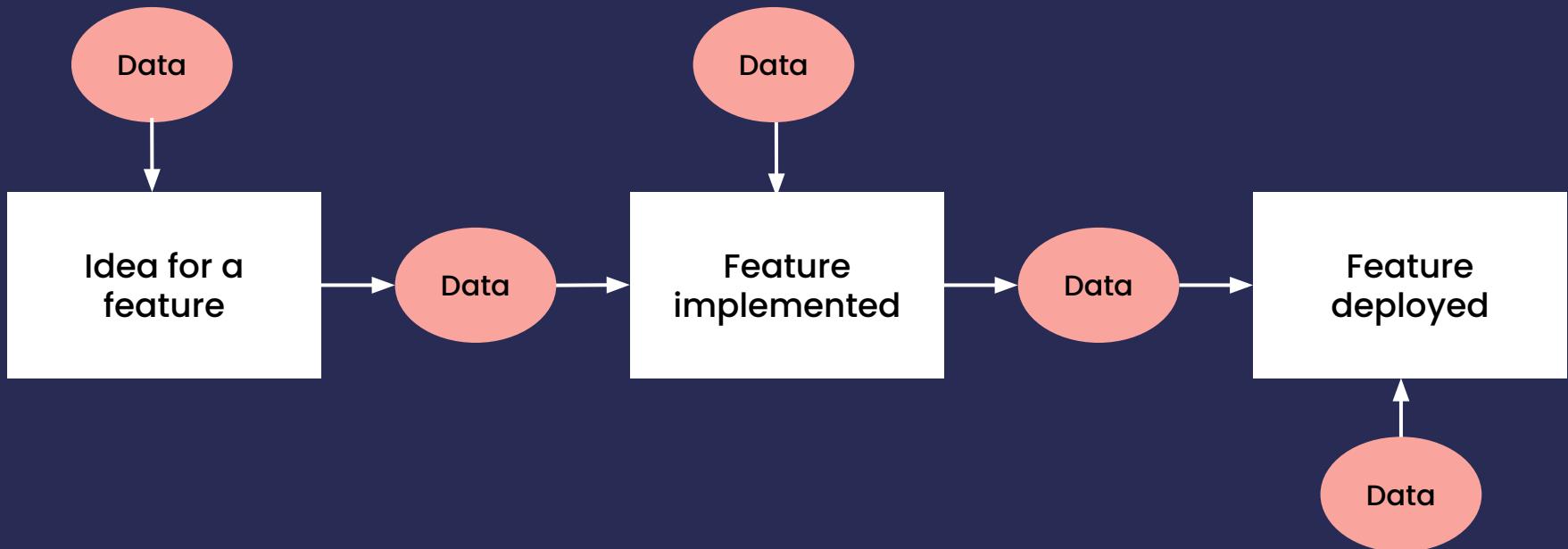
Hypothesis	We believe _____ [doing this]  for _____ [these people]  will achieve _____ [this outcome/impact]
Experiments	We will test these assumptions by ...  _____ _____ _____
Validation	We will know this hypothesis is valid if by ___/___/___ we see...  <div style="display: flex; align-items: center; justify-content: space-around;"><div style="text-align: center;">Quantitative measurable outcome</div><div style="flex-grow: 1; border: 1px solid #ccc; height: 10px; margin: 0 auto;"></div><div style="text-align: center;">Qualitative measurable outcome</div></div> <div style="text-align: center; margin-top: 10px;">or</div>

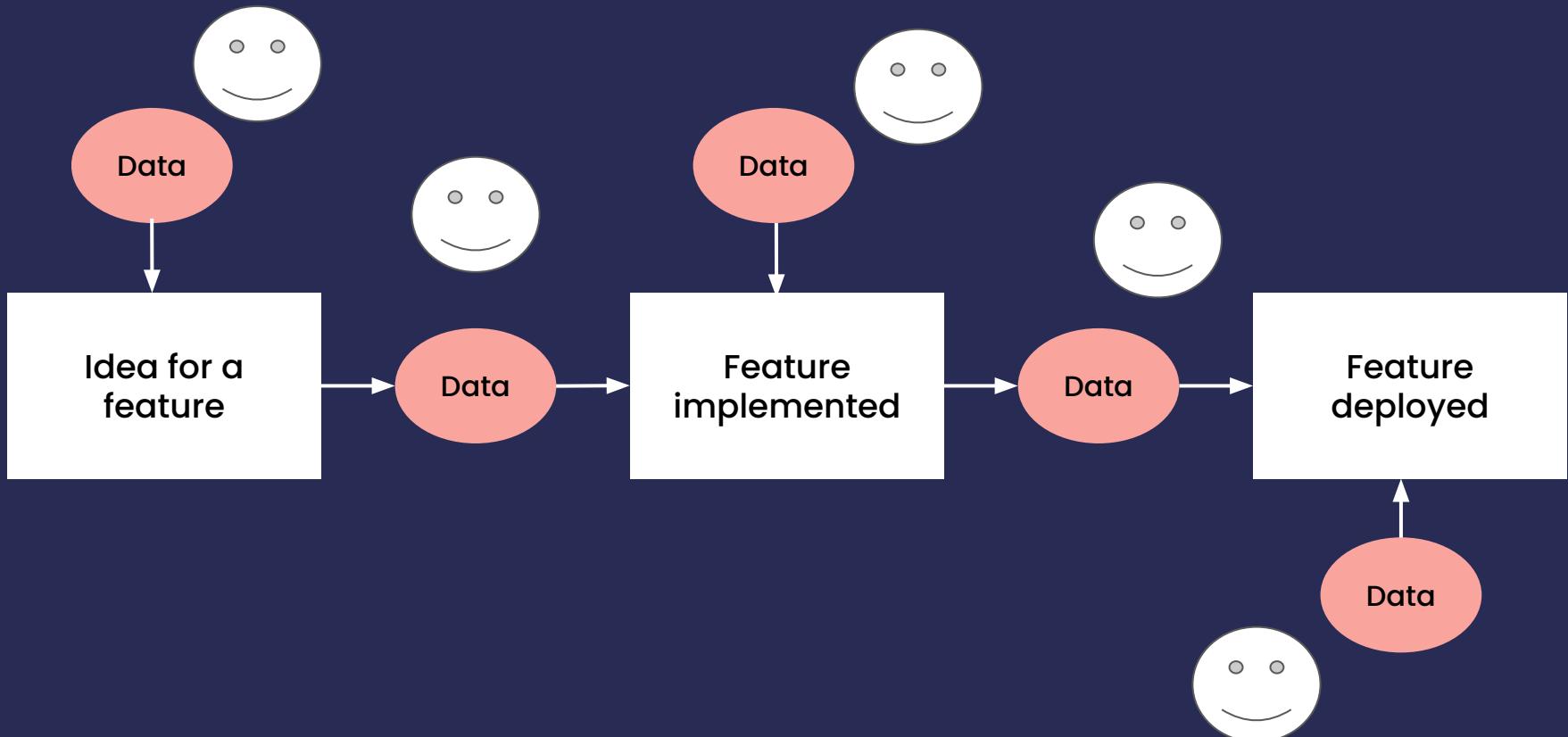
# Hypothesis Prioritization Canvas

Lean UX

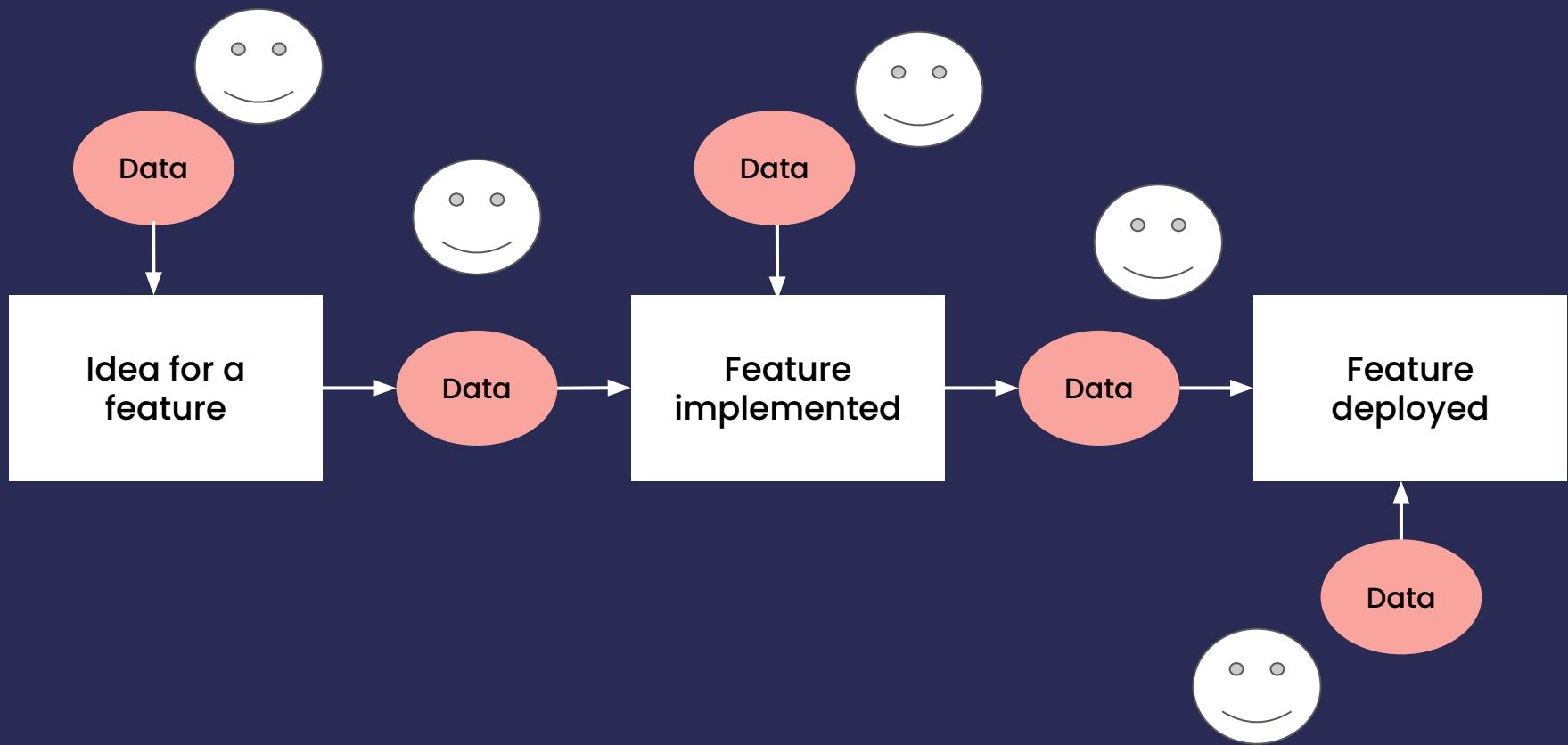








= customer



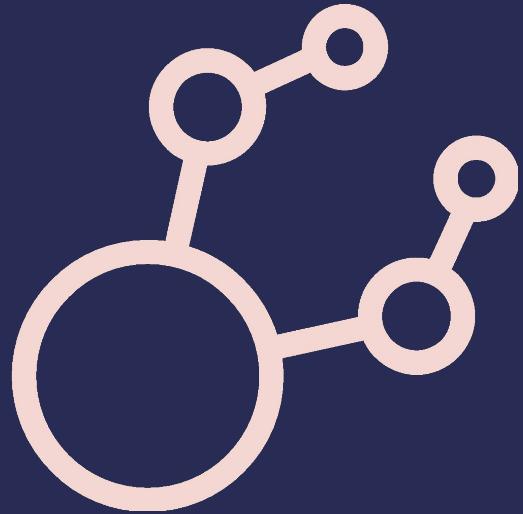
**Data is *not* an information!**

**Meet your new friend**

# Statistics

and

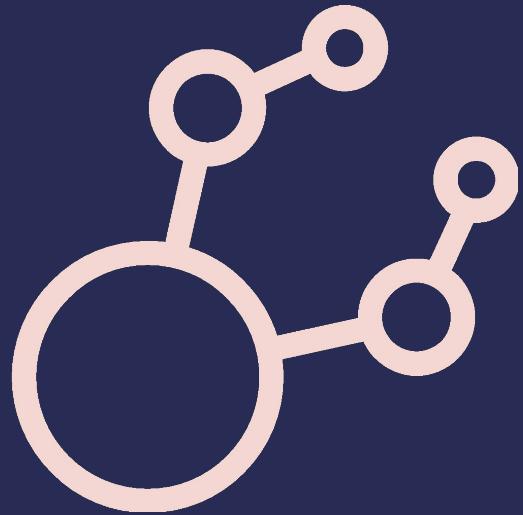
# statistical tests



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**EBM?**

**How to make progress  
towards goals?**





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## Summary

We, scientists,  
are very SERIOUS people



**And our robots are not afraid  
of any work!**



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