



Formulating the Experiment: Pilots, Prototypes, and Proofs of Concept

Laura Fernandes | BA-CON 2018 | August 29, 2018

About Laura Fernandes



- Systems Analysis Practice Lead
- Employed with Alliance Data
- 11 years experience as an Analyst/Analysis Leader
- CBAP

My Career Mission – To enable talented software development professionals to build the *right* thing

Contact Info:

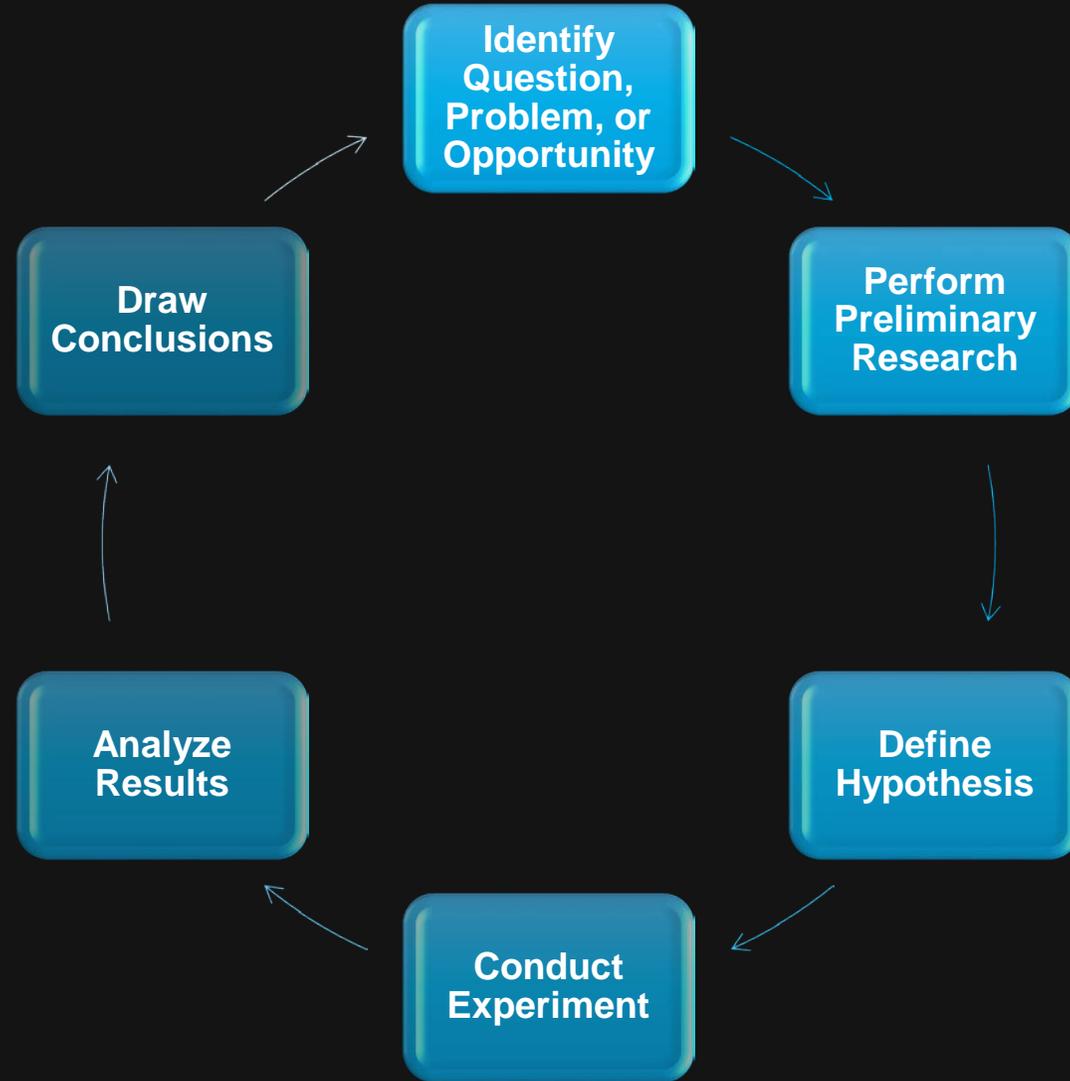
laura.fernandes@alliancedata.com

www.linkedin.com/in/lfernandes-analysis

Why Experiment?

- Product Development teams experiment for the same reasons scientists do – to prove theories and to learn from experience
 - Ideas may be innovative enough that their feasibility is *unknown*
 - Many requirements are *unknowable* at the outset
- Experiments mitigate the risks of *unknowns* and *unknowables*

Scientific Method



Types of Experiments



Proof of Concept
Test an idea for feasibility



Prototype
Evaluate & learn from an early model



Pilot
Evaluate market-readiness



Proof of Concept

Test an idea for feasibility

Definition

Exercise to test the feasibility of a specific idea

Objective

Prove a feature, capability, product, or service can be built

Characteristics

- Typically done early in a development cycle
- Rarely visible to consumers
- No where near ready for production
- Absolute minimum work needed to prove the concept





Prototype

Evaluate & learn from an early model

Definition

Early model of a feature, capability, product, or service used to evaluate and learn from one potential design or implementation of a feasible concept

Objective

Gain feedback on a visualization or experience of a solution in a controlled environment in order to optimize effectiveness

Characteristics

- Not a complete, production-ready solution
- Provides *just enough* to allow the target audience to visualize or experience



Profile Name

245 Blackfriars Road
Ludgate House
London, SE1 9UY

Email: Firstname@surname.com

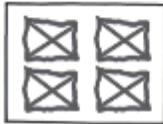
Telephone: 0207 955 3705

Categories

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Attachments

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Pilot

Evaluate market-readiness

Definition	Minimum viable feature, capability, product or service used to refine and evaluate market readiness
Objective	Evaluate operation and behavior in a real-life environment
Characteristics	<ul style="list-style-type: none">• Conducted in a production environment with live data• Real customers interact with the product• A nearly complete (but not market-ready) solution• Have a defined time period

Why Experiments Often Fail to Deliver Results

- Don't know what we're really trying to accomplish
- Don't plan for measuring results
- Don't define success
- Don't have a plan for using the results to steer the product

Project team is focused on the **end-state**, not the **experiment**

Formulating the Experiment

- Identify questions, problems, or opportunities with ***significant unknowns/unknowables***
- Craft a hypothesis
- Define the form of the experiment
- Determine audience and sample size
- Determine what measurements will be taken and how
- Define success

Example: Prototyping a Retinal Scan

- Hypothesis: People will organically understand that the retinal scan is complete when a green light flashes above their eye on the device.
- Create a simulation of the experience without actual retinal scanning. 20 test subjects of different cultural backgrounds will be asked to move their eye close to the device for scanning and then move their face away when the scan is complete. Subject is not told what prompt to expect when scan is complete.
- % of people who move their face away within 2 seconds of green light appearing
- Success Criteria – 90% of people successfully recognize that green = complete.

Exercise – Creating an Alexa Skill



Maximizing Experimentation Outcomes

- Follow good practices for selecting sample groups and sample sizes
- Utilize statistical methods when they make sense
- Seek impartial, external validation of results

Conclusions

- Use experimentation to explore to the *unknown* and *unknowable*
- Align stakeholders on the objectives of the experiment
- Carefully and intentionally formulate experiments by focusing teams on the experiment and using critical questioning
- Use appropriate rigor in conducting experiments and drawing conclusions

Special Thanks

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References

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