

Service Oriented Architecture

Designing the right application

Lecture 4

Dr. Alessio Bonti¹

Agenda

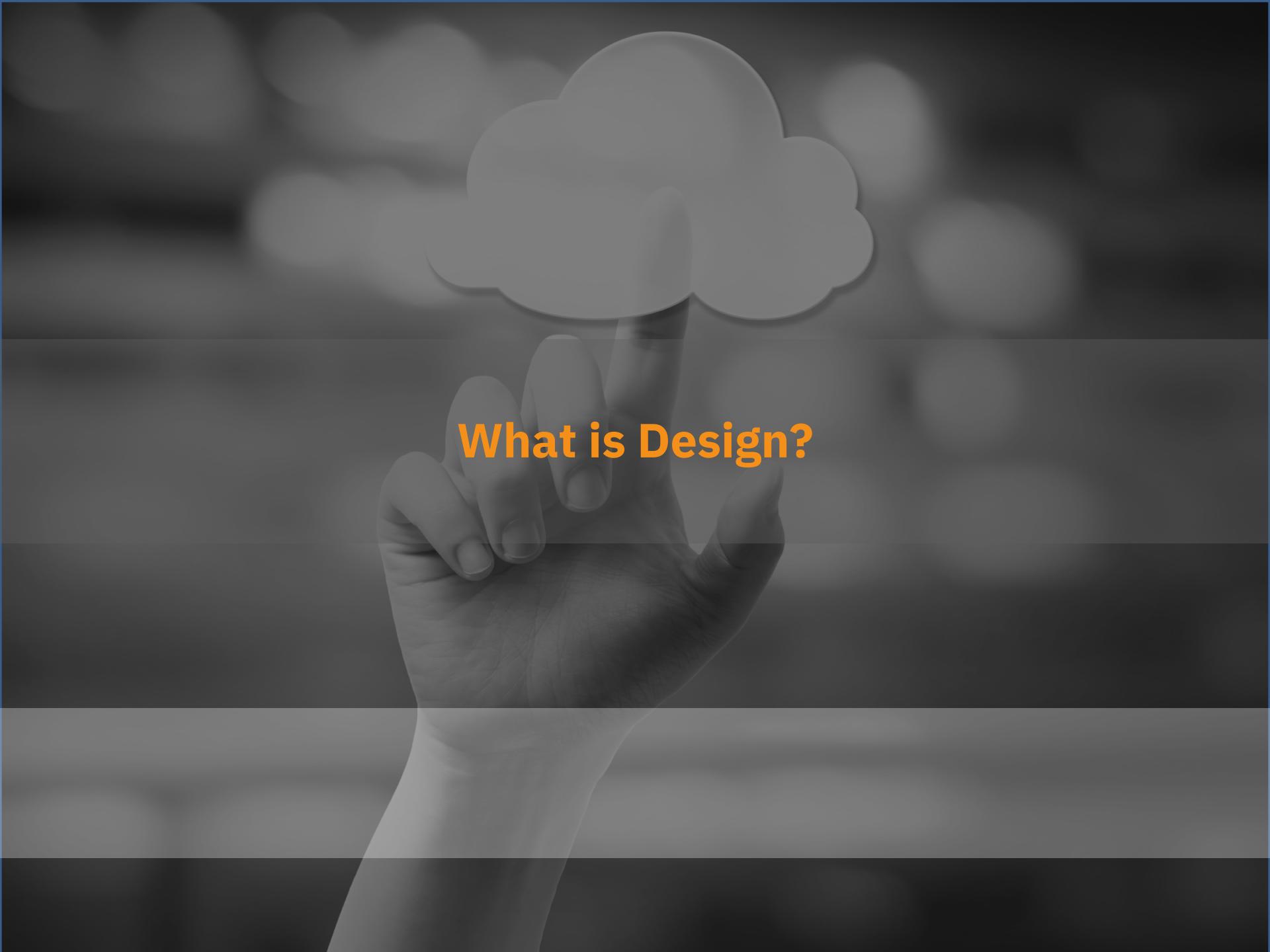
01 What is design?

02 Design thinking

03 Lean development

04 In practice...



A grayscale photograph of a person's hand pointing their index finger upwards. A large, semi-transparent white thought bubble is centered above the hand, containing the text.

What is Design?

What is design?

CONCEPTS

By definition

“A plan or drawing produced to show the look and function or workings of a building, garment, or other object before it is made.”

01

THEN THIS IS DESIGN ...

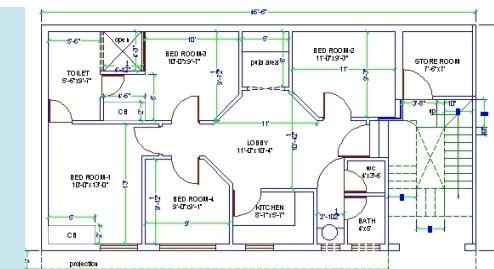
The style or pattern to be drawn on a garment.



02

... AND THIS IS DESIGN

A plan for the structure of a building floor.



What is design?

CONCEPTS

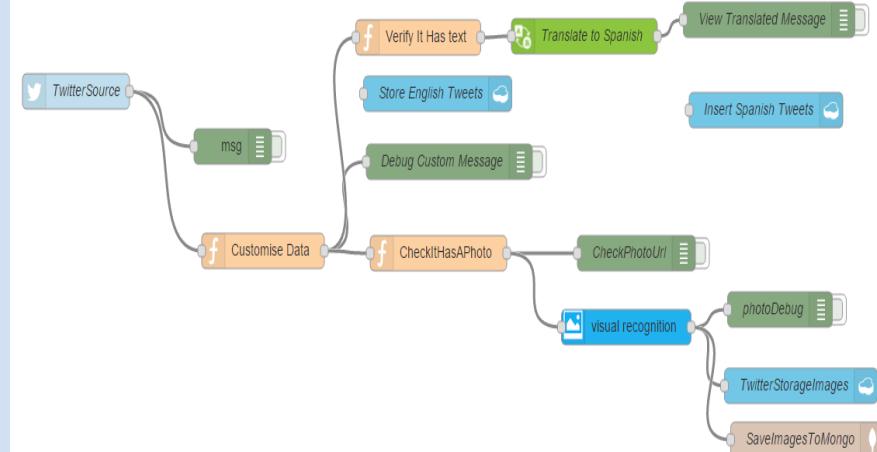
Thinking further....

Perhaps if we take into consideration that design is “putting together drawings or patterns” we can resemble a similarity with creating complex applications.

03

THIS IS DESIGN TOO ...

A schema about the application flow and the interactions of its components.



What is design?

CONCEPTS

Creating an application out of design

In reality, design starts long before any machine is ever required.

Translating a well defined design into an application, is in fact quite simple.

SO
THEN,
WHAT IS
DESIGN?

Design is the approach you take to solving problems and understanding users and the insights you acquire in the process.



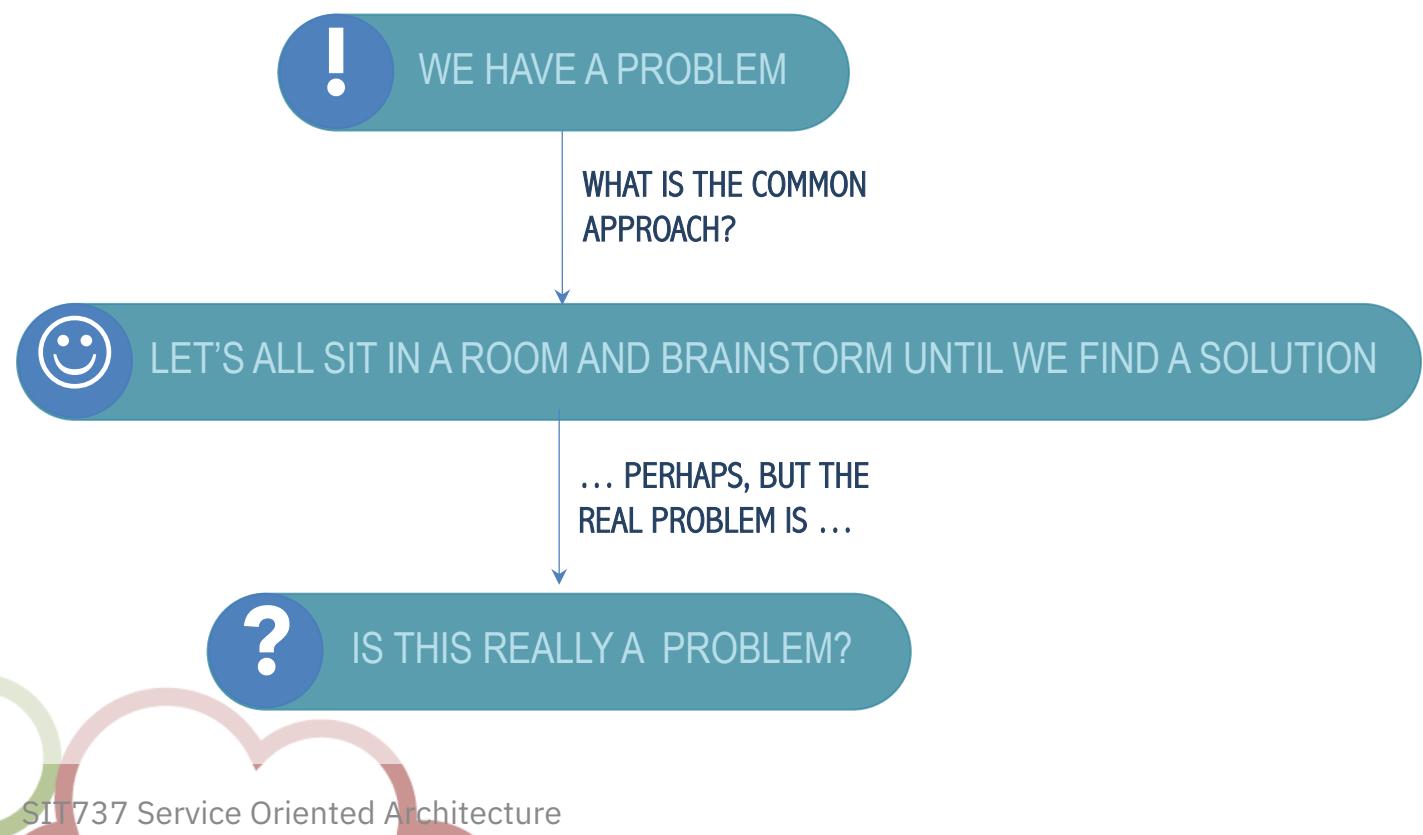
Design Thinking

Design thinking

PROBLEM SOLVING

A very simple problem..

Let's investigate the process we use to solve problems...



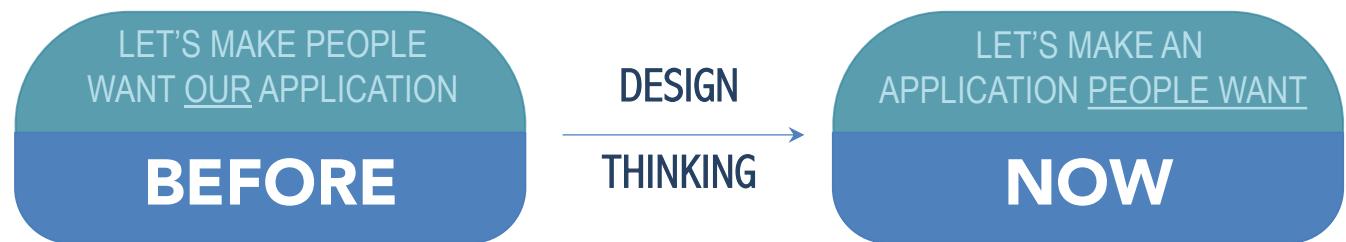
Design thinking

PROBLEM SOLVING

DESIGN THINKING

How to find if a problem is really a problem?

Design thinking is a framework for design which is user centric, and evolves around the user behaviour and feelings.



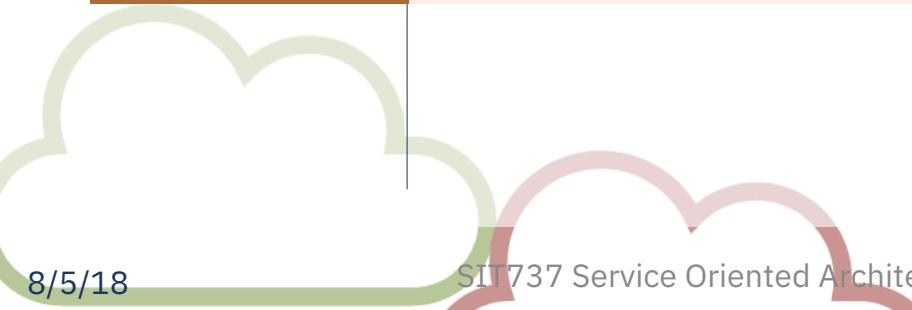
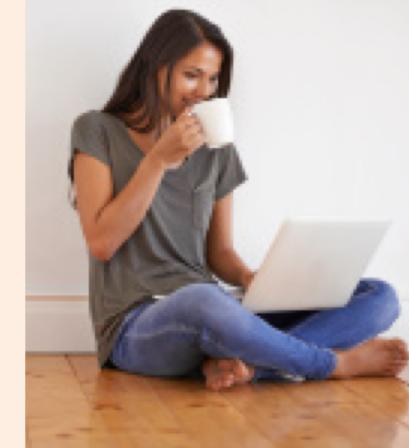
Design thinking

DESIGN GOALS

01

USER CENTERED

Design should satisfy a need or something the USER wants to do. Therefore the user cannot be left out. Assuming a solution without knowing the users may often become something unwanted.



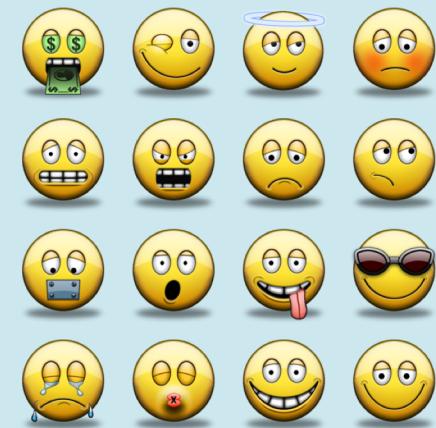
Design thinking

DESIGN GOALS

02

USER SATISFACTION

People are different, culturally and behavior wise, therefore there is no one good solution for everyone. Everyone has different feelings. People should be HAPPY!



Design thinking

DESIGN GOALS

03

FOSTER CREATIVITY

Solving problems is about great ideas, before thinking it is too difficult, you should try to envision it, if you can envision it, perhaps it is not so impossible to build it!



Design thinking

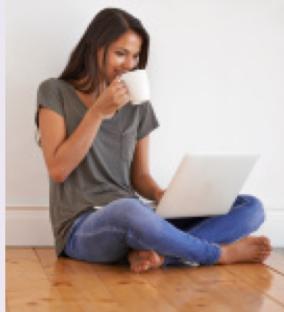
DESIGN GOALS

FOCUS POINT

What design should accomplish?

IN SUMMARY ...

Build something the USER wants in order to make him HAPPY and build it with CREATIVITY!



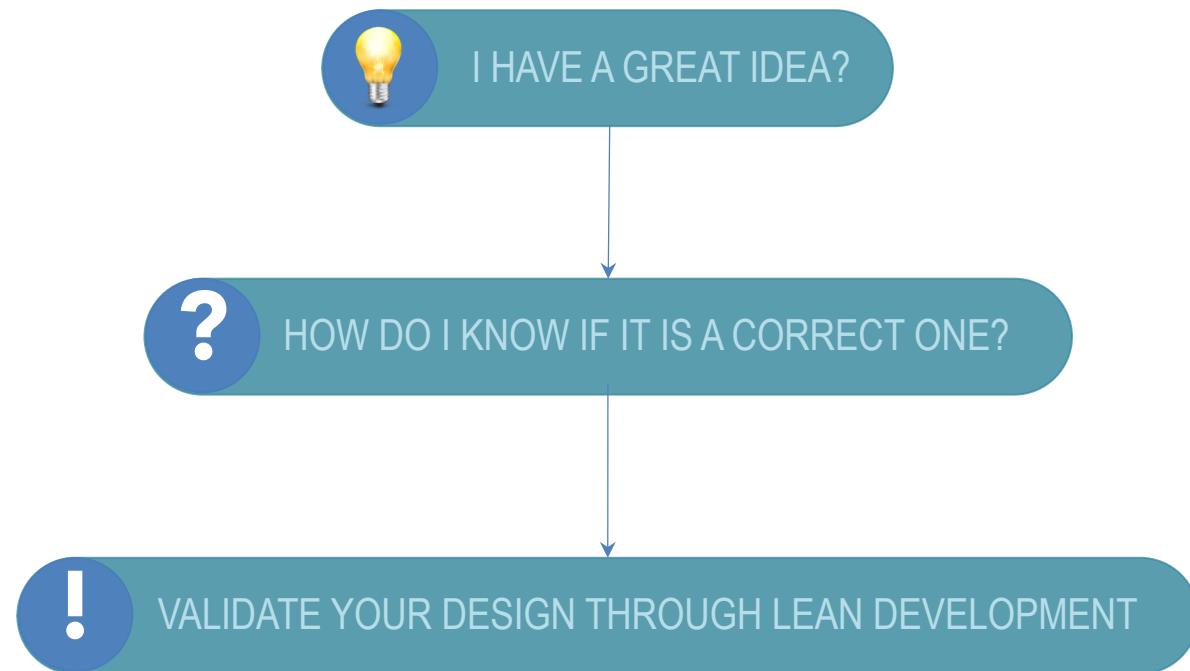


Lean Development

Lean development

PROCESS

Applying design thinking



Lean development

CONCEPTS

What is lean development?

Lean Development is a methodology vastly used by tech start ups to validate their work quickly. It is based on continuous validation and small iterations.

DEFINITION

Lean manufacturing or lean production, often simply “lean” is a systematic method for the elimination of waste within the manufacturing system.

01

Validate your progress continuously.

02

Learn from your experience quickly.

03

Minimise waste.

Lean development

CONCEPTS

What is waste?

WHAT IS IT

Building something nobody wants, spending resources into doing this.

WHAT IS NOT

The time you have spent building something nobody wanted but you have learned from it.

CAN I AVOID IT?

The simplest thing you can do, is minimize waste. Lean Development aims to do this by minimize the time it takes to “learn” and making sure that only measurable outcomes are performed .

Lean development

CONCEPTS

Lean is based on three principles

BUILD

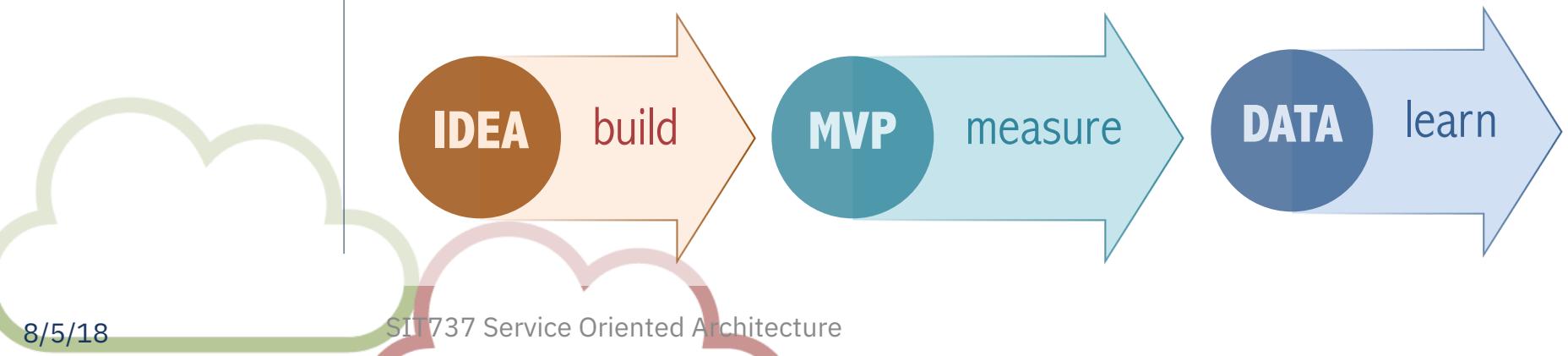
Start from an IDEA and build a Minimum Viable Product (MVP) from it.

MEASURE

Measure your MVP to obtain DATA.

LEARN

Learn from DATA to make new decisions (steer or pivot).



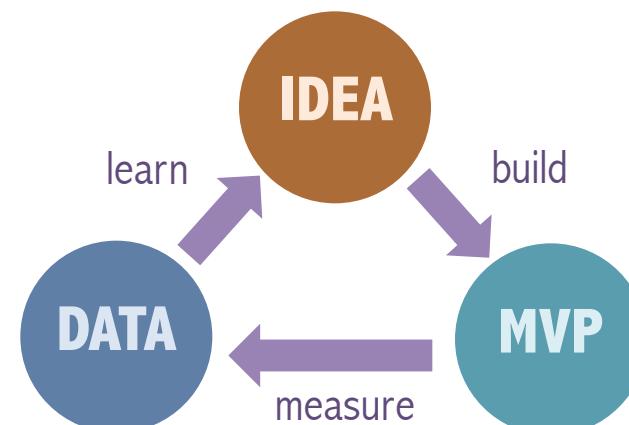
Lean development

CONCEPTS

Lean process

In fact, lean development is an iterative process:

- 01 Each iteration should contain the feature that makes the MVP valuable.
- 02 By decreasing the amount of time per iteration, we can decrease waste.
- 03 Every iteration must be measurable.



A grayscale photograph of a person's hand pointing their index finger upwards. A large, semi-transparent white thought bubble is centered above the hand, containing the text.

In practice

In practice ...

EXAMPLE

Weather calls!

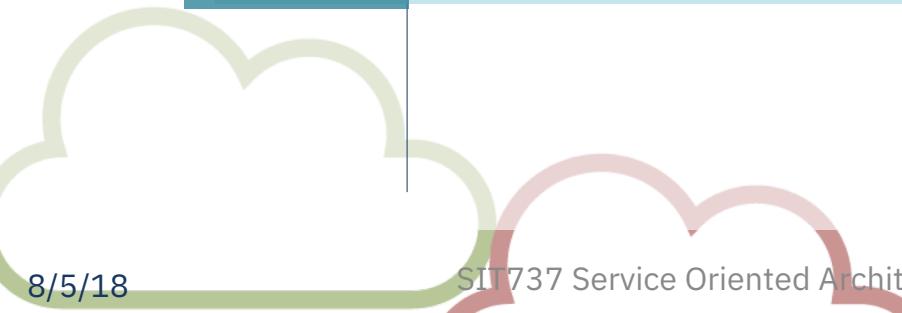
You had a fantastic idea for an automated weather forecast service over the phone...



You dial up and the service will automatically tell you the current weather.



What is the key element that tells you whether or not this idea will be successful?



In practice ...

EXAMPLE

MVP: over the phone weather forecasts

Your MVP will probably only require that you have an incoming phone line and a person sitting at the desk with the weather forecast in front of her, reading it out to the user.

CUSTOMER

What's the
weather like
tomorrow?



Tomorrow it
will be sunny.

OPERATOR

In practice ...

EXAMPLE

MVP: over the phone weather forecasts

After this initial proof of concept we can start making some useful observations:

01

WHERE IS THE AUTOMATION?

The automation is not a key characteristic of our idea and at present stage does not contribute to its success.

02

DO THE USER ACTUALLY CALL?

At this stage is more crucial to see whether the service is being used.

In practice ...

EXAMPLE

MVP: over the phone weather forecasts

What can we learn so far?

01

IF PEOPLE DIALED THE SERVICE

... then you would have learned that the project is valid until now and you would move more comfortably to implementing a new feature.

02

IF THEY DID NOT ...

... perhaps it is time to go back to the drawing board. Maybe, they're not interested after all.

In conclusion

LEARNINGS

01

DESIGN

Design goes beyond “graphics”, it is the very heart of your project and how an idea becomes a product.

02

DESIGN THINKING

Design thinking is the process to understand real requirements based on a user centric framework.

03

LEAN DEVELOPMENT

Lean Development is a methodology that opts to create as little “waste” as possible in order to create the “right” product.