EOSC DIH Webinar Programme
Prototyping Methods and Techniques

Smitesh Jain, EGI Foundation, Innovation Management Specialist

eosc-dih.eu
@EOSC_DIH
https://www.linkedin.com/company/eosc-digital-innovation-hub

EOSC Future project receives funding from the European Union Horizon Programme call INFRAEOSC-03-2020 - Project ID 101017536.
• The webinar will be recorded.
• More interaction the better.
• You can ask your questions using the Q&A functionality in the Zoom (preferred), however you can also ask the question live by raising a hand.
• A survey will be circulated after the webinar to provide your feedback.
HELLO, I AM SMITESH!

I have an academic background in Innovation Management and Entrepreneurship from the Technical University of Delft in the Netherlands. I have been working in the field of innovation management for the past 5.5 years.

During these time, I have worked on setting up and managing innovation management platform, running idea collection campaigns, facilitating Brainstorming and Brainwriting sessions, and training employees in innovation methodologies. I have also worked in field of Knowledge Management and Software development.
WHAT IS A PROTOTYPE?
The word originates from the Greek prōtotupos, meaning “first example.”

A prototype is an early sample, model or release of a product created to test a concept or process.

“Everything Is a Prototype”
WHY PROTOTYPE?
WHY PROTOTYPE

Four key reasons are,

• To understand,
• To communicate,
• To test and improve, and
• To advocate.

TO UNDERSTAND

Prototypes are useful to understand,

• The user,
• Problem that you’re solving, and
• That the solution you’re pursuing is the correct one for the user.
Prototypes are useful to communicate your ideas to,

- The users,
- Your team, and
- Other stakeholders.

Image Source: https://www.k2technologies.net/communicate-consistently-with-customers-about-their-technology-needs-and-your-value/
TO TEST AND IMPROVE

Instead of using your gut to choose the proper design and only testing the result once it's built and in users' hands, you can iteratively test small assumptions throughout your entire process and use that feedback to direct your design work.

Image Source: https://insideproduct.co/build-measure-learn/
TO ADVOCATE

You can leverage prototypes and the insights you gain from testing them to advocate for the user experience and to support changes in direction or focus.

Image Source: https://streetcivics.com/what-does-it-mean-to-advocate-3-things-to-know/
Fidelity levels are a vital part of prototyping, and greatly affect the outcome of testing. You must choose the proper fidelity level depending on your goals and what part of the development process you are in.

<table>
<thead>
<tr>
<th>LOW FIDELITY</th>
<th>MID FIDELITY</th>
<th>HIGH FIDELITY</th>
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<tr>
<td>Low-fidelity prototypes are best for testing your core concepts, getting over initial fears, thinking through many ideas, and catching potential problems before they get too big to fix.</td>
<td>Mid-fidelity prototypes start to look like your final product in at least one dimension.</td>
<td>High-fidelity prototypes are the real deal. They are visually designed and are in the final medium of either physical materials or code in a browser.</td>
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DIMENSIONS OF PROTOTYPE

**VISUAL REFINEMENT:** The visual refinement is what’s typically thought of as fidelity, because it is the easiest way to make a prototype look like a finished product. Visual refinement is the amount of pixel-perfect design or material polish you’ve put into your interface or physical object.

**BREADTH:** The breadth of the prototype indicates how much of the broad functionality is represented in the prototype.

**DEPTH:** The depth of the prototype indicates how detailed an individual feature of the prototype is built out to be.

**INTERACTIVITY:** The interactivity of the prototype indicates how the interactive parts of the app or product are displayed to the user.

**DATA MODEL:** The data model encompasses the content that a user interacts with in the interface and the data utilized in both the frontend and backend of a product.

“One prototype can have different fidelities for each of these dimensions in order to fulfill a specific goal.”
PROTOTYPING TECHNOQUES
Wireframing is a great way to think about all of your interactions and communicate them in two dimensions.

Wireframes start as low fidelity so that detailed visual design (like colors and specific typography) don’t distract from the initial planning phase.

You can make higher-fidelity wireframes by adding more of the final content, or adding visual design.
Paper prototyping is sketching screenshots on paper as substitutes for digital representations.

While paper prototyping seems simple, this method of usability testing can provide a great deal of useful feedback which will result in the design of better products.
# Build Your Own Fitness Program

**Choose from a list of popular fitness programs (Beginners)**

- **Cable Chest Press**
- **Cable Crossover**
- **Chain Press**
- **Chest Stretch (Stability Ball)**
- **Clock Rush**
- **Chest Shoulder**

**Or**

**Build Your Own Fitness Program (Advanced)**

## Cable Flies

<table>
<thead>
<tr>
<th>Sets</th>
<th>Reps</th>
<th>Notes</th>
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<tbody>
<tr>
<td>3</td>
<td>8</td>
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<tr>
<td>20 lbs</td>
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**Failure Settings**

- What happens when you fail a set?
  - Repeat weights next workout
  - Decrease weights by 10%

**Your Workout**

1. **Cable Flies**
2. **Squats**
3. **Deadlifts**
4. **Bicep Curls**

**Your Workouts**

- Chest and Traps
- Back and Biceps
- Shoulders and Legs
- Ab Work

**Choose a name for this workout:**

Source: [http://aaronbrako.com/](http://aaronbrako.com/)
CLICKABLE PROTOTYPES

Digital or Clickable Prototyping methods can be used to create low-mid fidelity prototypes.

This automates the interactions a bit and makes it easier to test.

Also, allows you to reach a wider range of audience.
Turn any sketch or image into an interactive prototype.

Quickly snap your sketches and then together to simulate your app idea.
CLICKABLE PROTOTYPES TOOLS

- Keynote
- Powerpoint
- Marvel POP
- Axure
- Balsamiq
- Framer
- HotGloo
- Indigo Studio
- Invision
- Justinmind
- Proto.io
- UXPIN

Illustrator or Sketch + tools above
EXPLAINER VIDEOS

An explainer video is a short video that focuses on explaining a business idea in a simple, engaging and compelling way, by using a clear and concise language; appealing and attractive visuals that quickly grab the viewer's attention.

It's both informational and educational, generally it explains what the company offers, how it can help the customers with their problem and why that product/service is the best option in the market.

See examples below,
1. Brainwriting
2. Matchbox – Are you Ready?
3. Monster App - IDEO
Physical Prototypes are either often used to test functionality and/or test aesthetics.

Aesthetic prototypes are what they sound like. It is testing the product's looks. Dimensions, ergonomics, and visual design.

Functionality-oriented prototypes test mechanisms, durability, reliability, and material strengths.
3D Prototyping Tools

- Sketchup
- SmartDraw
- Vectary
- OnShape
- SelfCAD
- AutoCAD
- TinkerCAD
- DesignSpark Mechanical
- CATIA
- ProE
- TinkerCAD

And many many more...

Image Source: https://3dprinting.com/software/
LEGO PROTOTYPING

You can take advantage of Lego’s ubiquity and versatility to create quick and simple prototypes of your ideas.

The best part of using Lego to build your prototypes is that they become easy to dismantle and tweak; simply detach a part of your Lego prototype, swap it with an alternative design, and play with it to see if it works.
You can use electronic kits and theme kits to build certain kind of prototypes of your product.

You can build your product or simulate it by coding the micro-controller, sensors, motors and other components.

Arduino is often use to build such prototypes. Other options for electronic kits:

- littleBits,
- Adafruit, and
- SparkFun.
Like the wizard of Oz in the story (who generates an ominous, magical and deceptive appearance from behind a curtain), you are mimicking some aspects of your product for the sake of prototyping it, allowing you to save time and resources.
Storyboarding, a technique derived from the film industry, is something you can use for early prototyping to allow yourself to visualise the user’s journey or how users would experience a problem or product.

Storyboarding, as a prototyping method, ensures that we know our users well enough (it would be hard to sketch a storyboard otherwise) and allows us to keep in mind the context of the solution we are designing.
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smitesh.jain@egi.eu

Thank you for your attention