



Low Fidelity Prototyping/Sketches

Department of Computer Science | Software Requirements and Design
Marta Kristín Lárusdóttir, Associate professor in SCS at Reykjavik University
16. September 2019



www.ru.is

Announcement – About the assignments

- You have to use the pre-defined groups to deliver in the assignments
 - If not your grade will be lower
- It is so much work to find your assignments
 - You risk that you will not get a grade for the project
- Please check if all your grades are there
 - if not contact: hildur09@ru.is



www.ru.is

Comments to grading

- Some of you have commented on your grading
 - The TAs are not notified
 - To send comments you have to send an email to the person that graded your assignment
 - Berglind Kara Guðmundsdóttir - berglindg14@ru.is
 - Birna Vala Eyjólfsson - birna14@ru.is
 - Bryndís Charlotte Sturludóttir - bryndis14@ru.is
 - Elmar Þór Aðalsteinsson - elmara16@ru.is
 - Hildur Björg Gunnarsdóttir - hildurg09@ru.is
 - Hrefna Namfa Finnsdóttir - hrefna17@ru.is



www.ru.is

Group Assignment 2

- Deadline 21. september – 23:59
 - Check if you see this deadline
- Read the instructions carefully
- Find good design ideas
- Make a low-fidelity prototype
 - Paper or wireframe
- Conduct prototype interviews
- Redesign the low-fidelity prototype



www.ru.is

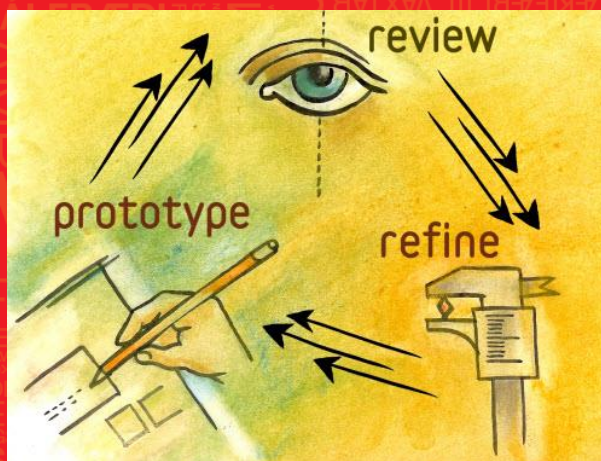
Content

- What is Prototyping?
 - The three stages of prototyping
 - How to make paper prototypes and wireframes
 - More on wireframes
 - Describing Low-fi prototypes
-
- Reading
 - Interaction Design: 12.1, 12.2 and 12.3



www.ru.is

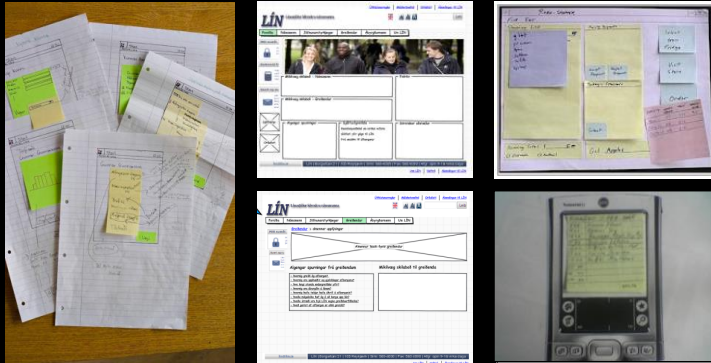
What is Prototyping?



www.hr.is

What is a Prototype?

- Prototype is an initial, working model
 - of a larger more complex entity
 - Often used to gather information on requirements



www.ru.is

What is a prototype?

- One manifestation of a design that allows stakeholders to interact with it
- In other design fields, a prototype is a small-scale model:
 - A miniature car
 - A miniature building or town



Source: [PalmPilot wooden model](#)
© Mark Richards

8

www.ru.is



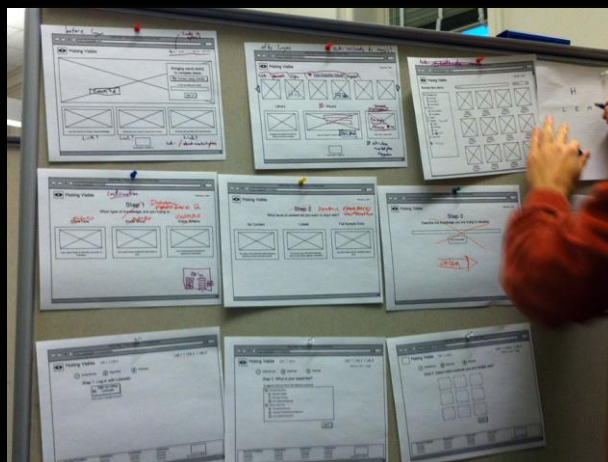
Why prototype?

- Evaluation and feedback
 - are central to interaction design
- Stakeholders can see, hold, interact with a prototype
 - more easily than a document or a drawing
- Team members can communicate effectively
- You can test out ideas for yourself
- It encourages reflection
 - very important aspect of design
- Prototypes answer questions
 - and support designers in choosing between alternatives



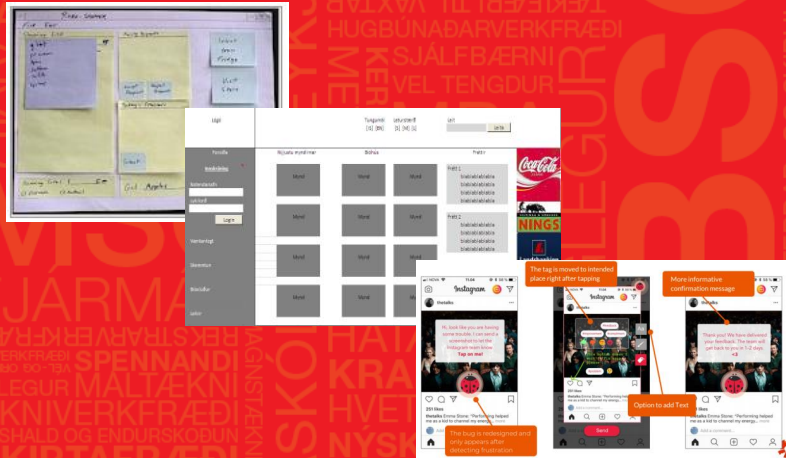
www.ru.is

Easy to Collaborate Through Prototypes



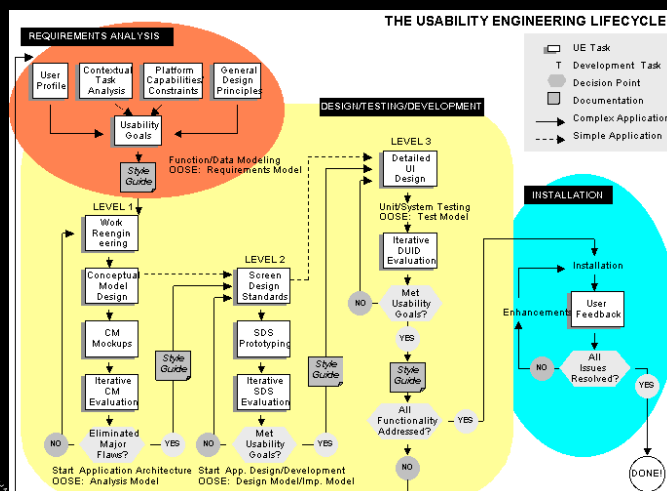
www.ru.is

The Three Stages of Prototyping



www.hr.is

Usability Engineering



www.ru.is

The three stages of prototyping

1. Low- fidelity prototyping

- Paper prototypes and wireframe designs

2. Screen design

- Has more details, color, fonts, texts, ...
- Not as detailed as the final product

3. Detailed design

- Looks like the final product
- Does not include all the functionality



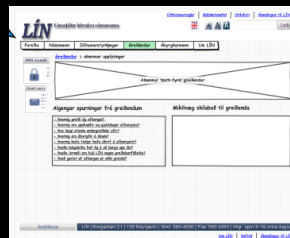
www.ru.is

1. Stage – Low fidelity design

Paper prototype



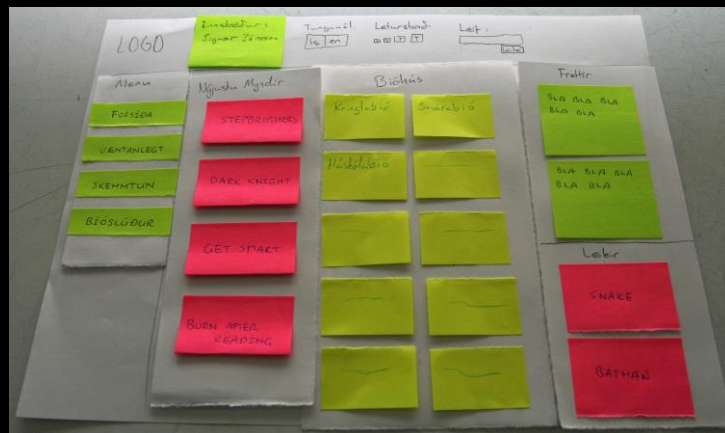
Wireframes



www.hr.is

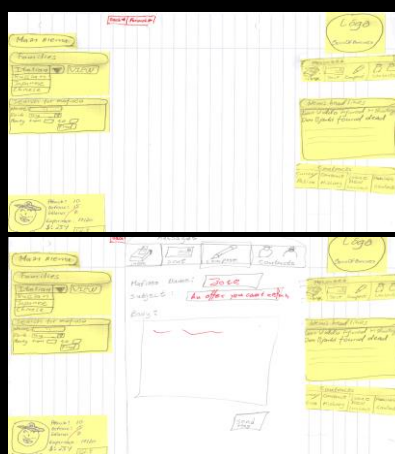
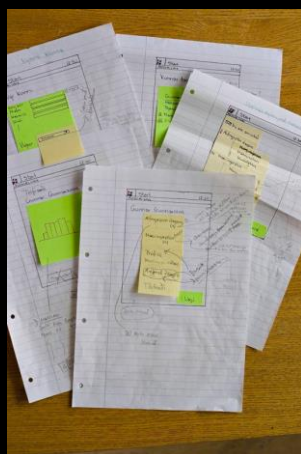
- A paper prototype is a paper representation of your product
- Constructed out of Post-it notes, various other pieces of paper or any other materials you need to use
- It allows you to evaluate your design with the user interactively
- Everything in the prototype needs to be movable and changeable because you will be adding user content, changing the interface structure and otherwise modifying it in response to the customer trying to use it

Paper Prototype Example



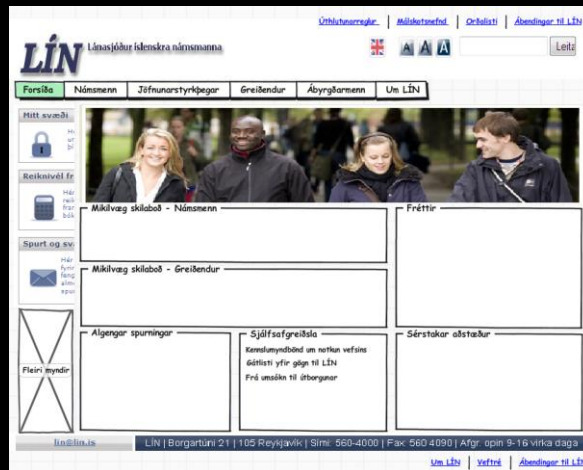
www.ru.is

More Paper Prototype Examples



www.ru.is

Wireframe



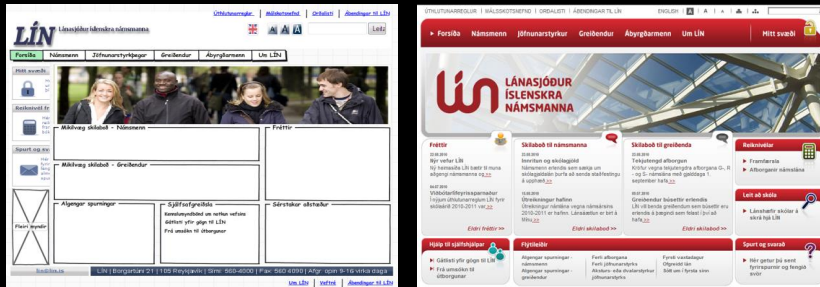
www.ru.is

Wireframe Definition

- Wireframe
 - is a visual guide that represents the skeletal framework of a website
 - are created for the purpose of arranging elements to best accomplish a particular purpose (user goal).
 - depicts the page layout or arrangement of the website's content, including interface elements and navigational systems, and how they work together
- Wireframes do usually not include:
 - typographic style, color, or graphics, since the main focus lies in functionality, behavior, and priority of content.
 - More: https://en.wikipedia.org/wiki/Website_wireframe

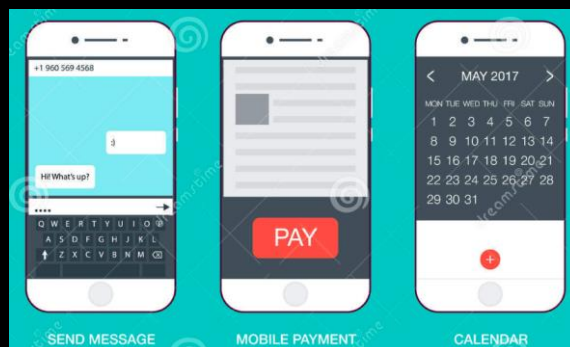
www.ru.is

Wireframe vs. Detailed Design



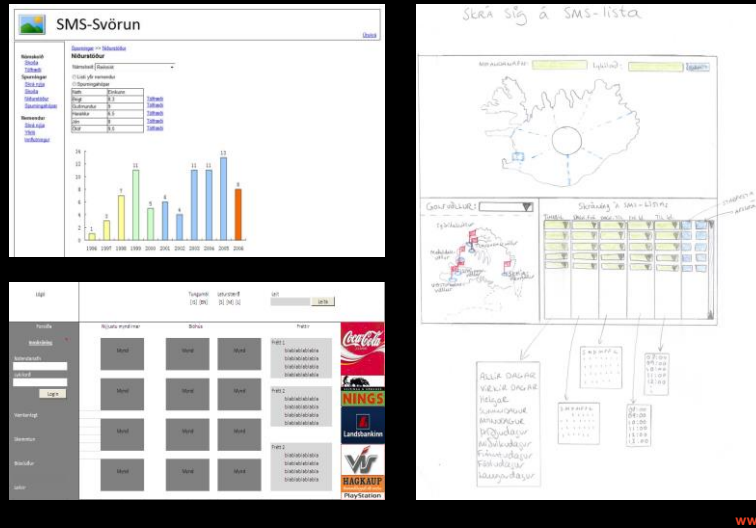
www.ru.is

2. Stage Screen Design



www.hr.is

2. Stage – Screen Design Examples



www.ru.is

2. Stage – Screen Design Definition

- Visual and aesthetic design of the user interface often shown on a computer screen or in other equipment
- Colors, shapes, sizes and style is used to support and enhance the functionality and the usage of the interface
- Often you can push buttons and go from one window/page to another
- It is NOT as detailed as Detailed design
 - It is in the middle of low-fidelity and detailed design

www.ru.is

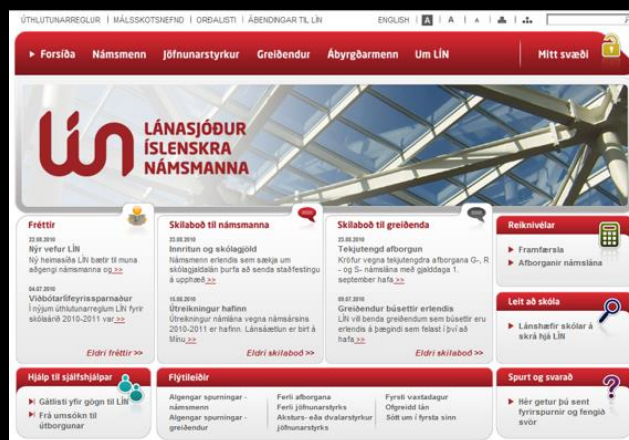
3. Stage - Detailed Design Definition

- Uses materials that you would expect to be
 - in the final product
- Prototype looks more like the final system
 - than a low-fidelity version
 - You can push all buttons
 - You can insert data
- For a high-fidelity software prototype
 - The one used in the final implementation
- Danger that users think they have a full system



www.ru.is

A Detailed Design Example



www.ru.is

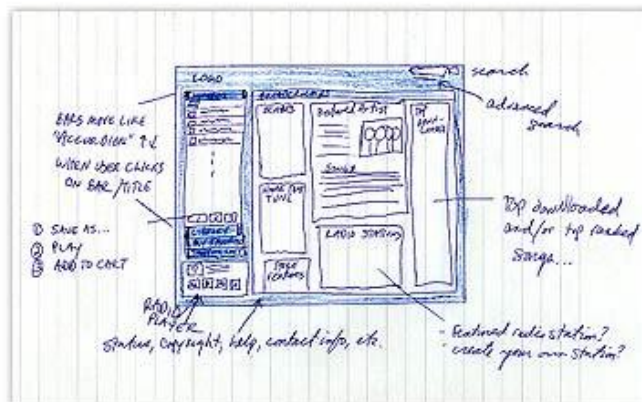
Table 12.3 from the book

Type	Advantages	Disadvantages
Low-fidelity prototype	<ul style="list-style-type: none"> • Quick revision possible • More time can be spent on improving the design before starting development • Evaluates multiple design concepts • Useful communication device • Proof of concept 	<ul style="list-style-type: none"> • Limited error checking • Poor detailed specification for development • Facilitator-driven • Limited usefulness for usability tests • Navigational and flow limitations
High-fidelity prototype	<ul style="list-style-type: none"> • (Almost) complete functionality • Fully interactive • User-driven • Clearly defines navigational scheme • Use for exploration and test • Look and feel of intended product • Serves as a "living" or evolving specification • Marketing and sales tool 	<ul style="list-style-type: none"> • More resource-intensive to develop • Time-consuming to modify • Inefficient for proof-of-concept designs • Potential of being mistaken for the final product • Potential of setting inappropriate expectations



www.ru.is

How to Make Paper Prototypes and Wireframe



http://www.inovdesigns.com/images/newsandviews/low_fidelity_prototype.jpg

www.hr.is

Making Low-fi (wireframe/paper) Prototypes

You decide two things:

1. What should be in each window/page
 - What elements should we include?
 - Where should these be placed?
2. How the structure is between the windows/pages
 - How is the flow, what happens first and what next?
 - What are the actions for the users to complete a use case?



www.ru.is

To make a low fidelity prototype

1. Preparation
 - 1.1 Prepare the place and time
2. Make the low fidelity prototype
 - 2.1 Go through a use case description to find the elements you need
 - 2.2 Define the interface widgets
 - 2.3 Make the prototype
 - 2.4 Show it to each other
3. Conduct a prototype interview with users
 - 1.1 Gather all the results
4. Change the interface according to the users comments (iterate)

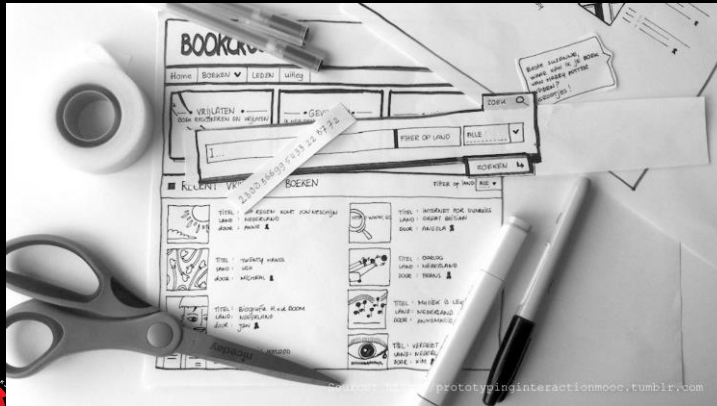


www.ru.is

1. Preparation

Prepare data and material

- Have everything ready



www.ru.is

Let the Description in the Use Cases Guide You

The requirement:

A user needs to be able to buy a theater ticket

Description in the Use Case:

1. Pick a performance you want to go to
2. State what date you would like
3. Buy a ticket
 1. State how many tickets you need
 2. Select the tickets you like
 3. Insert information for payment
 4. Insert information on the delivery



www.ru.is

2. Make the prototype

- 2.1 Go through the use case description
 - Define the important parts of the system for the user, key function and atomization
- 2.2 Define the interface widgets
 - Here the technical environment has been decided, e.g. we probably know if it should be a website, a client, an app, etc...
 - To do:
 - Suggest how the widgets should look like
 - Have many suggestions
 - Look at pros and cons
 - Pick one idea if you have many
 - Draw on a blackboard
 - Go through the use case that relate to this design



www.ru.is

Could be like this

Hand-drawn prototype of a web interface for a restaurant reservation system. The interface is divided into several sections:

- Top Left:** A table with reservation times. The first row shows 'Daglega 8:00, 12:00, 18:00' and 'M, W, F 12:00'. Below this is a section labeled 'Enginn skilaboð' with several empty rows.
- Top Right:** A section labeled 'Tími' (Time) with a grid of checkboxes for different days and times. The days listed are 'Daglega', 'Mánudagur', 'Þriðjudagur', 'Miðvikudagur', 'Fimmtudagur', 'Föstudagur', 'Laugardagur', 'Sunnudagur', and 'Enginn skilaboð'. The times listed are '09:00', '12:00', '14:00', '18:00', and '22:00'.
- Bottom Left:** A section labeled 'Velja tíðni þá opnar nýr sluggi' (Choose frequency when opening new slug) with an arrow pointing to the 'Enginn skilaboð' section.
- Bottom Center:** A section labeled 'Húsgæmslur' (Household) with a form for 'Mynd' (Image) and 'Texti' (Text).
- Bottom Right:** A section labeled 'Fjárfestir' (Investments) with a form for 'SKRÁ' (Register) and 'Fjárfestir'.



www.ru.is

2. Making the prototype

2.3 Make the prototype individually

- Should be able to move all parts, menus, buttons, regions in the interface
- Make all the important parts of the interface accessible
- There should be no hidden functions in the UI
- Give examples of data
 - Don't show a lot of empty screens
- Have some information supplementing the design
- When the prototype is ready, run the tasks and actions to see if it works!

2.4 Show it to each other

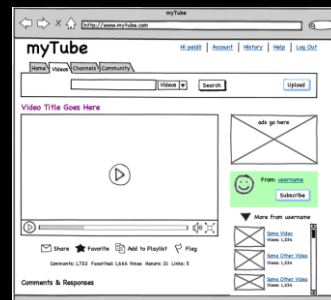
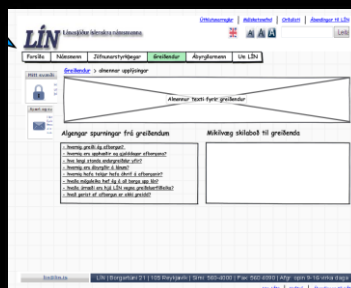
- Try out your various designs and decide which is best



www.ru.is

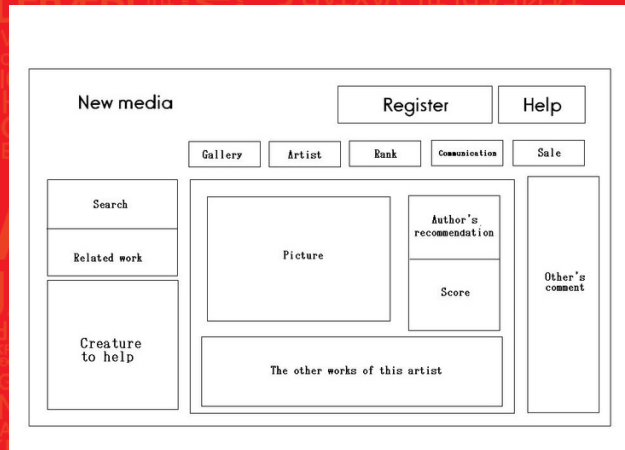
Prototyping in a tool

- Many tools available, e.g.:
 - Draw.io, Paint, Power Point, Balsamiq, Mockingbird, Excel
 - You should use Draw.io if you want to use a tool



www.ru.is

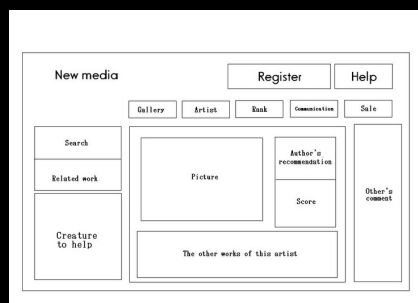
More on Wireframes



www.hr.is

Wireframes

- Wireframe – ísl. grunnmynd
- The layout is there, some labels too
 - The estimated size and layout of the elements
- The details have not been decided (color, font,)



www.ru.is

A wireframe for this one



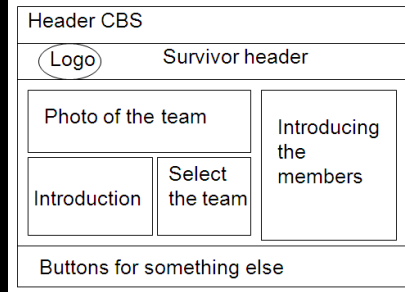
www.ru.is

The wireframe

Header CBS		
Logo	Survivor header	
Photo of the team		Introducing the members
Introduction	Select the team	
Buttons for something else		

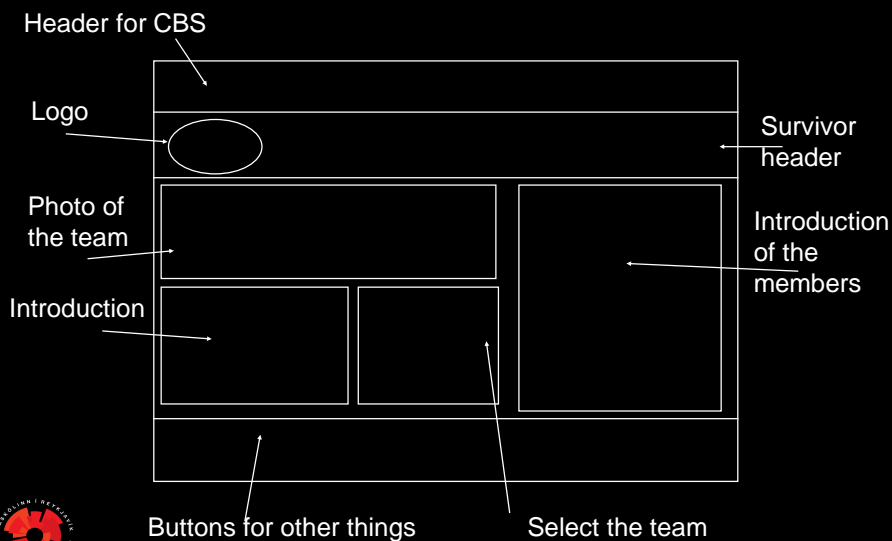
www.ru.is

Wireframe describe the structure

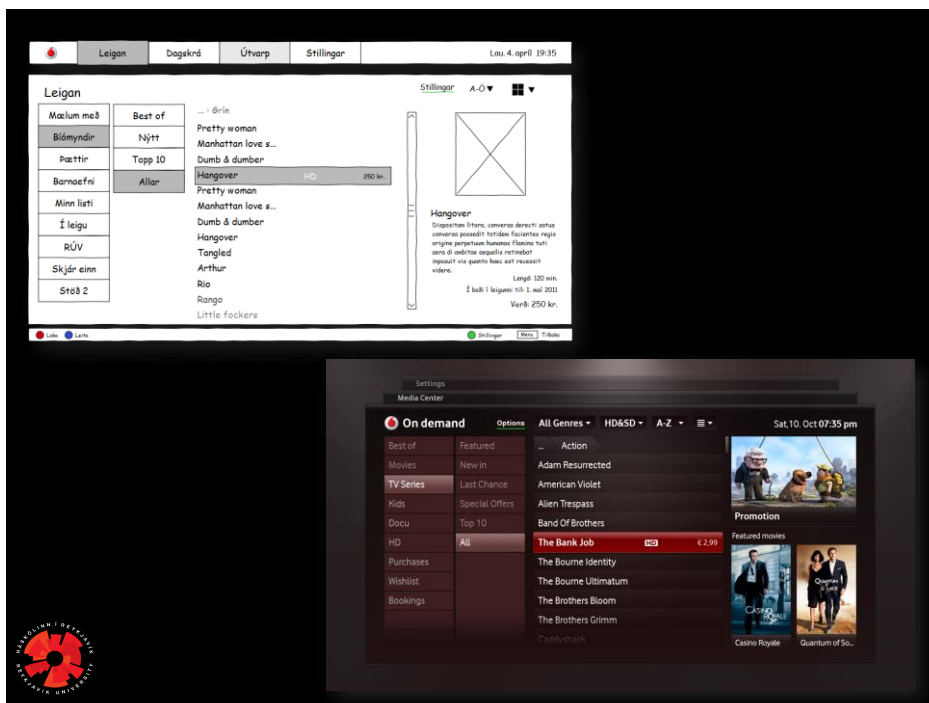
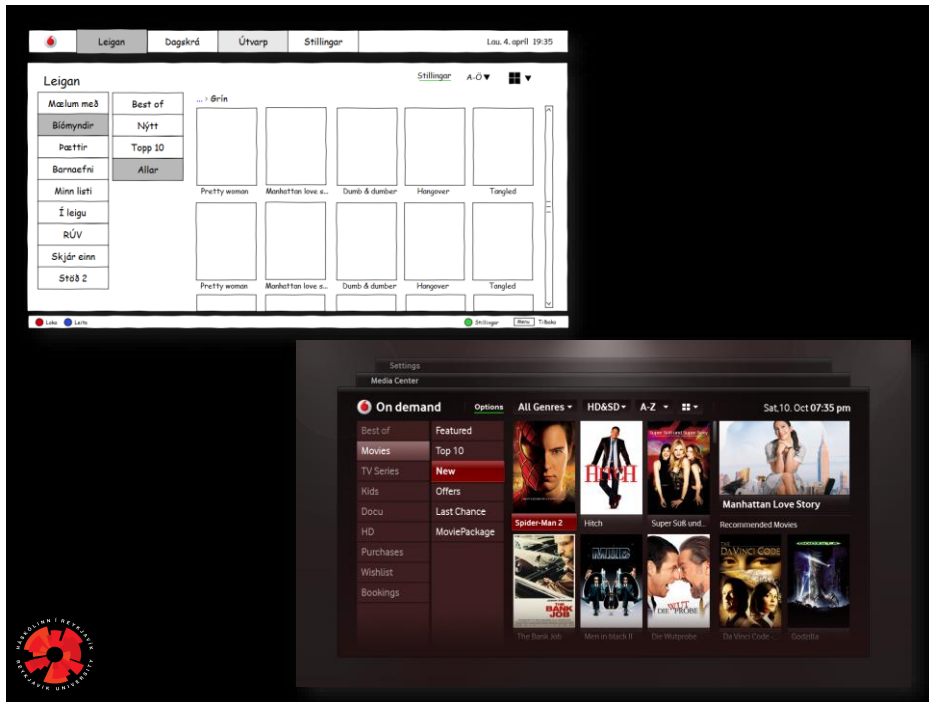


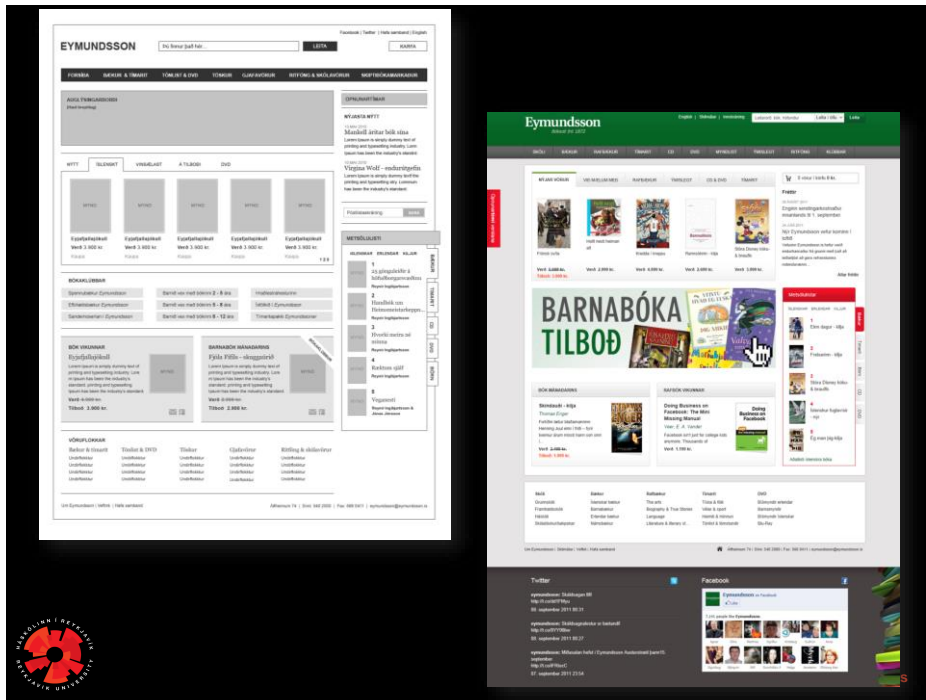
www.ru.is

Or look like this!



www.ru.is





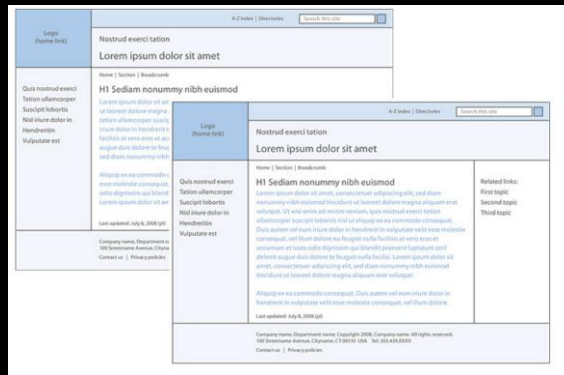
Focus on the use cases – no matter the screen size



The smaller the screen size, you need to be more sure of what are the users main tasks (we will talk later about responsive design for web)

www.ru.is

Standard elements on a Web site



www.hr.is

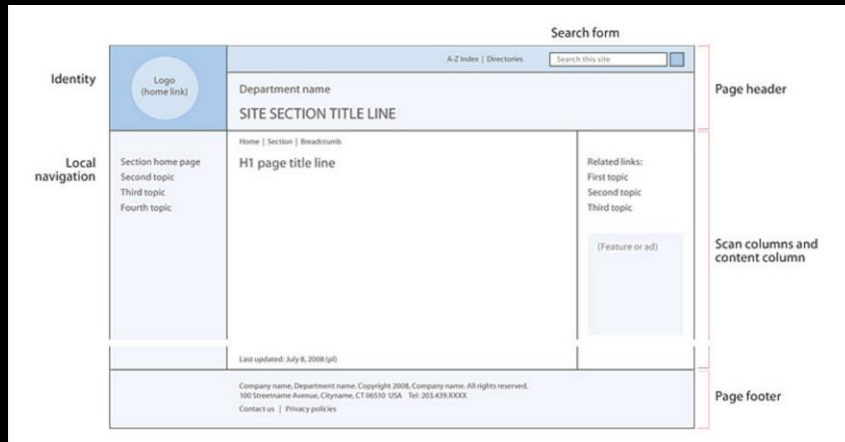
Standard elements on a web site

- Organizational logo
- Site identity or titles
- Page title headlines
- Breadcrumb trail navigation
- Search form
- Links to a larger organization of which you are a part
- Global navigation links for the site
- Local content navigation
- Primary page content
- Mailing address and email information
- Copyright statements
- Contact information



www.ru.is

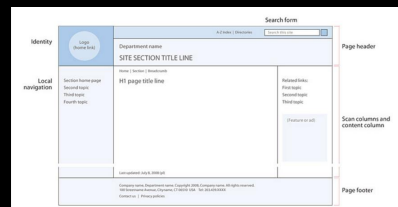
Standard layout



www.ru.is

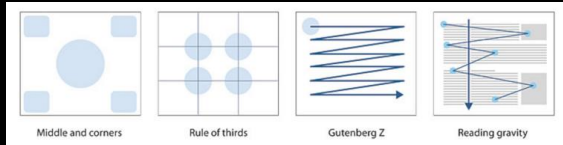
When Making Wireframes

- Use a single generic font
 - Avoid distinctive typography
- Use gray tones
 - avoid color or pictures
- Maybe include organization logo
 - Maybe only indicate the general location of the logo
 - More here: <http://webstyleguide.com/wsg3/3-information-architecture/4-presenting-information.html>



www.ru.is

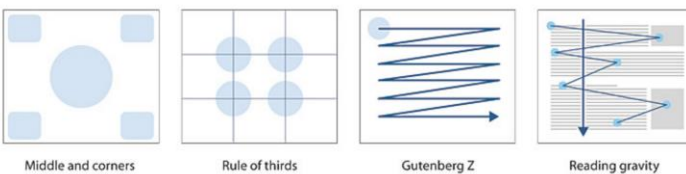
Where to Put Things?



www.hr.is

The telephone number catalog - 99

The screenshot shows a web form for searching phone numbers. The form includes fields for 'Sinnúmer' (Area code), 'Símanúmer' (Phone number), and 'Landshluti' (Country code). There are also checkboxes for 'Sinnúmer' and 'Landshluti'. The form is titled 'Velkomin í uppflettingu símaskrár' (Welcome to the phone number catalog). Below the form, there is a section titled 'Sinnúmer' (Area code) with a list of area codes and their corresponding regions. The page also includes a search bar and a 'Sinnúmer' (Area code) field.



www.ru.is

The telephone number catalog - 99

Heimilisla Landshósti

Þjónustuvefur Símanum

Fyrirtæki: Marta Kristín Lárusdóttir
 Nafn: Marta Kristín Lárusdóttir
 Staðsetning: Gættastékk 2
 Svæði: 109 Reykjavík
 Símanúmer: 587 9868

Leita Hreinsa

Upphafssíða
 Nákvæmari leit
 Hjúkari

99 SIMANÚMÉR



www.ru.is

The telephone number catalog - 2000- redesign

Logó Landsmaga

Auglýsing

Númeraleit Nafnaleit Gulu síðurnar Stillingar Hjálpið

Upplýsingar

Númeraleit

Nafn einstaklings/fyrirtækis: Leita

Heimili/staðsetning: Hreinsa

Svæði: V Ítarlegri

Nafnaleit

Símanúmer: Leita

Netfang: Hreinsa

Veffang: Ítarlegri

Gulu síðurnar

Nafn fyrirtækis: Leita

Abinnuflókkar: V

Staðsetning: Leita

Svæði: V

Símanúmer: Leita

Veffang: Leita

Flokkar: Leita

Hreinsa Ítarlegri



www.ru.is

The telephone number catalog - 2000- redesign



www.ru.is

The telephone number catalog - 2000- redesign



www.ru.is

The Detailed Design

The screenshot shows the SIMINN website interface. At the top, there's a navigation bar with links: Leit, Hjálp, Skráningar, Númerasíður, Tenglar, and International. Below this, the main content area displays a search result for "Nærðu endum saman?" with a "Já" (Yes) button. The search bar is labeled "simaskra.is - Leit - Einföld leit". The sidebar on the right contains a list of services: Vefir Simans, Siminn, Vefverslun, Siminn Internet, Boði, Pínar síður, Frelsi, Vít, and Box. Below these are sections for "ÁHUGAVERI" (Interesting), "FJARVINNA SKILAR ÁRANGRI" (Remote Work Achievements), "box", and "Frelsi".

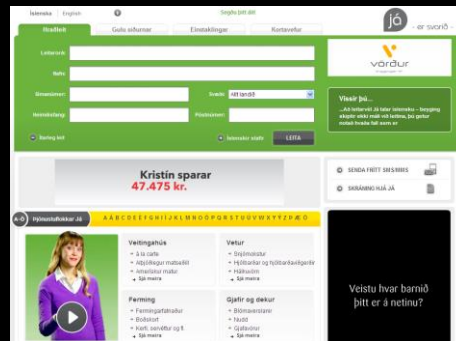
www.ru.is

The Detailed Design

The screenshot shows the SIMINN website interface. At the top, there's a navigation bar with links: Leit, Hjálp, Skráningar, Númerasíður, Tenglar, and International. Below this, the main content area displays a search result for "Lay-back HÆGINDASTOLARNIR" with a price of "69.900". The search bar is labeled "simaskra.is - Leit - Ítarleg leit". The sidebar on the right contains a list of services: Vefir Simans, Siminn, Vefverslun, Siminn Internet, Boði, Pínar síður, Frelsi, Vít, and Box. Below these are sections for "ÁHUGAVERI" (Interesting), "FJARVINNA SKILAR ÁRANGRI" (Remote Work Achievements), "box", and "Frelsi".

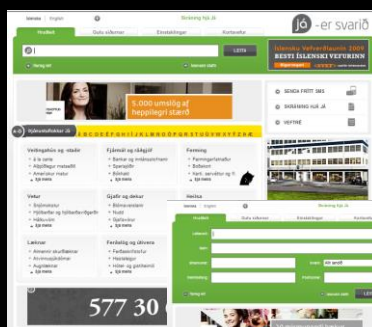
www.ru.is

Some years ago



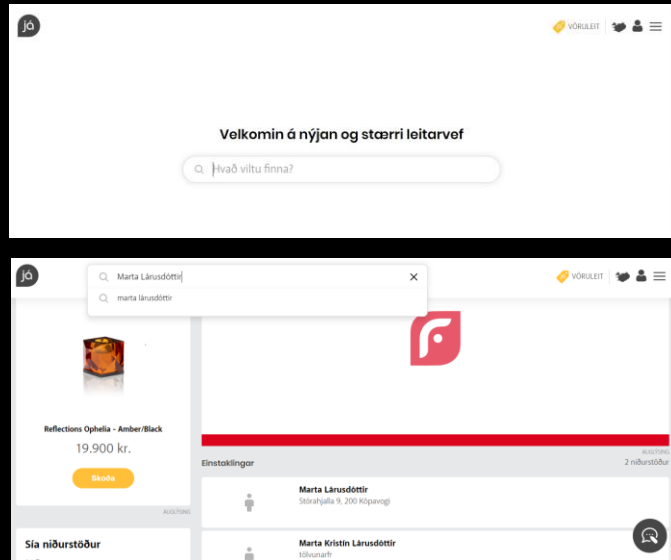
www.ru.is

Some years ago



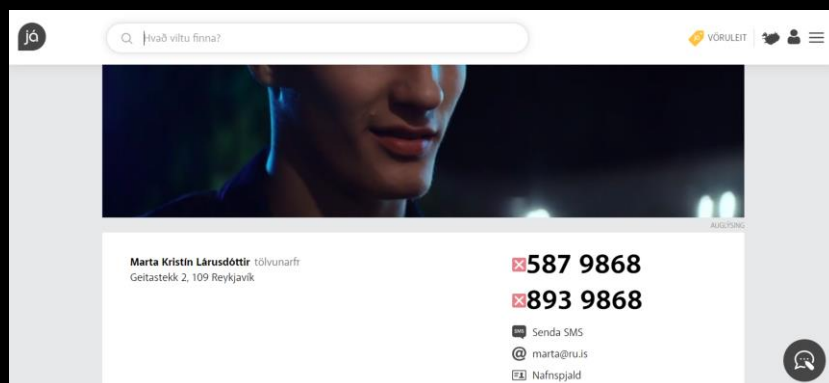
www.ru.is

Now



www.ru.is

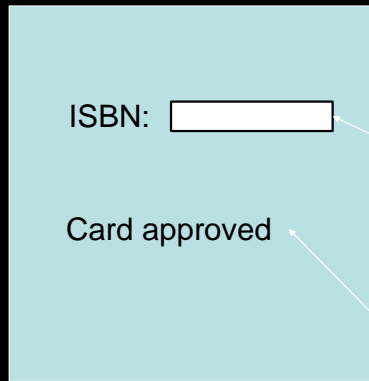
Result



www.ru.is

33

The Design: Low Fidelity Prototype



1. A user gives the clerk the book he wants to borrow (no interface),
2. the clerk scans in the book barcode, or types in the ISBN of the book.
3. The user then shows his library card, the clerk scans that in as well,
4. The text "Card Approved" is displayed
5. The user can then take the book to his home.



www.ru.is

Summary

- Low-fi prototyping
 - Both on paper and made in a tool
 - Rough sketches of the interface
- The main decisions
 - What should be on each screen
 - The layout of each screen
 - Where should each item be on the screen
- Wireframes show this in a clean way



www.ru.is