



Levels of validation: A Prototyping Approach for Digital Solutions and Content Preferences

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Who I am:

Post-Doctorate: Industrial Design | Academy of Art University, San Francisco, CA - USA.

Dr: Production Engineering | UFSC, Brazil
(with part of the research at the Uni-Wuppertal)

Master's: Design Management | UFSC, Brazil.

Bachelor's: Graphic Design | UDESC, Brazil.

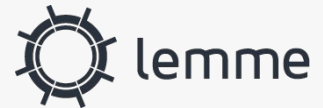
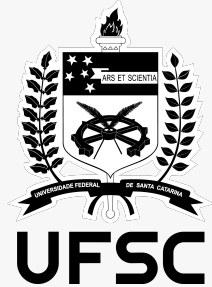


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What I do:

- Professor, Design Program | Bachelor's Degree
- Professor, Graduate Program in Design | Master's & PhD
- Media area Coordinator and Professor, Graduate Program in Knowledge Eng. and Management | Master's & PhD
- Leader, Research Group | Lemme Lab - Digital Innovation
- Montex | Digital Innovation Consulting



Summary

01. About us

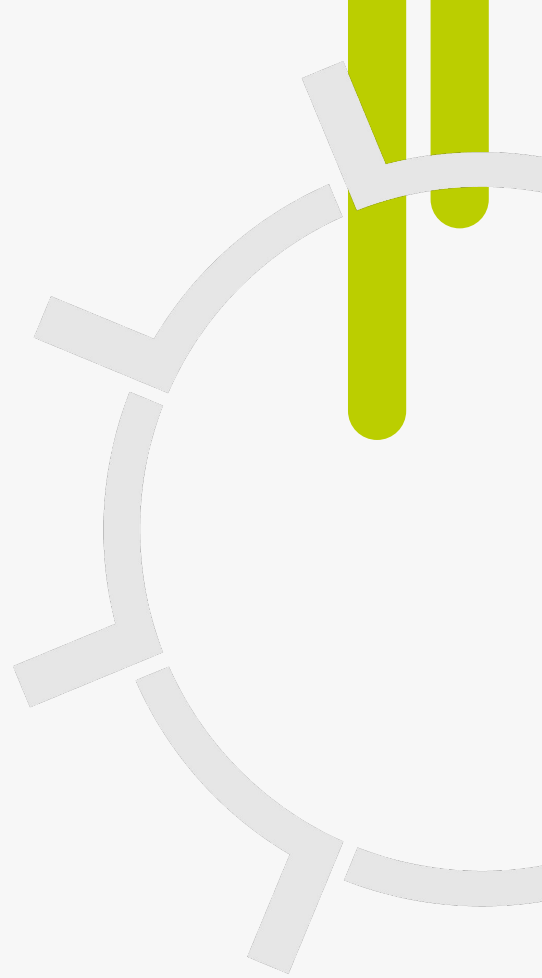
02. Our vision about the design project

03. Prototyping

04. Applications

04.1. Data-Persona Applied to Content

05. Q&A





01 About us

We are a research group linked to the Federal University of Santa Catarina.

We believe in **interdisciplinary scientific research** applied to **innovation, management** and **media** through **Design**

<https://lemme.ufsc.br>



Our approaches



lemme



Area:



Digital Innovation

Subjects:



CX Journey



Creative data analysis



Generative AIs

Topics:

Wearables

Digital Education

Digital Business

Personas

Visual Management



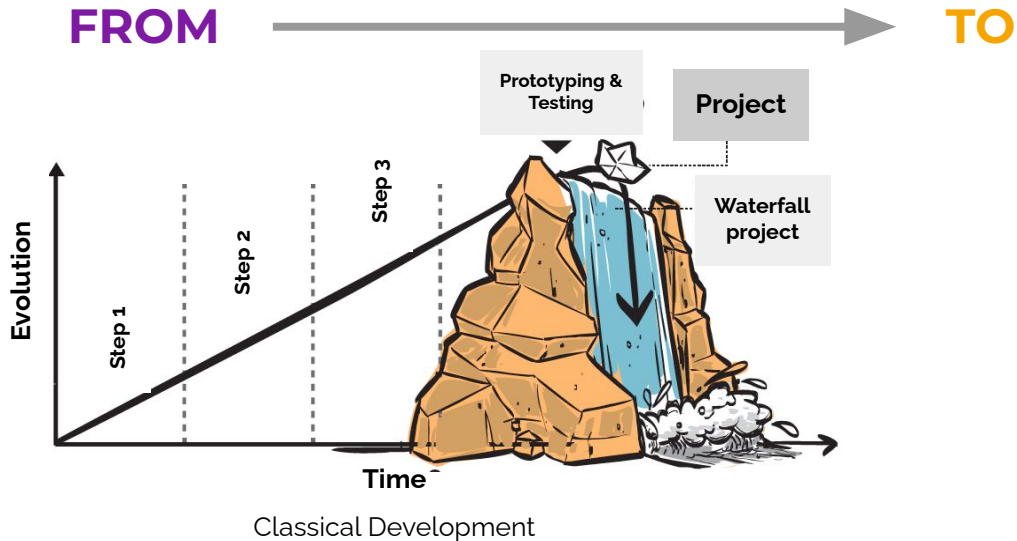
02

**Our vision about
the design project**

Design thinking is now Business thinking!

Prototyping and experimentation:

Adopt agile and useful procedures, do not just follow checklists!



Design thinking is now Business thinking!

Prototyping and experimentation:

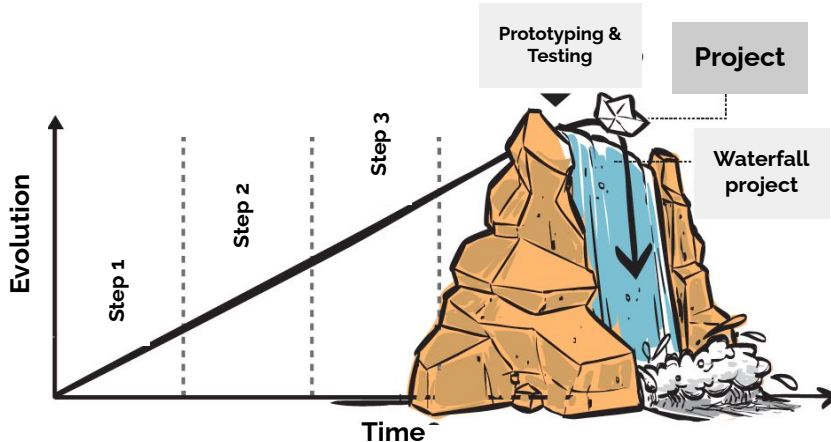
Adopt agile and useful procedures, do not just follow checklists!



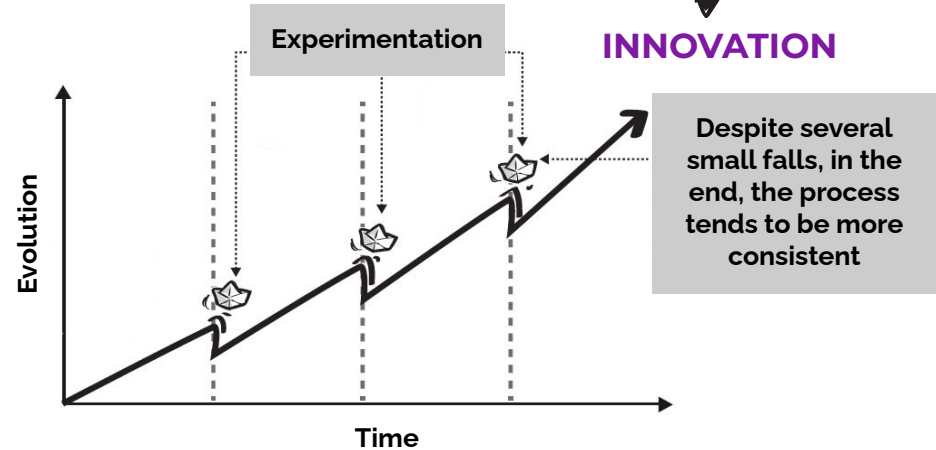
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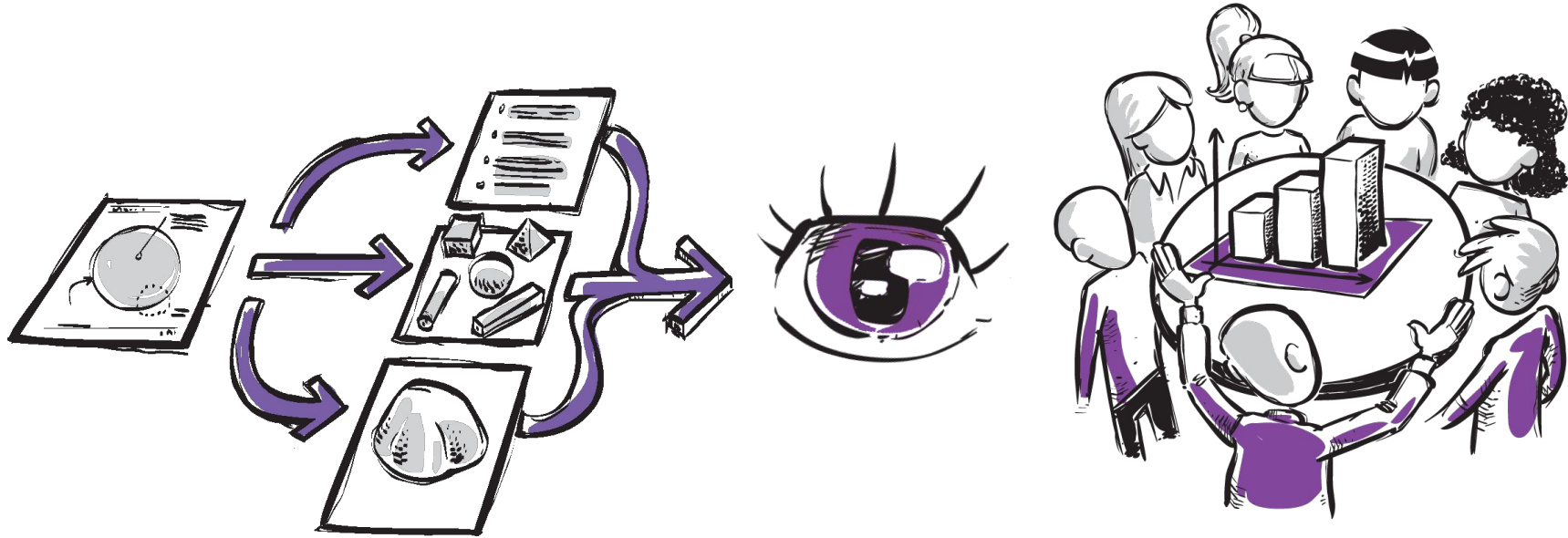
TO



Classical Development



Experimental Development



“THE VISION IS THE ALGORITHM OF HUMAN PERCEPTION”

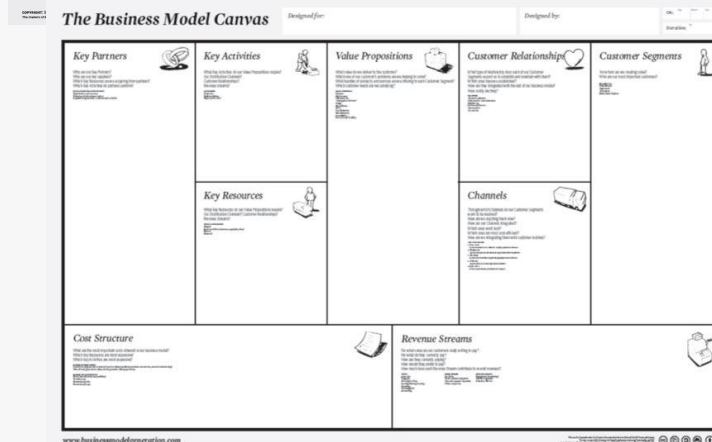
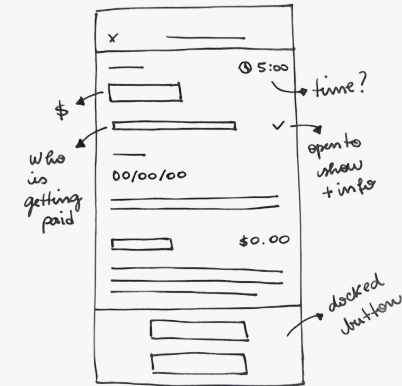
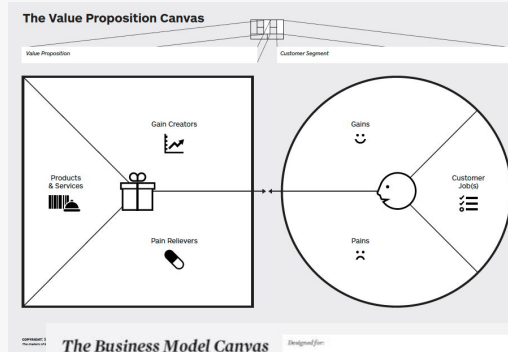
Applications in Business

Prototyping and experimentation:

Ideas need to be prototyped (taken out of the mind) to see if they make sense... at least on a conceptual level.

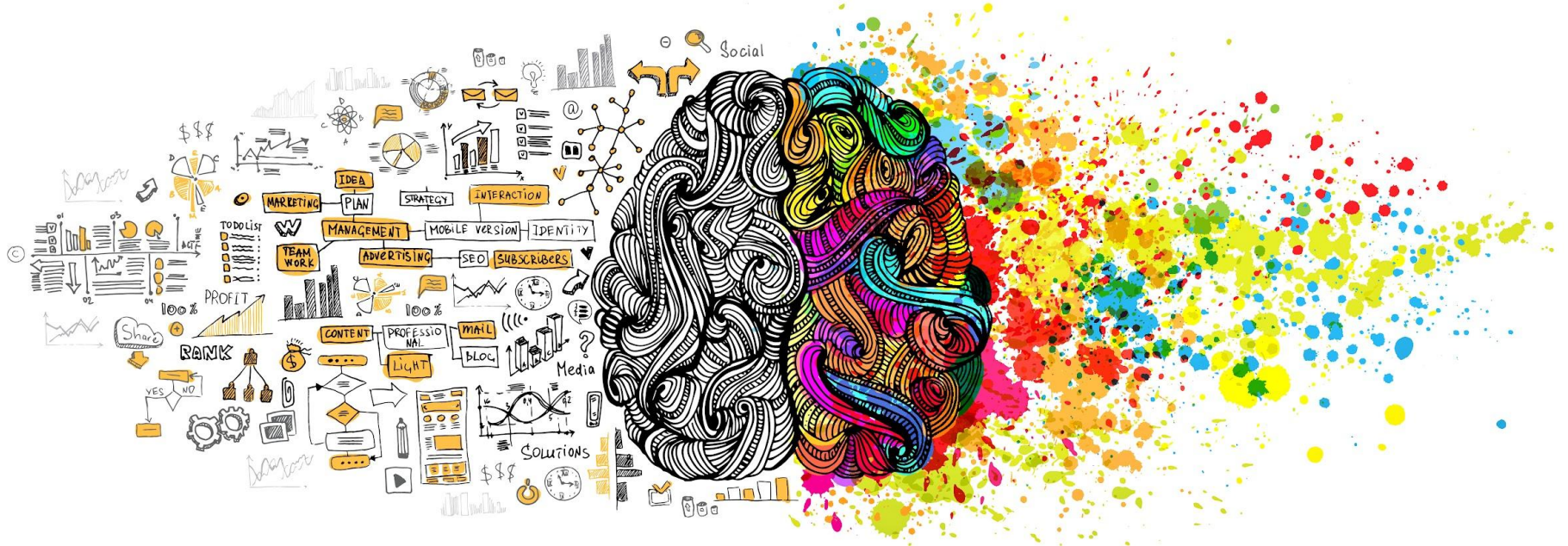
In addition to helping refine ideas and uncover hidden opportunities and mistakes while they are still thoughts, speech, or text.

Prototyping allows team colleagues to collaborate more effectively on the project.



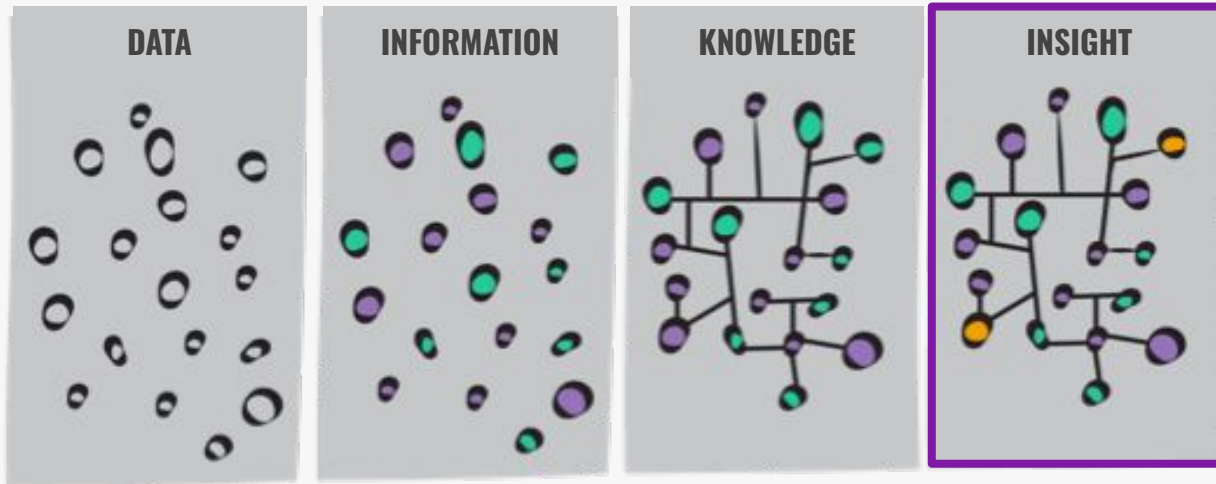
Create with emotion and reason


Combine creativity and imagination with reason and logic



Dig deep the outcomes

Search for “hidden” nuances, ambiguities, opportunities and insights in the scenario





03 Prototyping

Recommended to validate and refine the solutions! Prototypes can be used for testing and checking interactions.

The level of complexity in a prototype will influence the user's perception of value.

Validation and refinement of the solutions

Prototyping advantages:

- Put your hands on the project
- Develop a connection between people
- Develop empathy with those who will really use the solution
- Decrease the designer ego



Validation and refinement of the solutions

Prototyping advantages:

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- Develop a connection between people
- Develop empathy with those who will really use the solution
- Decrease the designer ego

But keep in your mind:

- Customer value first
- Deliverables on the right time (done is better than perfect, but design is about details)
- The project does not have ending, but it has a deadline



Prototyping

Prototypes fidelities levels could be divided in terms of:

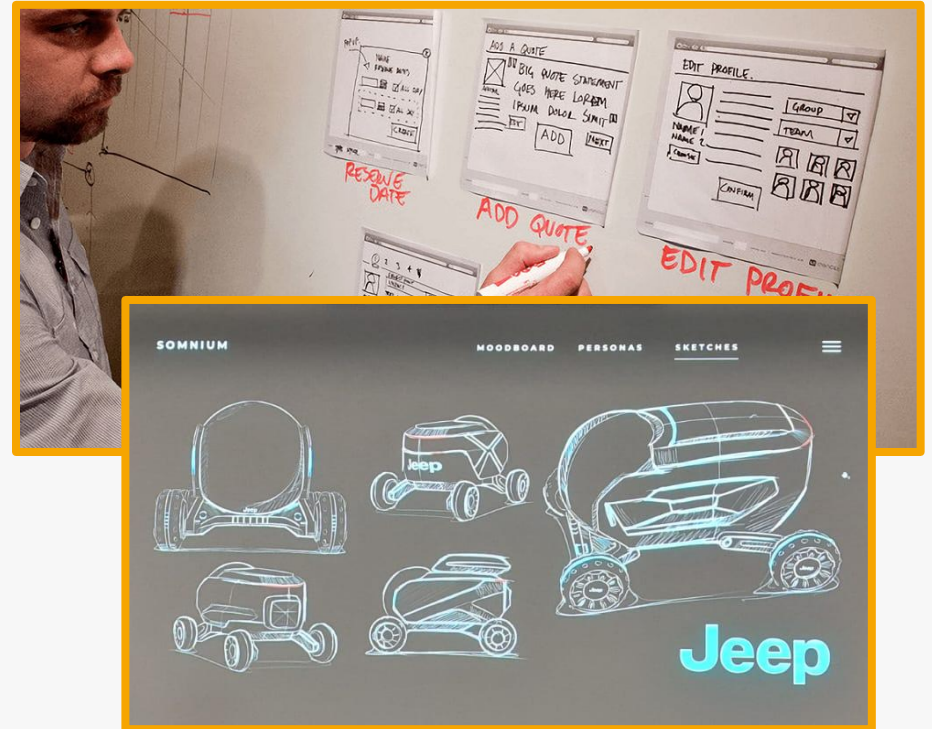
- **Details:** amount of detail that the model supports
- **Functionality degree:** how close functionality details are to the ideal operation
- **Similarity:** how similar the current model is to the final product
- **Aesthetic refinement:** how real the model looks like



PROTOTYPING | LOW FIDELITY

Characteristics:

- Presents the functionalities just visually
- Does not have interaction features
- Does not necessarily display the same design as the final version
- Can be prototyped on paper ("Paper accepts everything"! But if the concept is not good enough in your paper, refine it!)

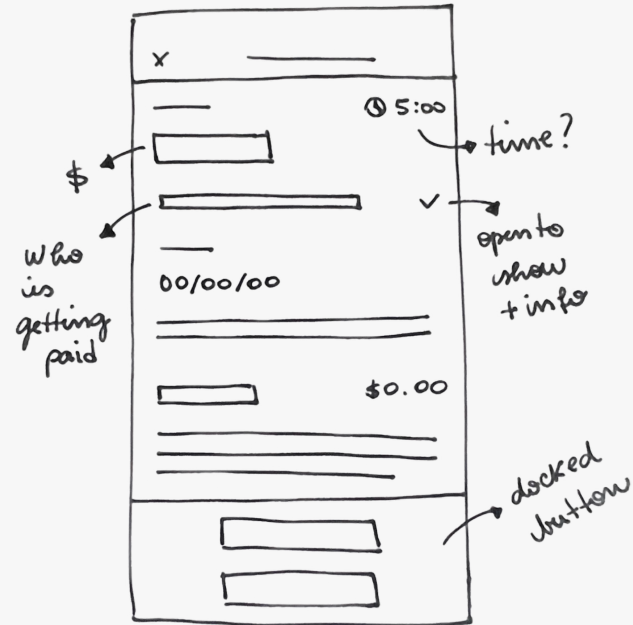


PROTOTYPING | LOW FIDELITY

Lo-Fi is recommended for:

EXPLORE AND VALIDATE CONCEPTS AND IDEAS

The user, when realizing that it is a draft, feels more comfortable about giving feedback on the essence of the proposal.



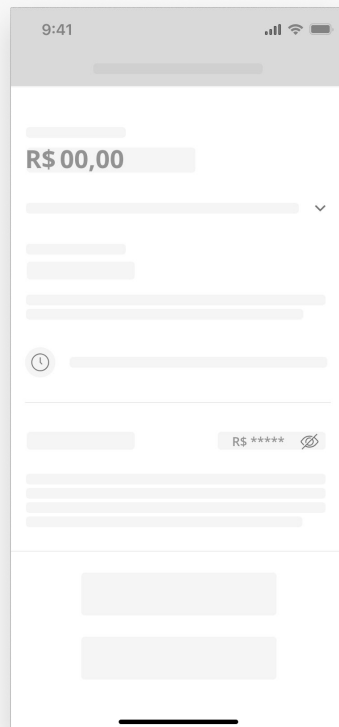
PROTOTYPING | MEDIUM FIDELITY

Recommended for:

EXPLORE AND VALIDATE WAYS OF USE AND NAVIGATION

They are widely used in projects involving use, navigation and information architecture.

In digital, these prototypes are often referred to as **wireframes**. And until the end of this validation, the Style Guide must be defined



PROTOTYPING | MEDIUM FIDELITY



PROTOTYPING | HIGH FIDELITY

Characteristics:

- Enables user interaction, emulating the final product;
- Represents the final product in terms of design and functionality
- Usually presented in the final format or in a simulation very close to the final one (product, software, app, etc.)



PROTOTYPING | HIGH FIDELITY

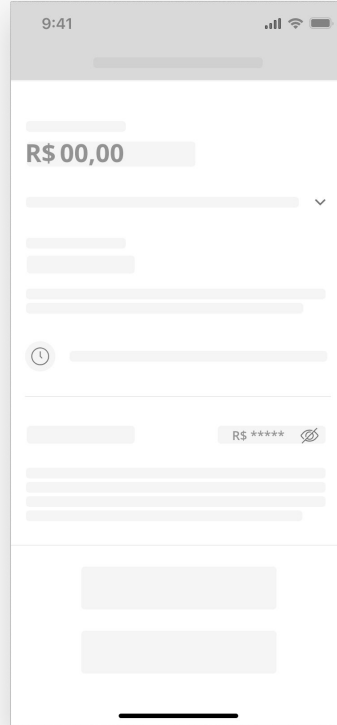
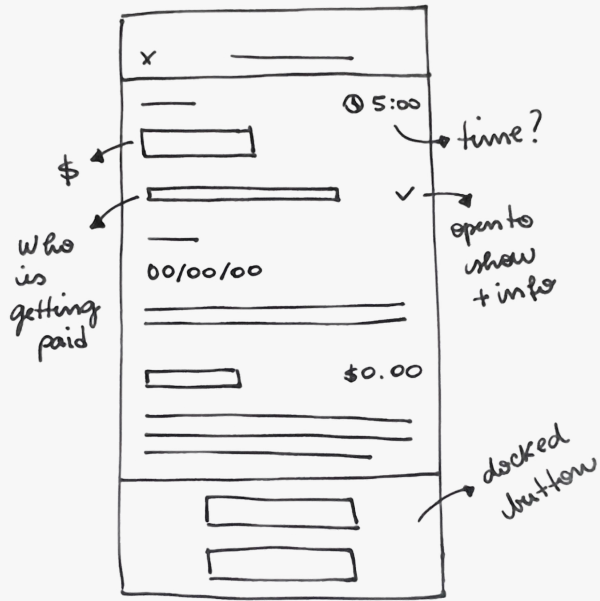
Hi-Fi is recommended for:

**VALIDATE SPECIFIC
FUNCTIONALITIES OR
THE SURFACE ELEMENTS**

In most cases it is possible to simulate the complete flow of all functionalities in order to measure the user interaction as if it were the final product, without saving data in a database.

Also useful for validating icons, buttons, colors etc.





Evolution of design process



04 Applications



Applications

Testing

Prototypes can help you and your team to validate directly with the users some important features, like:

- Visual decisions (colors, icons, fonts)
- Buttons and CTAs
- Accessibility
- Copy, content, and messaging
- User flow and task realization

Some types are usability testing, A/B tests, card sorting, etc.

Usability tests can be:

- **Moderated:** allows the researchers to communicate directly with users and obtain more detailed insights and problems along the way
- **Unmoderated:** allows to collect data from a bigger number of participants in a shorter period of time

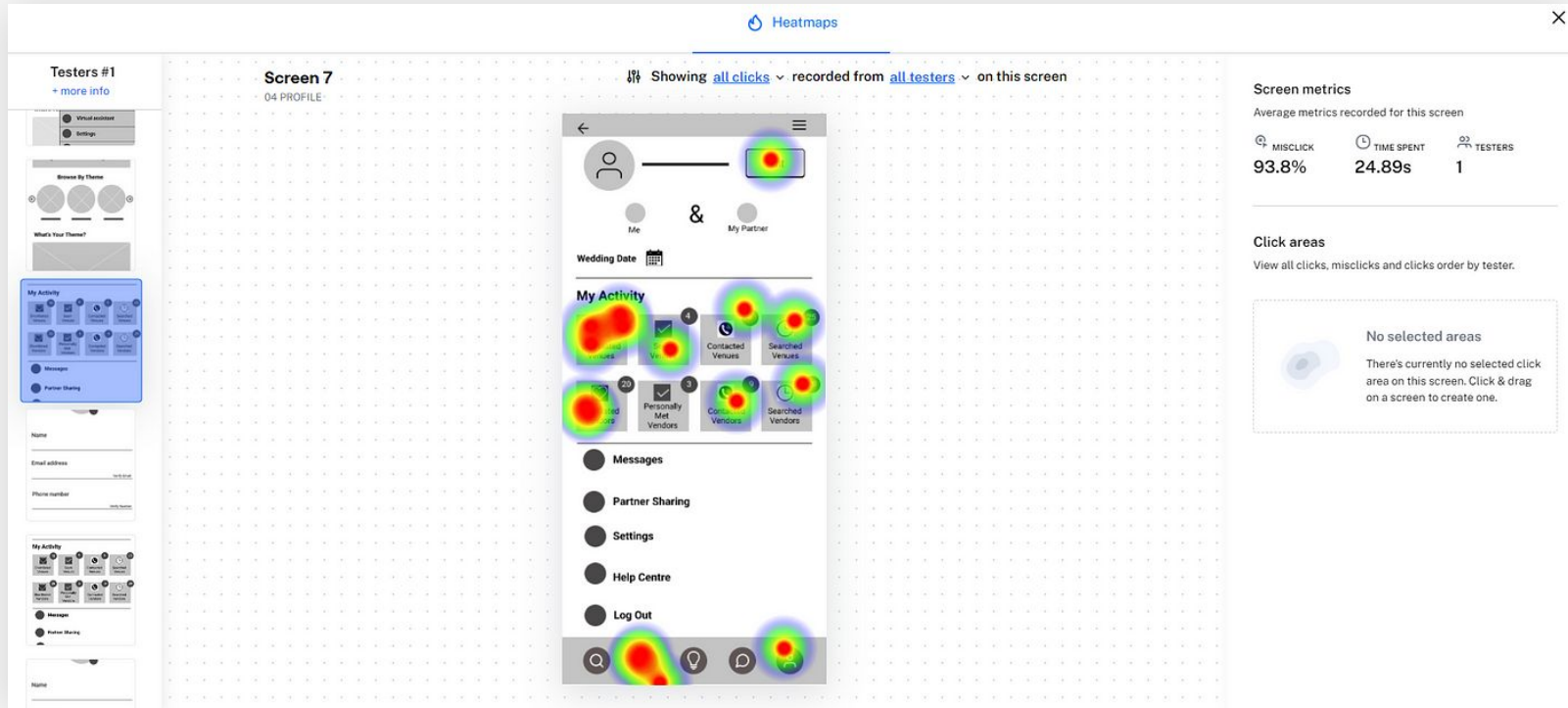


Image source: [My first impression — “Maze” Usability testing tool!](#)



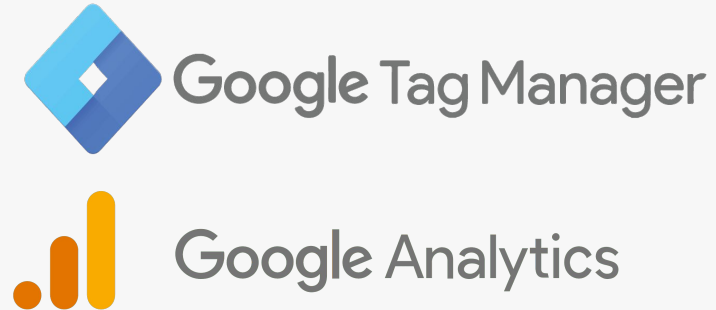
Applications

To define strategy

When the product becomes "real" it is easier to define the goals, signs, and metrics. From those definitions, communication, marketing, and data collection can also be developed.

Here are some tools that can be used:

- Google HEART Framework
- Tags and data analytics



 HEART Framework

	Goals	Signals	Metrics
Happiness			
Engagement			
Adoption			
Retention			
Task success			

Applications

To show ideas

Prototypes and models are a great way to make ideas tangible and possible to be shown in communication materials.

They can set an environment and turn a company's vision or goal real to the customers.





04.1

Data-Persona Applied to Content

Personas

First, take a look at the example:

We turn to Daniel Kahneman (Nobel laureate in economics). According to him, one American was described by another as follows:

“Steve is very shy and introverted, invariably helpful but with little interest in people or the real world. He is gentle and organized by nature, has a need for order and structure, and a passion for detail. Is Steve more likely to be a librarian or a farmer? [2]”

[2] Daniel Kahneman. 2011. Thinking, Fast and Slow (1st ed.). Farrar, Straus and Giroux.

Personas

Steve's personality resemblance to that of a stereotypical librarian comes to anyone's mind instantly, but equally relevant statistical considerations are often overlooked.

Have you considered that there are over 20 male farmers for every librarian in the United States?

Due to the significant disproportion, it's highly likely that more individuals with "gentle and organized" natures can be found driving tractors than working in libraries.



**“Without data
you're just
another person
with an opinion”.**

William Edwards Deming

Proto Persona vs. Data-Persona

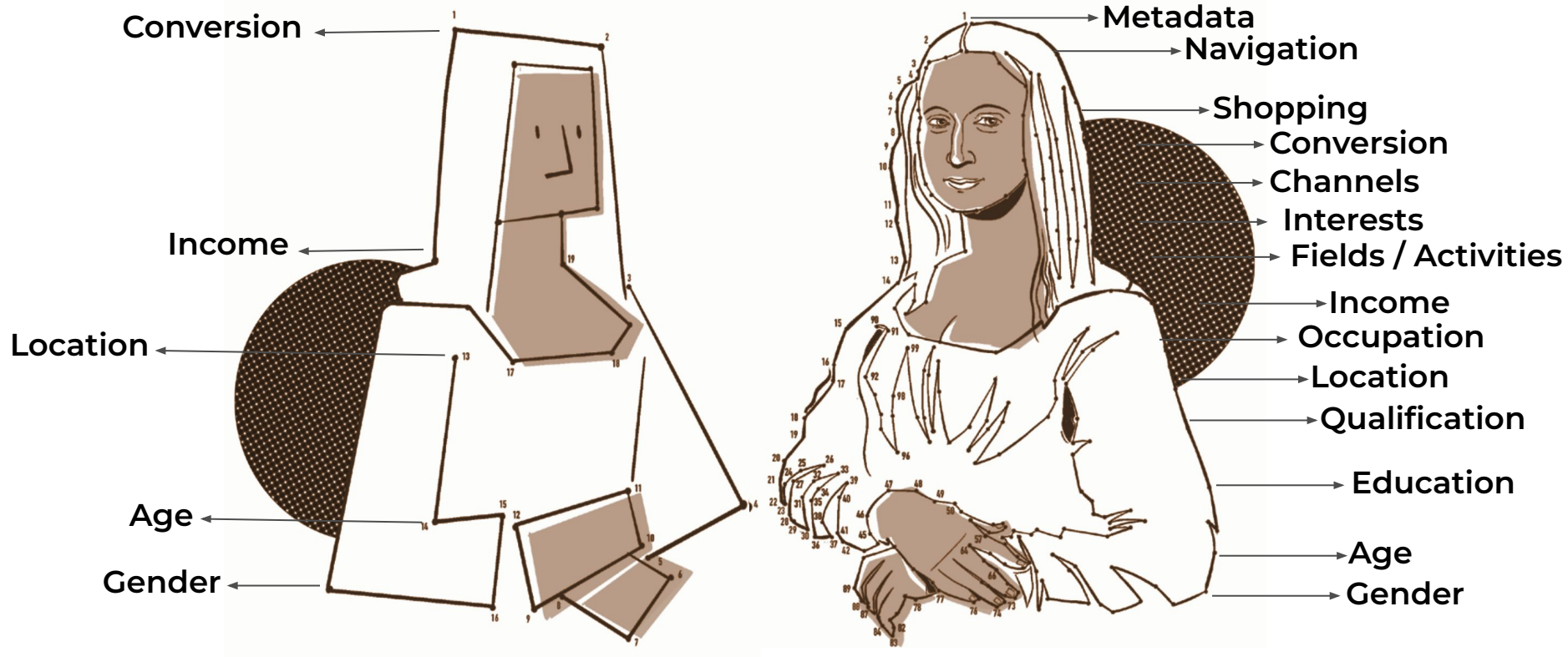
Proto Persona

- Fits **early** product conception;
- Based on **empiric knowledge** and **assumptions**;
- **Low** development cost;
- **Starting point** for real personas;
- Must be **questioned and validated** at later stages of product development.
- Lacks **objectivity and rigor**;
- It **expires**;

Data-Persona

- Fits **all stages** of product development;
- Based on **actual data**;
- **Always desirable** when data is available;
- **Low to medium** development cost depending on data collection culture and IT infrastructure;
- **Must be validated** from time to time;
- Indicators that feed persona attributes and characteristics can be **automated** for monitoring purposes;
- If done so, can provide **quick response** to changes in the scenario.

Data analysis ties creativity to reality!



We call these “anchor points”

Personas

What are they?

“Personas are the interface that promotes mediation between user or customer data and the team, in a humanized way.[3] ”

[3] Jefferson Velasco, Antônio Picalho, Renan Fonseca, Helouíse Viola, Julio Teixeira, Luciane Fadel, and Marli Pinto. 2023. Data Driven Personas: a mediation interface between data and users. DOI:<https://doi.org/10.54715/arque.978-65-84549-17-3.007>

Data Analysis

Profile #1

Representation:

Female	40.67%	Uses a lot Whatsapp, Instagram and Youtube	68.15%
30 to 35 yo	44.59%		
Location: São Paulo	36.31%		
Superior Education	47.77%	Uses LinkedIn, Facebook and TikTok	49.04%
Income: up to 3k/mo	31.21%		
High debt and credit card expenses	34.71%	Uses bank app to check balance, transactions and payments	80.25%
Loan to pay debt or renovations	35.67%		
Uses spreadsheets	39.49%	Hired loans through app/website and local branch	36.62%
Want longer terms for loans and fast service	56.01%		
Want service/hiring by chat or phone	63.03%	Android user	77.07%

Profile #2

Representation:

Male	34.45%	Uses a lot Whatsapp, Instagram and Youtube	68.15%
36 to 45 yo	39.49%		
Location: Rio de Janeiro	15.92%	Uses Facebook e LinkedIn	52.55%
Post-Graduate	28.84%		
Income: 3k to 5k/mo	27.39%		
High rent and car maintenance expenses	18.47%	Uses bank app to check balance, transactions and payments	80.25%
Loan to pay monthly bills and car maintenance expenses	14.33%		
Uses paper	25.48%	Hired loans through local branch	33.76%
Want a loan without a guarantor and low rates	42.34%		
Whether chat or phone service and 100% digital hiring	52.40%	iOS user	12.10%



Persona #1 Paula, 33 yo

Private Contract

Paula is 33 years old and lives in São Paulo. She graduated in Business Administration from a small college and has been working as a financial assistant in a hardware store for 4 years. She is married and has a six-year-old son, dividing her routine between work, home and the child, a reality that applies to many women in the country. She and her husband bought land when they got married and built a small house that has already been renovated to build a room for the baby when she got pregnant. At the time, Paula took out a loan from her bank to pay for part of the renovation, she also used up the credit card limit to buy finishing material, which led her to ask for another loan. Now, with her financial life more organized, Ana makes plans for the future, thinking about improving her furniture or buying appliances, in addition to renegotiating or paying off small debts she already has.

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Needs

Paula would like to have loan options with longer terms in order to reduce the amount of installments and not have a major impact on her monthly expenses.

She also wants quick solutions, without the need for back-and-forth and time-consuming evaluations. As she already has experience with loans, she knows that it is necessary to research and compare options, so she wants to be able to talk to real people, via chat or phone, to learn about her options and feel safe in making decisions.

Frustrations

Paula organizes her finances in a spreadsheet, which gives good results but is a lot of work.

She doesn't like to go to the bank to deal with any matter, but being a client of a large institution, she cannot be answered by telephone with the agility she needs.

In some situations, she missed opportunities to buy things she needed for her home due to the delay in approving a credit operation under the conditions she wanted, such as longer terms and/or smaller installments.



Persona #1 Paula, 33 yo

Private Contract

Pains

[P1] Lack of time to do your financial management

[P2] Can only feed her spreadsheets at work where she has access to a computer

[P3] It is hard to communicate with her bank when she needs to

[P4] She can't make low cost plans because her bank doesn't approve long terms for smaller amounts

Gains

[G1] Mobile financial management app with tips;

[G2] Clear offer of specific content focused on her needs;

[G3] Longer terms for low-value operations;

[G4] Integrated service channels.

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Persona #1 Paula, 33 yo

Private Contract

Channels

Paula accesses WhatsApp and Instagram daily, whether for personal or professional use. On YouTube, she tends to watch videos in her free time, but she often turns to this channel to clear up doubts, especially before consuming products or services she doesn't understand. At least once a week, Paula accesses her Facebook to update herself on recent events with her friends and groups. On LinkedIn, she is connected with current and former co-workers, and enjoys content about motherhood combined with professional life. She downloaded Tiktok for the top trends, but spends more time viewing Instagram reels.

Representation:

Uses a lot Whatsapp, Instagram and Youtube **68.15%**

Uses Linkedin, Facebook and TikTok **49.04%**

Uses bank app to check balance, transactions and payments **80.25%**

Hired loans through app/website and local branch **36.62%**

Android user **77.07%**

	WEBSITE/BLOG	YOUTUBE	TIKTOK	TWITTER	LINKEDIN	FACEBOOK	INSTAGRAM	APP NATIVO	WHATSAPP	EMAIL	TELEFONE
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Middle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Bottom	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



Persona #1 Paula, 33 yo

Private Contract

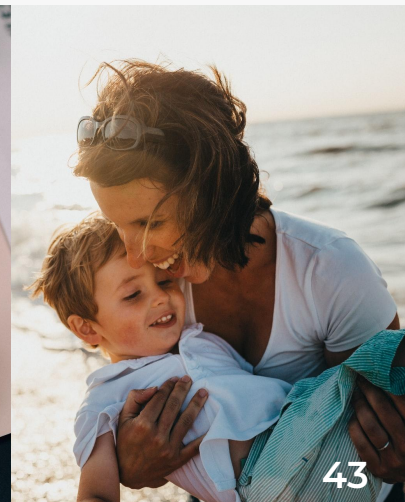
Language and Communication

Paula values a friendly language that facilitates her search for services and products. In addition, the willingness to help her solve her problems is a positive point, especially when she is not familiar with the solution. In financial services, she looks for options with longer terms, which are practical, quick and easy to hire – over the internet or over the phone. Her professional development is closely related to her financial stability. She likes to know options and consume content related to career growth.

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Moodboard/Lifestyle/Environment





Paula, 33 yo

Legenda:

LD: Learning in Discovery

PR: Problem Recognition

SC: Solution Consideration

PD: Purchase Decision

Keywords	Keyword (SEO)	Search Volume (Monthly - Brazil)	Competition (SEO/AdWords)	Top/Middle/Bottom (Funnel)
KW 1	<u>empréstimo online urgente</u> (urgent online loan)	14.800	Medium/High	Bottom (PD)
KW 2	<u>empréstimo pessoal</u> (personal loan)	135.000	Medium/High	Middle (SC)
KW 3	<u>como calcular taxa de juros</u> (how to calculate interest rate)	2.400	Média/Média	Middle (PR)
KW 4	<u>o que é crédito direto ao consumidor</u> (what is direct consumer credit)	4.400	Média/Fácil	Top (LD)
KW 5	<u>organização financeira</u> (financial organization)	2.900	Fácil/Fácil	Top (LD)



Paula, 33 yo

Legenda:

- LD: Learning in Discovery
- PR: Problem Recognition
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Jornada de Compra

Learning in Discovery (LD)	Problem Recognition (PR)	Solution Consideration (SC)
<p>Tips and tools to improve your <u>financial organization</u></p> <p>Saiba <u>o que é crédito direto ao consumidor</u>: como funciona e taxas envolvidas.</p>	<p><u>How to calculate interest rates</u> and choose the best loan option for you</p>	<p>Birthday-withdrawal: a quick alternative for the <u>personal loan</u></p>



Paula, 33 yo

Legenda:

LD: Learning in Discovery

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Blog Post: Language Benchmarking | Textual

SCRIPT

Exemplo de primeiro parágrafo para o post: "Saiba [o que é crédito direto ao consumidor](#) (CDC): Como funciona e taxas envolvidas."

Para quem procura opções de crédito, entender as diferenças entre soluções financeiras nem sempre é simples. Nesse processo, é comum se deparar com algumas perguntas, tais como: Quais as taxas de juros e quantidade de parcelas possíveis? Para quais opções sou elegível? Posso contratar sem fiador? (Trabalhando dores específicas dessas personas)

[Explicação técnica sobre CDC, vantagens e desvantagens, e no final, apresentação do saque-aniversário FGTS como uma alternativa mais simples]

Obs: Ao descrever o serviço de adiantamento do saque-aniversário de FGTS, reforçar os pontos: facilidade no processo de contratação, que é 100% online; e taxas baixas para quantias menores e inexistência de mensalidade (sem prazos curtos ou longos).



Paula, 33 yo

Legenda:

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Blog Post: Language Benchmarking | Textual

SCRIPT

Example of first paragraph for the post: '[Learn about Direct Consumer Credit](#) (DCC): How it works and associated fees.'

For those seeking credit options, understanding the differences between financial solutions is not always simple. In this process, it's common to come across some questions, such as: What are the interest rates and possible installment quantities? Which options am I eligible for? Can I apply without a guarantor? (Addressing specific concerns of these personas)

[Technical explanation about DCC, advantages & disadvantages, and finally, presentation of FGTS birthday withdrawal as a simpler alternative]

Note: When describing the FGTS birthday withdrawal advance service, emphasize the points: ease of application process, which is 100% online; low rates for smaller amounts and no monthly fees (without short or long-term deadlines).

Resumo dos temas-chave

KEY-THEMES	PAINS [P] & GAINS [G]* PER PERSONA				
	Ana Paula, 33yo	Aírton, 42yo	Marcele, 44yo	Paulo, 35yo	Maria, 62 yo
Recommendation of financial organization apps	P1, P2 e G1	P1 e G1	P1, G1 e G2	-	G1
Interest rate calculator	P1, G1	P1, G1	P1, G1	-	G1
Loan with longer terms	-	P4	-	P2	P1 e P2
Ease of loan application	P4 e G3	-	P2 e G3	-	P1
Lower loan rates	G4	P5 e G4	-	P3 e G3	P3 e G2
Loan without guarantor/co-signer	-	P4 e G2	-	P2 e G2	P1
Presentation of loan types	-	P3	-	-	P1
Advantages and disadvantages of payroll-deductible loans	-	P2	-	P4	G3
Loan type comparison/simulator	-	-	-	P1 e P4	P2
	-	-	-	P1 e P4	G3

Summary of Keywords:

KEYWORD

	Ana Paula, 33yo	Aírton, 42yo	Marcele, 44yo	Paulo, 35yo	Maria, 62yo
<u>urgent online loan</u>	✓	✓	✓	✓	✗
<u>personal loan</u>	✓	✓	✓	✓	✓
<u>how to calculate interest rate</u>	✓	✓	✓	✓	✓
<u>what is direct consumer credit</u>	✓	✓	✓	✓	✓
<u>financial organization</u>	✓	✓	✓	✓	✓
<u>payroll-deductible loan</u>	✗	✗	✓	✓	✓
<u>payroll loan rates</u>	✗	✗	✓	✓	✓
<u>types of loans</u>	✓	✓	✓	✓	✓
<u>instant personal loan</u>	✓	✓	✓	✓	✗
<u>loan without guarantor</u>	✓	✓	✓	✓	✓
<u>long-term loan</u>	✓	✗	✓	✓	✓
<u>interest calculator</u>	✓	✓	✓	✓	✓
<u>Caixa bank payroll loan 120 months</u>	✗	✗	✓	✓	✓

Answers 1km →



06 Q&A

Let's talk about some of the points discussed today!

Q&A

- How prototyping is applied in your field?
- What is your approach to content development?
- Do you see any direct application of this concept in your current reality, projects, or work? If so, please share your thoughts.
- What are the key points from prototyping characteristics or persona that you can apply in a project/business?
- Have you ever experienced changes after prototyping in a project/business?



Thank you

Questions? Thoughts?

<https://lemme.ufsc.br>



lemmelab

