



Open Innovation Platform
University - Enterprise
Collaboration

Hands on Design Task Clarification

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Introduction

The main stages of the Products/Services Design:



Introduction

As humans

We solve problems to
change an existing
negative state into a
desired one¹

¹Adapted from Herbert Simon (1969), "The Sciences of the Artificial". Cambridge: MIT Press

Introduction

As designers

We find solutions to problems
to **create new opportunities** for
change

Technical
Social
Business
Safety
Communication

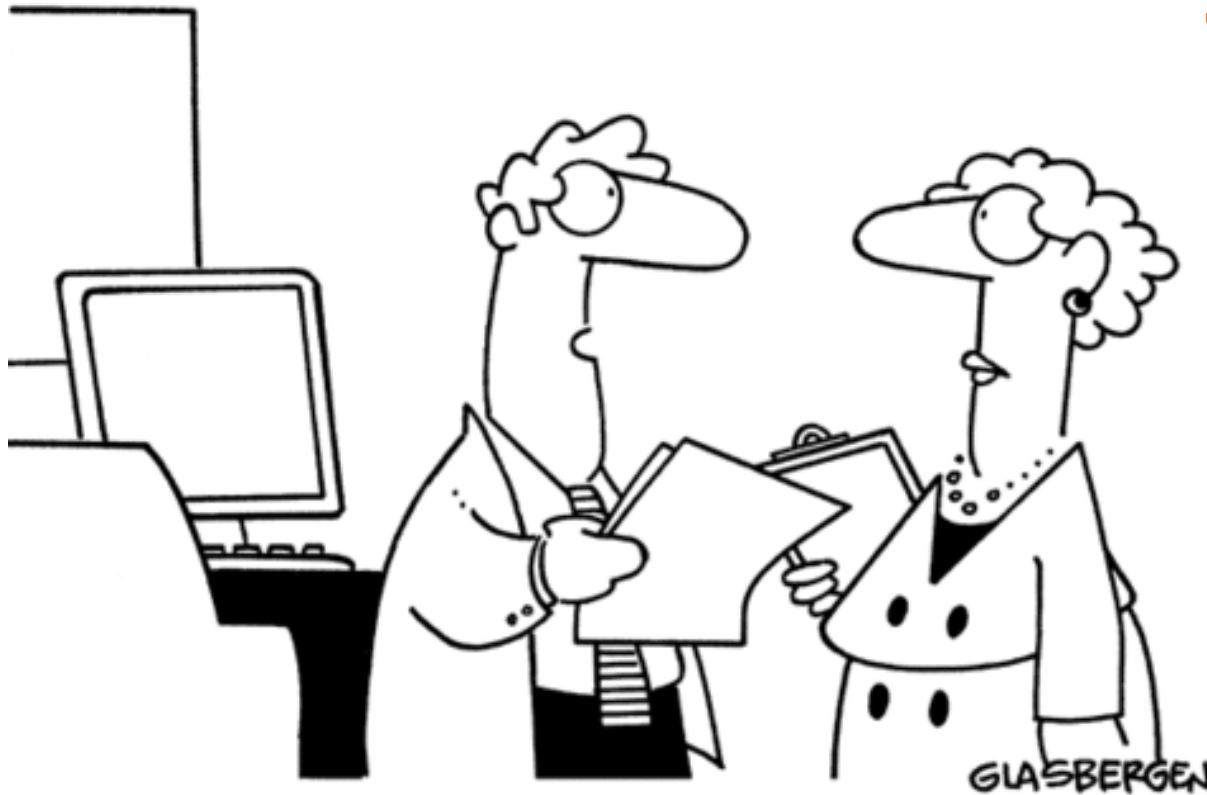
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Introduction

To solve a problem it is first necessary to gain a better understanding of the
DESIGN TASK we have to carry out

**.....BEFORE THE
DESIGN PHASE
BEGINS!**

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**“My team has created a very innovative solution,
but we’re still looking for a problem to go with it.”**

THE ENJOYRUN CALL

The background of the slide features a silhouette of two runners, a man and a woman, in mid-stride against a sunset sky. The man is on the left, leaning forward with his right leg extended back and his left leg forward. The woman is on the right, also in mid-stride, with her right leg forward and her left leg back. The sky is a gradient of orange and yellow at the bottom, fading into a light blue at the top. The text 'The enjoyRUN design call' is overlaid in the center in a white serif font.

The enjoyRUN design call

A sport apparels manufacturer, “FIT-ME”, is looking for proposal of product/service solutions to radically enhance the running/walking experience of people of any age in order to spread healthier behaviours

enjoyRUN *example*

Goals and general constraints

The **GOALS** that the product/service should address are the following:

- Stimulate people to **reach their fitness goals and desired performances** anytime and anywhere;
- Inform people about their **performance and fitness progress**;
- Transform the physical activity into an **enjoyable and social experience** in order **to stimulate behaviour change towards more healthy lifestyles**;
- Possibility to provide **custom-fitted** solutions.

The **GENERAL CONSTRAINTS** that the product/service should address are the following:

- The product should be **light** and **wearable**;
- The **information** provided to users about their performance must be **reliable**;
- **Users' privacy must be guaranteed** for what concern information sharing;
- **It must be not intrusive** (avoid information overload).

STATEMENT

STAKEHOLDERS

NEEDS & REQUIREMENTS

Statement

That is the opportunity

What is going on?

*Who is your client? What is the “problem” to be addressed?
What is the (time/space) context of the problem?*

That is the final goal of your design activity

What is the target to reach?

*What are you requested to design to overcome the “problem”?
Are you requested to design a product, a service or a combination of them?*

What is going on?

*Who is your client? What is the “problem” to be addressed?
What is the (time/space) context of the problem?*

*Our client is **FIT-ME a sport goods manufacturers**. The problem is **the lack of solutions** able to transform the **outdoor running/fitness** activity into an **enjoyable and social moment** of the **daily life** and to **help people keep themselves fit**.*

What is the target to reach?

*What are you requested to design to overcome the “problem”?
Are you requested to design a product, a service or a combination of them?*

*FIT-ME needs a **custom-fitted, connected and wearable device** for tracking people behaviour with respect to fitness (running/walking) activities.*

problem **STAKE** HOLDERS

PROVIDE & SET INPUTS

CHECK THE OUTPUTS

BE AFFECTED BY THE
SOLUTION

PEOPLE

ORGANISATIONS

INSTITUTIONS

GOVERNMENTS

COMPANIES

Stakeholders



ID CARD:
Name:

Characteristics:

Role played:

Expectations: ←



Tip!

You have to be smart enough so as to **anticipate** the **expectations** of our stakeholders

Stakeholders

The identification of the stakeholders could be an “energy-intensive” task!



Select the ones directly in “contact” with the product/service you are designing (they have for sure something to deal with the solution you have to design)

Second, identify who/which has an interest or concern in your problem/solution.

The enjoyRUN design call

STAKEHOLDERS

Stakeholders

enjoyRUN
example

STAKEHOLDERS *identikit*



ID CARD: S1
Name: FIT-ME

Characteristics: *Italian sport apparels manufacturer*

Role played: *Design call promoter. It will check/approve the solution (Investor).*

Expectations: *The company wants to increase its product/service offer and, if profitable, create new business partnerships with other companies.*

enjoyRUN example STAKEHOLDERS identikit



ID CARD S2
Name: RUN
LOVERS

Characteristics: F/M, age 25-40, strongly motivated. They usually run alone or in small groups, for 1,5 h and at least 3 times per week. They usually wear professional equipment.

Role played: Buyers/Users

Expectations: To get a continuous monitoring of their fitness progress avoiding injuries and competing with their friends. They also want to be stylish.

enjoyRUN example STAKEHOLDERS identikit



ID CARD S3

Name:

AMATEURS

Characteristics: *F/M, age 18-60, lazy, they usually run alone, but not regularly, maximum once a week.*

Role played: *Buyers/users*

Expectations: *They need stimuli able to push them run/walk more regularly and frequently but they do not want to be stressed by them. They also want something that is really easy to use and comfortable to wear.*


enjoyRUN *example*

enjoyRUN STAKEHOLDERS

- 
- 1- FIT-ME (investors)
 - 2/3- RUNNERS: RUN LOVERS & AMATEURS (buyers/users)
 - 4- RUNNERS FRIENDS & FAMILY (outsiders)
 - 5- TECH COMPANIES (business partners)
 - 6- HEALTHCARE PROFESSIONALS/PROVIDERS (business partners/outsiders)
 - 7- POLICY MAKERS (controllers)
 - 8-

Needs&Requirements

What we have to satisfy!

NEED  **REQUIREMENT(S)**

How we will demonstrate/measure the fulfilment of the need!



Tip!

- Needs are usually expressed in a **narrative way**: we have thus to translate them into **something measurable** (i.e. a **requirement**) so as we can clearly demonstrate whether the solution we have designed is able to satisfy them
- Requirements are the design specifications through which you can measure the fulfilment of the need(s).

Needs&Requirements

NEEDS (& REQUIREMENTS)

Human-Based

End-user

-HE-

They set how the product/service should “positively” influence **humans’ quality of life** i.e. their activities and mental status.

Technical

Functional

-TF-

They set the “must-have” **performance** and the **overall quality/efficiency** of the product/service you will design.

Business

Corporate

-BC-

They set the **cost/financial/market-based** characteristics of the solution whose fulfilment is fundamental to make profit and to be compliant with the investors’ business mission.

Regulatory

Policy

-RP-

They set the aspects of the product/service that have to be validated with respect to **rules** and **standards**.

Adapted from “Gershenson, J.K. and Stauffer, L.A. A Taxonomy for Design Requirements from Corporate Customers, Research in Engineering Design”

NEEDS

STAKE HOLDERS

PEOPLE
ORGANISATIONS
INSTITUTIONS
GOVERNMENTS
COMPANIES
.....

Needs&Requirements

NEEDS &
REQUIREMENTS

Human-Based/End-user
Technical/Functional
Business/Corporate
Regulatory/Policy

STAKE HOLDERS

PEOPLE
ORGANISATIONS
INSTITUTIONS
GOVERNMENTS
COMPANIES

.....

OIPEC

Third, define what are the aspects your solution must fulfil.

The background of the slide features the silhouettes of two runners, a man and a woman, captured in mid-stride. They are running from left to right against a backdrop of a sunset or sunrise, with the sky transitioning from a pale blue at the top to a warm orange and yellow near the horizon. The runners' forms are dark and sharp against the lighter sky.

The enjoyRUN design call

**NEEDS & REQUIREMENTS
+ STAKEHOLDERS**

NEED (HE)	STAKEHOLDER(s)	REQUIREMENT(S)
To not obstacle “my” fitness activity	-RUNNER (S2) -RUNNER (S3)	The user does not have to handle it neither fill they are wearing something while running (field test analyses)
To allow “me” be social	-RUNNER (S2-S3)	Users are always connected with social platforms
To allow “me” be stylish	-RUNNER (S3)	Uniqueness design, no similar shapes are available on the market
To have high customization possibilities	-RUNNER (S2-S3)	User’s can customize the product features/functionalities according to their running level The product shape reflects users’ anthropometric data
Easy to use	-RUNNER (S3)	GUI design guidelines for small screen devices (tests with 4 categories of users) The user can set-up the product without the need of consulting a manual

enjoyRUN - example

Technical / Functional (TF)

NEED (TF)	STAKEHOLDE R(s)	REQUIREMENT(S)
Wearable	-FIT-ME -RUNNERS	Lightweight: < 30g Easy to wear (max. 2 actions required)
Water-resistant	-FIT-ME	Water droplets, moisture, and sweat experimental tests
Be always connected	-FIT-ME	Bluetooth connections with smartphone
Wide platform Compatibility	-FIT-ME -TECH PARTENRS	Test compatibility with: iOS, Android, Windows Phone
Long battery life	-RUNNERS -FIT-ME	Max. 1 recharge/week with all tracking features in active mode
Data accuracy	-FIT-ME -RUNNERS	Max 190 m of error on a 10km run Achievement of fitness goals (field tests)
High tracking capabilities	-RUNNERS -FIT-ME	Number and type of tracking features available among: GPS, accelerometers, gyroscope, compass, heart-rate sensors...

NEED (TF)	STAKEHOLDER(s)	REQUIREMENT(S)
To provide customization possibilities	FIT-ME	6 colours - men/woman version – 3 versions each (entry level – mid-range – high-end version)
To strengthen brand loyalty/image	FIT-ME	To develop a dedicated marketing campaign focused on building a community around the new product/brand
Profitable market Range	FIT-ME	<50€ entry level, <100€ mid-range, < 250€ high-end version

NEED (TF)	STAKEHOLDER	REQUIREMENT(S)
Data security	POLICY MAKERS	Data access through password and user's authentication; Data must be encrypted.
Chemicals protection referred to humans' skin	POLICY MAKERS	Compliant to RoHS/REACH Directive

Needs&Requirements



Try, as much as you can, to define **measurable requirements**: you will use them to explain how you will measure the fulfilment of the need.

Easy to use	-RUNNER (S3)	Implementation and fulfilment of GUI design guidelines for small screen devices (tests with 4 categories of users)
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Needs&Requirements

For the same need you may identify more than one requirement

Tip!

The need for product customization

The user can select the product features according to his/her running level

Human-Based / End-user (HE)

6 colours - men/woman version – 3 versions each

Business / Market (BM)

The product architecture should be as much modular as possible

Technical / Functional (TF)

Needs&Requirements



Tip!

One need can belong to different clusters → the related requirement (and probably also the stakeholder) will be different!



Tip!

Different stakeholders may share the same need.



Tip!

By definition a **stakeholder** must have at least one need. Check how you have filled in the “expectations” field of the identikit.



Tip!

It may happen that during this step new stakeholders “appear”.

Needs&Requirements

The final aim is to define a “**detailed**” **list of specifications**:
all the aspects that are relevant for your design activity have
to be deepened and formalized!



Tip!

The definition of
**NEEDS &
REQUIREMENTS**
is the result of an
exploration activity!

**Who and how
someone else in the
world has already
tried to solve this
problem?**

State of the Art Analysis



Image source: www.sporttechie.com

Design Task

NOW IT'S YOUR TURN: clarify your design task!

0. Introduce yourself to your team (what background and competences you have)
1. Choose your favourite design challenge (*)
2. Define the **statement of your design task**
3. Identify your **stakeholders**
4. Define the list of specifications (needs + **requirements** + stakeholders)

*DESIGN CHALLENGES

- ❖ Design a bicycle for special contexts (e.g. a bike for extremely cold places; an amphibious bike etc.)
- ❖ Improve the passengers' experience in airport (e.g. turn boring tasks into enjoyable moments)
- ❖ Design a sharing system for gardening tools (e.g. for sharing mowers, equipments etc.)

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Thank you