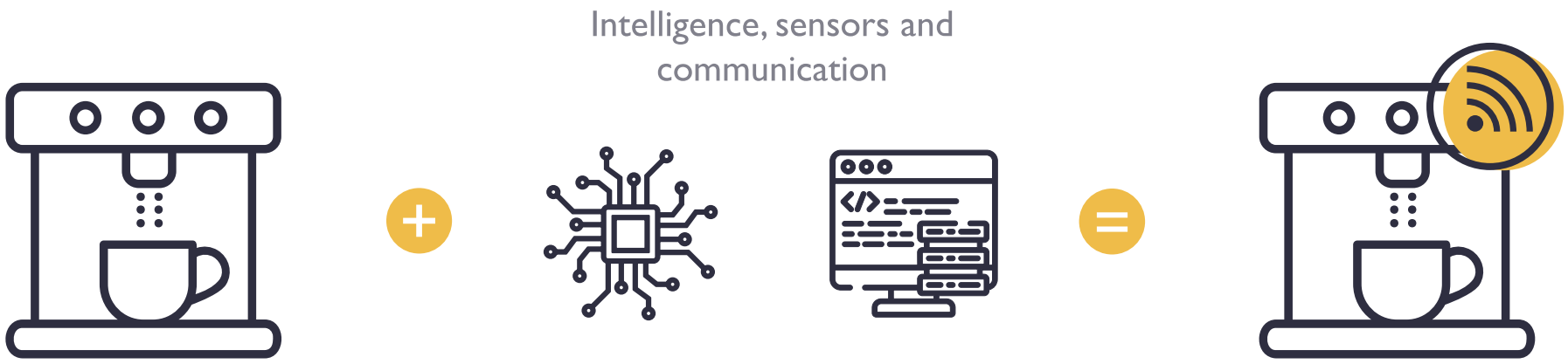
PROBLEM SPACE AND STAKEHOLDER NEEDS EXPLORATION

THOMAS DE MEESTER
GEERT WILLEMS
JORIK VAN DEN BOSCH

With support from:
AGENTSCHAP INNOVEREN & ONDERNEMEN

INNOVATION CHALLENGE

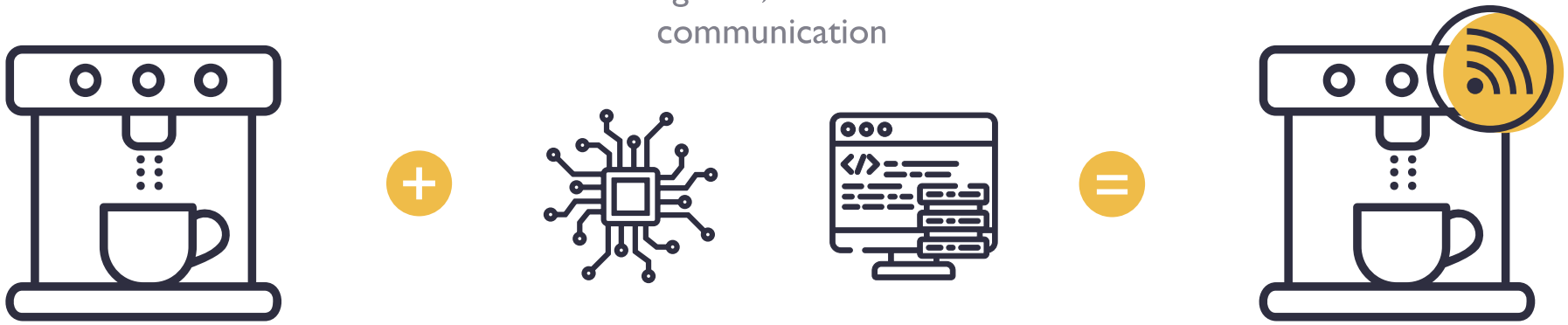
SMART COFFEE MACHINE



"Ordinary" coffee machine → "Smart" coffee machine

INNOVATION CHALLENGE
SMART COFFEE MACHINE

Intelligence, sensors and communication



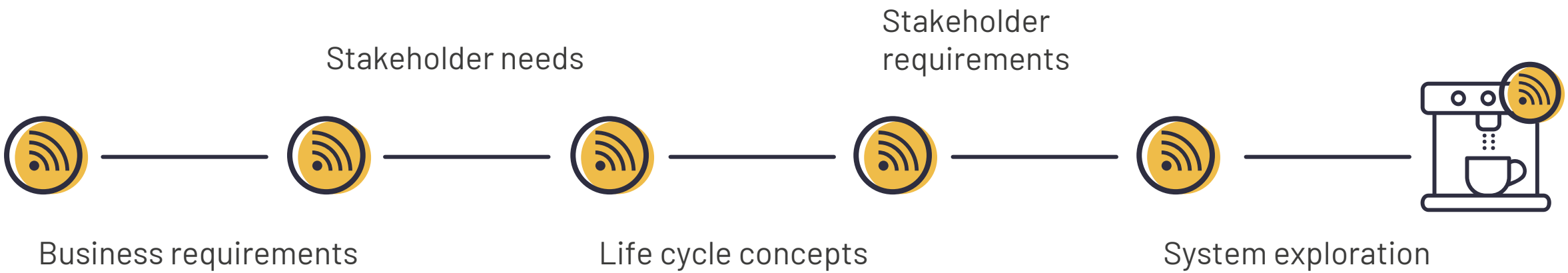
"Ordinary" coffee machine

- Competences
- Customers
- Suppliers
- Partners
- Business Model

"Smart" coffee machine

- *New* Competences
- *New* Stakeholders
- *New* Suppliers
- *New* Partners
- *New* Business Model

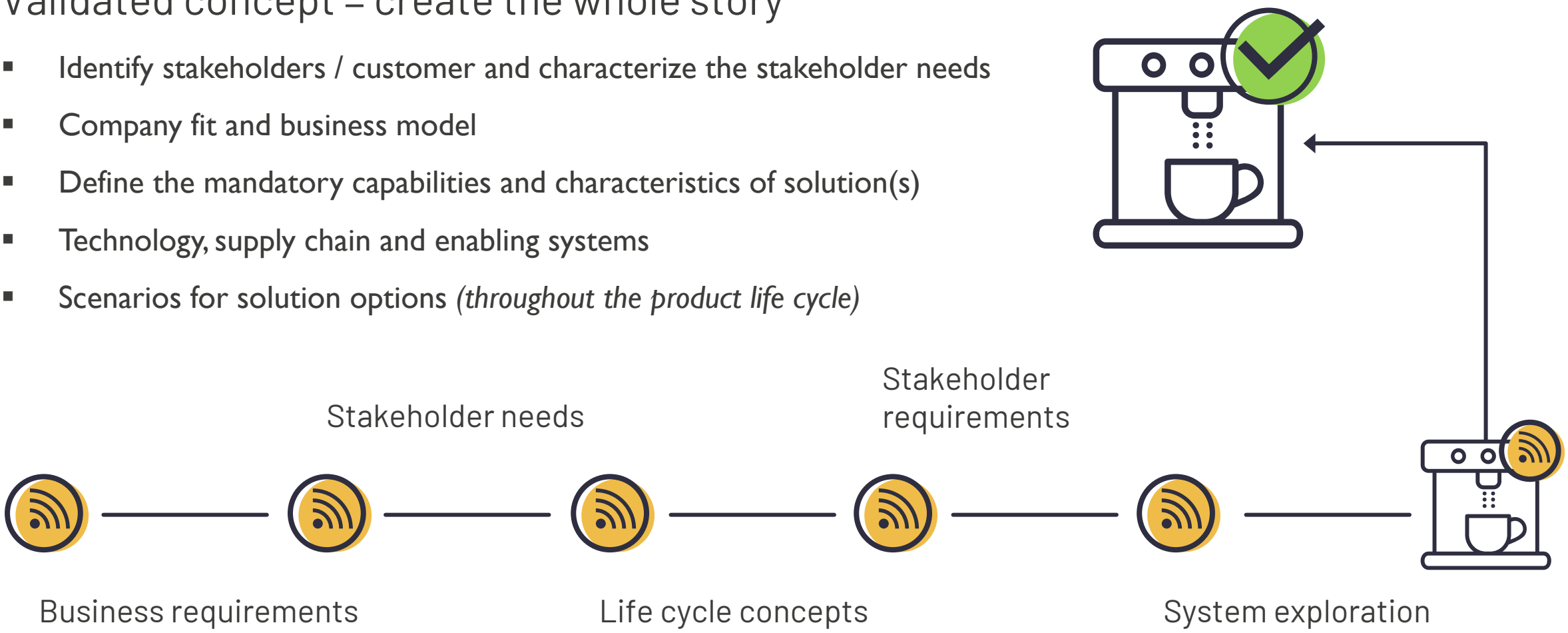
PRODUCT EXPLORATION AND CONCEPT VALIDATION



PRODUCT EXPLORATION AND CONCEPT VALIDATION

Validated concept = create the whole story

- Identify stakeholders / customer and characterize the stakeholder needs
- Company fit and business model
- Define the mandatory capabilities and characteristics of solution(s)
- Technology, supply chain and enabling systems
- Scenarios for solution options *(throughout the product life cycle)*



PRODUCT EXPLORATION AND CONCEPT VALIDATION

Validate whether the concept is...

Desirable

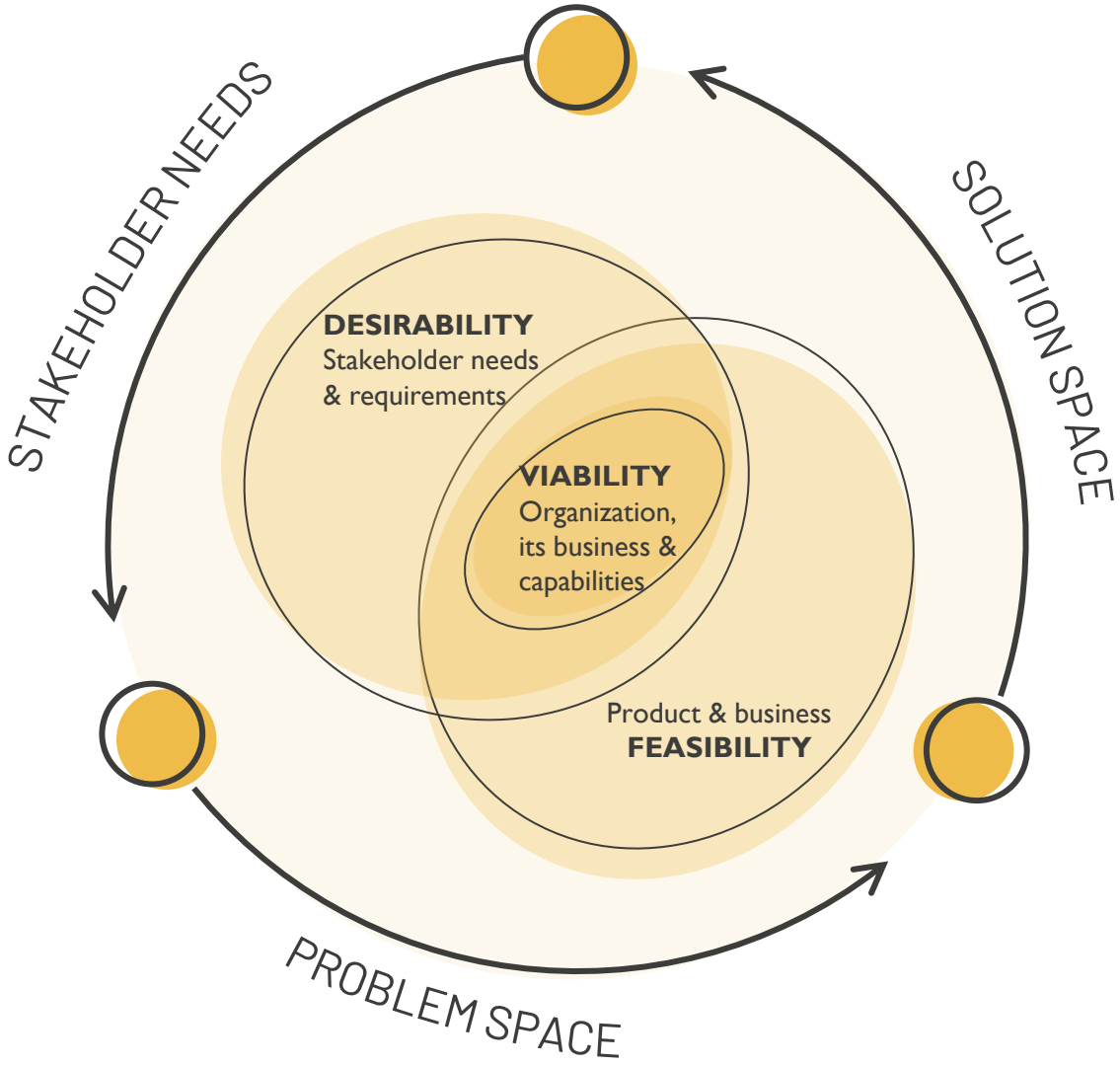
Do people want it?

Feasible

Can we make it?

Viable

Can we earn money with it?



PRODUCT EXPLORATION AND CONCEPT VALIDATION

Business

What and **how** will we do it?

Concept validation

Is it the **right thing** to do?

Stakeholder needs

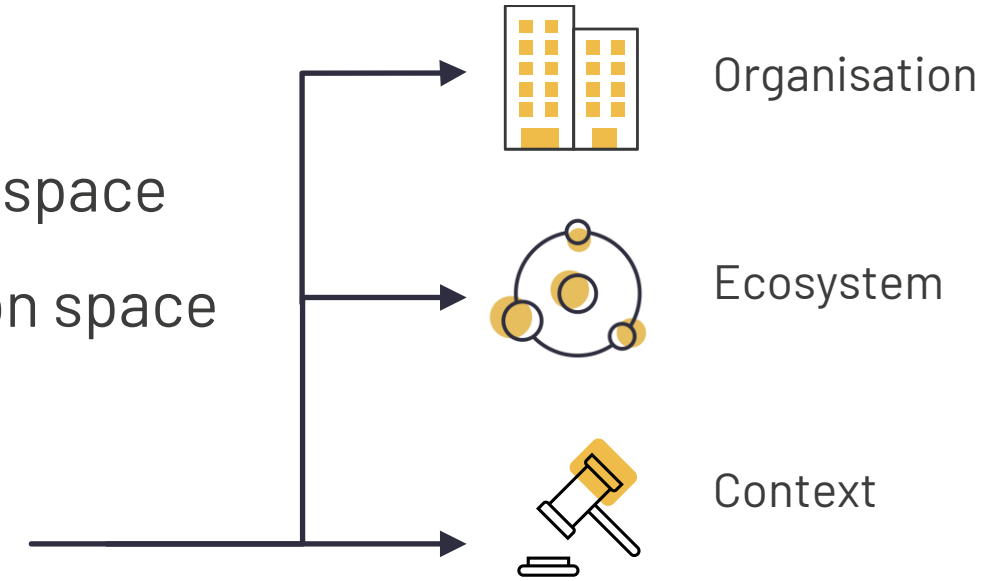
*For **whom** do we do it?*

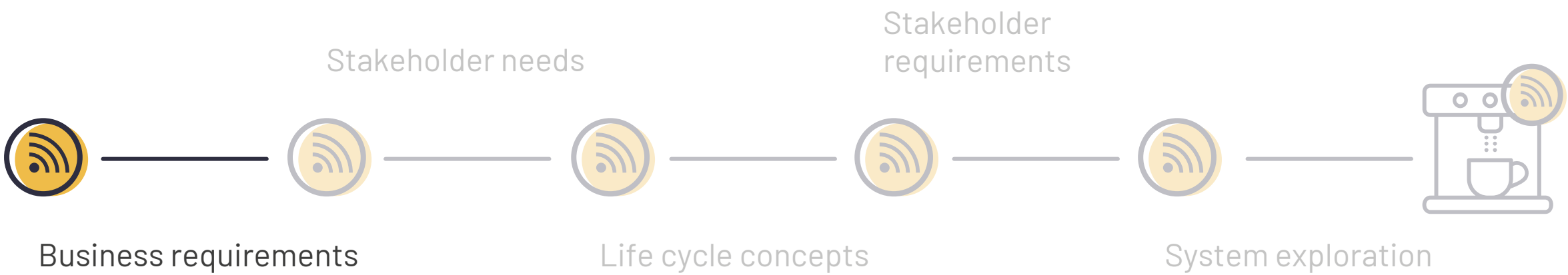
BUSINESS REQUIREMENTS

Analyze and define the problem / opportunity space

→ Characteristics & boundaries of the solution space

Analysis of all relevant **trade space factors**

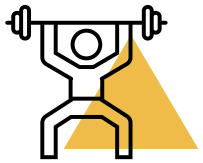




BUSINESS REQUIREMENTS

Mission, vision and strategy

Competition



Int / ext SWOT

PESTEL

BUSINESS REQUIREMENTS
ORGANIZATION

Mission, vision and strategy

Company mission

The company's reason for doing business, its objectives and the way to achieve them.

Company vision

A vision describes the (desired) future position of the company, its ambition.

Strategy

Strategy is making choices between a number of feasible options to have "*the best odds at succeeding*".

Innovation is one of the means to achieve your strategic goals.

BUSINESS REQUIREMENTS
ORGANIZATION

Mission, vision and strategy

Company mission

We want each household and small company to experience quality and sustainable coffee.

Company vision

Luxery brand with focus on sustainability and local impact.

Strategy

Local production in Belgium with recycled durable materials.
Focus on value adding services to improve experience and create new revenue streams.

BUSINESS REQUIREMENTS
ORGANIZATION

Mission, vision and strategy

STRATEGY CHOICE CASCADE

An exercise that consists of five steps that help develop and implement a sustainable strategy

What's our winning aspiration?

Geopgraphy, market segment, channels, …

Where will we play?

How will we win?

How can we reinforce or acquire these capabilities?

What capabilities must be in place?

The unique way to win: competitive advantagen, value proposition,

What systems are required?

Supprting or enabling systems, management methodology, …

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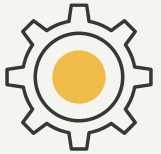
BUSINESS REQUIREMENTS
ORGANIZATION

Mission, vision and strategy

Improvements

- Performance
- Lack of existing systems in portfolio
- Security or safetey
- Cost / efficiency
- User satisfaction



Concept of operation

Preliminary scenarios or use cases

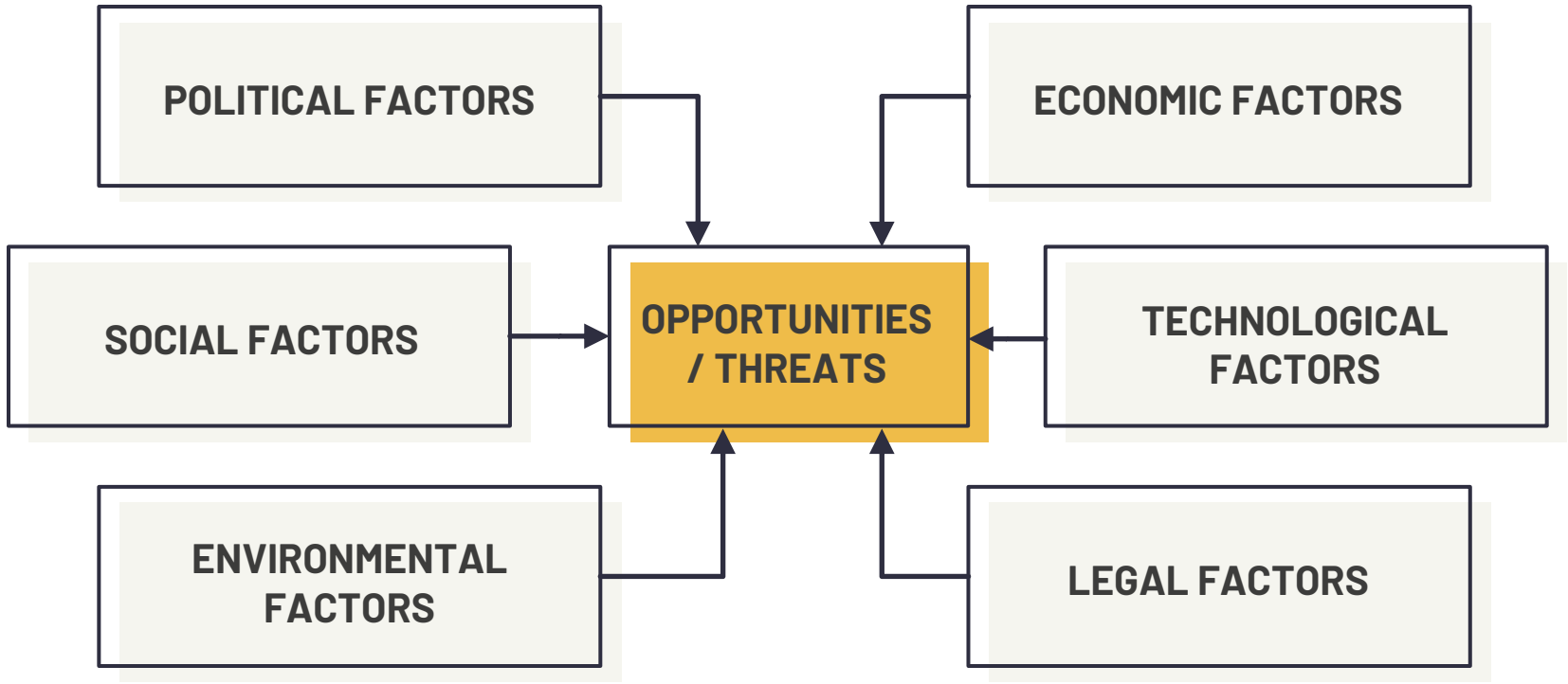
- Usage / operations
- Production / deployment
- Support / retirement
- Business strategy / model

BUSINESS REQUIREMENTS

ECOSYSTEM & CONTEXT (MACRO-LEVEL)

WHAT

PESTEL is a situational analysis to assess the Political, Economic, Social, Technological, Environmental and Legal factors affecting an organization.



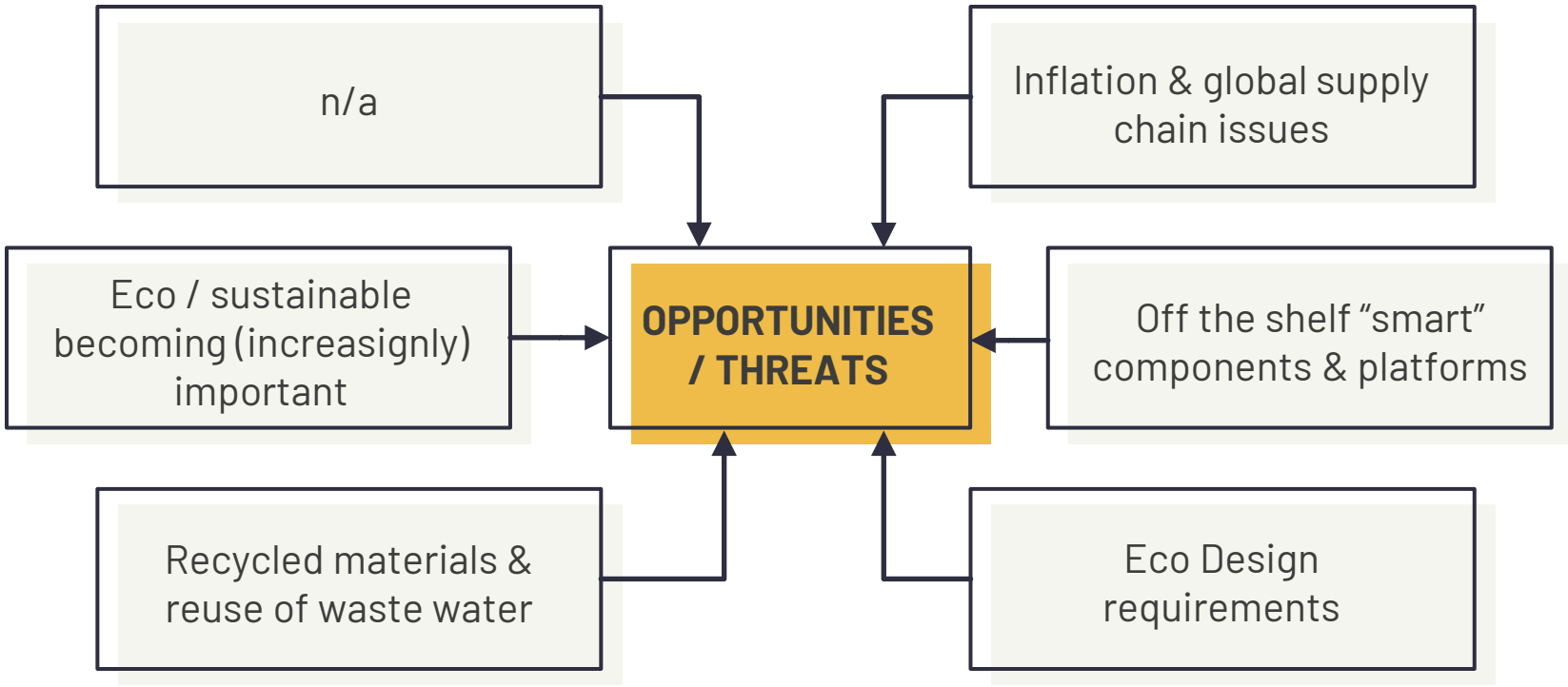
BUSINESS REQUIREMENTS

ECOSYSTEM & CONTEXT (MACRO-LEVEL)

WHAT

PESTEL is a situational analysis to assess the Political, Economic, Social, Technological, Environmental and Legal factors affecting an organization.

PESTEL



BUSINESS REQUIREMENTS

ECOSYSTEM & CONTEXT (MACRO-LEVEL)

PESTEL

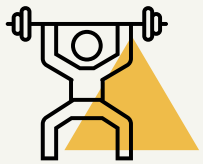
WHAT

PESTEL is an analysis to assess the Political, Economic, Social, Technological, Environmental and Legal factors affecting an organization.

TECHNIQUES

Patent (IP) analysis e.g. patent inspiration	Keep an overview of IP submissions / rights and tech trends as well as relevant market trends.
Literature review	Research PESTEL trends via desk research of academic / scientific articles
Digital trends	Imec.Digimeter, AI-Barometer, Gartner

BUSINESS REQUIREMENTS
ORGANIZATION & ECOSYSTEM



Int / Ext SWOT

WHAT

A situational assessment used for evaluation or decision. It can be used for various purposes (e.g. competition analysis, strategy analysis, project analysis, …)

STRENGTHS

- Things your do well
- Competitive advantage
- Capabilities / competences
- Tangible assets

WEAKNESSES

- Things you lack
- Things competition does better than you
- Resource limitations

INTERNAL

OPPORTUNITIES

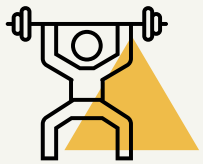
- Market related (e.g. few competitors, underserved market)
- Positive trends, evolutions, ..
- What strength can become

THREATS

- Obstacles
- Competition related
- Changing trends, regulations, ..
- Changing customer attitudes

EXTERNAL

BUSINESS REQUIREMENTS
ECOSYSTEM



Int / Ext SWOT

WHAT

A situational assessment used for evaluation or decision. It can be used for various purposes (e.g. competition analysis, strategy analysis, project analysis, …)

STRENGTHS

- *Local production*
- *Easy to use and tasty coffee*
- *Durable and low maintainance cost*
- *Modern, stylish design*

WEAKNESSES

- *Higher production costs (BE)*
- *Niche segment (ecological minded)*
- *Brand is still 'unknown'*

INTERNAL

OPPORTUNITIES

- *Market segment growing, increased awareness for local products*
- *Technology → offer value adding services*
- *Increase awareness via (social) media*

THREATS

- *"Regular coffee" is still prefered*
- *Competition is entering market*
- *Increasing production costs (inflation, components, …)*

EXTERNAL

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BUSINESS REQUIREMENTS
ECOSYSTEM

Competition

WHAT

Solutions and competitors are there? What direction is the market / tech moving?

TECHNIQUES

Patent (IP) analysis e.g. patent inspiration	Use patent analysis to identify competitors
Desk research	Use online search engines to identify competitors
Strategy Canvas	A tool that compares key factors of a product with competitors
Competitive Analysis Framework	A tool that helps to conduct a competitive analysis.
Perceptual mapping	Visual representation in which a product stands among competitors
Strategic Group Analysis	Framework that helps examining the competitve environment

BUSINESS REQUIREMENTS
ECOSYSTEM

Market size

WHAT

Estimate the market size to get an idea on the number of potential buyers of a product or service in a given market.

TECHNIQUES

TAM SAM SOM	Use the TAM, SAM, SOM principle to estimate the market size
Desk research	Use online search engines to find (historic, macro-economic) data on market size
Own sales	Use data from earlier selling efforts to estimate market size
Surveys	Create questionaires to deduct willingness to pay for a certain product to estimate the market size.

BUSINESS REQUIREMENTS
ECOSYSTEM

WHAT

Estimate the market size to get an idea on the number of potential buyers of a product or service in a given market.

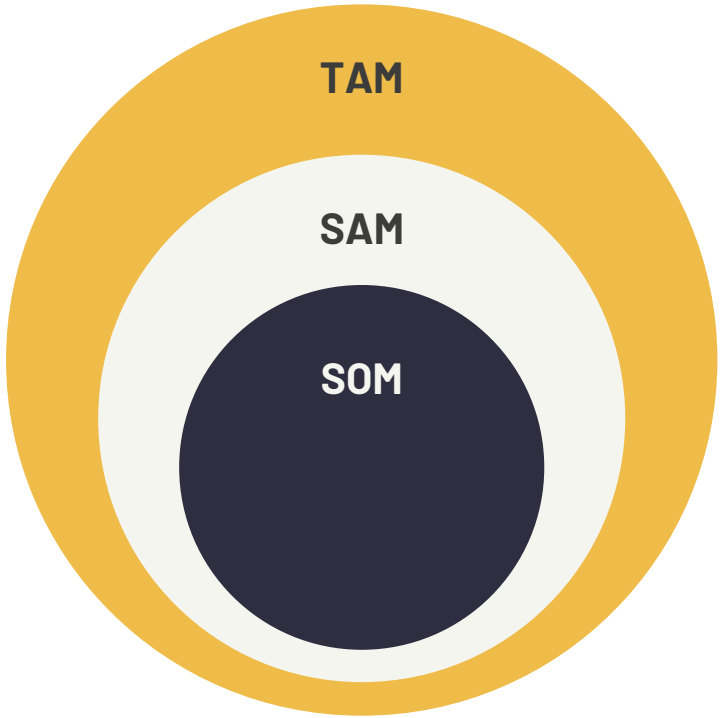
Market size

Total Addressable Market

Total Market for your product

Serviceable Obtainable Market

Percentage of SAM you can realistically capture



Serviceable Available Market

Portion of the market you can acquire based on your business model / targets

STAKEHOLDER NEEDS

STAKEHOLDER IDENTIFICATION

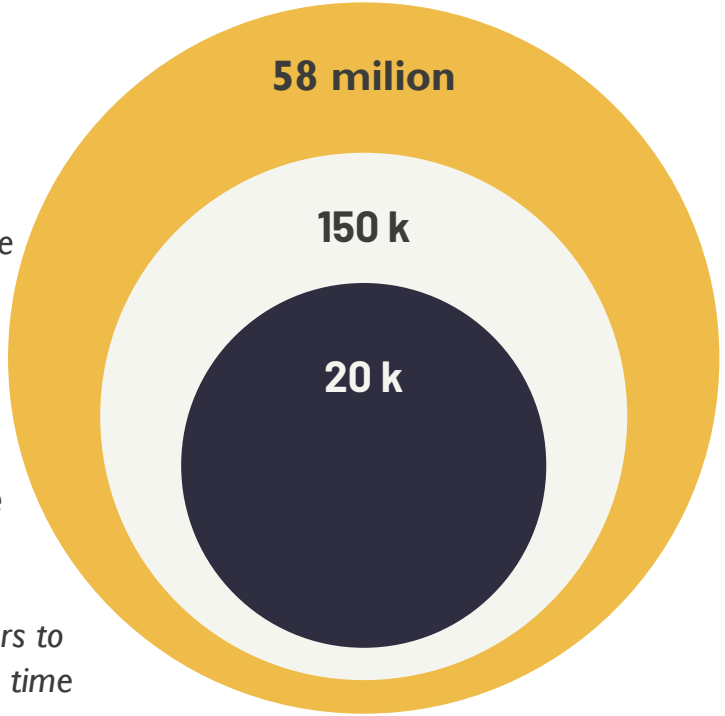
WHAT

Estimate the market size to get an idea on the number of potential buyers of a product or service in a given market.

Market size

Total Addressable Market

Coffee machines sold worldwide



Serviceable Available Market

Coffee machines sold in Flanders to companies

Serviceable Obtainable Market

Coffee machines sold in Flanders to companies that want to reduce time spent to manage coffee machines

BUSINESS REQUIREMENTS
ORGANIZATION

Problem / opportunity statement

WHAT

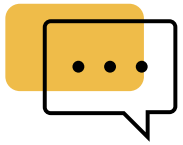
Problem do we want to solve / Opportunity do we want to address

WHO IS AFFECTED

WHEN IS IT OCCURING (TIMEFRAME)

WHERE IS IT OCCURING?

WHAT IS THE IMPACT ON THE ORGANISATION?



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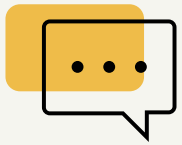
BUSINESS REQUIREMENTS
ORGANIZATION



Problem / opportunity statement

SMART COFFEE MACHINE

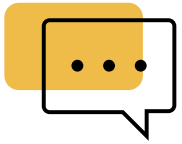
We want to improve the coffee experience for active professionals in a work context by adding technology to create new value adding services.

WHAT: improve the coffee experience by adding technology

WHO: active professional

WHERE & **WHEN**: work context

IMPACT: new value adding services might lead to new revenue streams.



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STAKEHOLDER NEEDS

Stakeholder identification

Operational Concepts

Innovatrix

Eliciting stakeholder needs

Needs prioritization

Stakeholder needs

Stakeholder requirements

Business requirements

Life cycle concepts

System exploration

STAKEHOLDER NEEDS
BUSINESS REQUIREMENTS

Business requirements phase

Project scope and objectives

Describes why the organization is undertaking the project.

They state the "space" in which a solution can be searched.

Stakeholder needs

Analyses who is involved in the solution space and what their expectations are. The stakeholder needs analysis serves as primary input to create the right product.

> *We want to improve the coffee experience for active professionals in a work context by adding technology to create new value adding services*

STAKEHOLDER NEEDS
BUSINESS REQUIREMENTS

Business requirements phase

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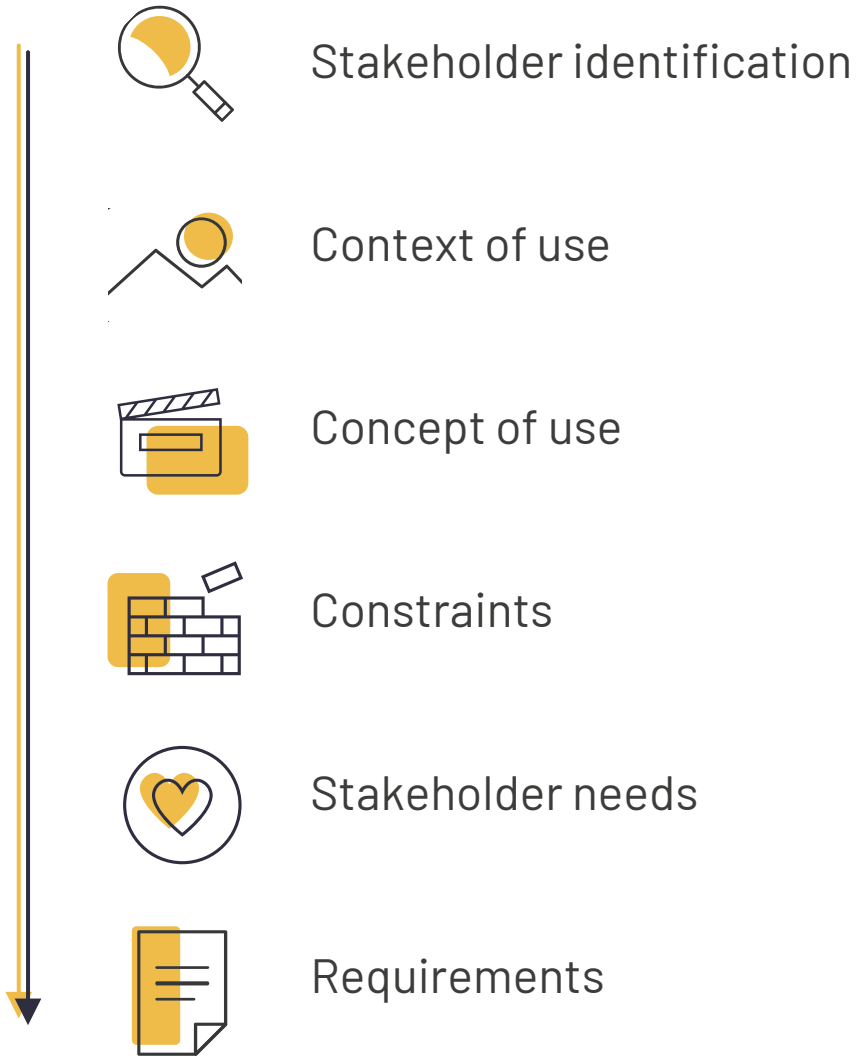

STAKEHOLDER NEEDS

STAKEHOLDER IDENTIFICATION

Stakeholder identification

WHAT

Identify which persons or organizations are affected or interested in the product

Internally (organization)

Ecosystem (suppliers, partners, …)

Customers, users, system owners

Society, environment

The goal is to get every stakeholder's point of view for every life cycle stage.

STAKEHOLDER NEEDS

STAKEHOLDER IDENTIFICATION

Stakeholder identification

WHAT

Identify which persons or organizations are affected or interested in the product

TECHNIQUES

Priority: Influence-interest matrix	Prioritize each stakeholder by the power that they have over the project and their level of interest in it
Stakeholder map / Perceptual map	A visual exercise to represent all the stakeholder, aimed at clarifying roles and relationships.
Relationship diagram	A visual exercise to map different stakeholders and their relation to the project
Topical list (role in PLC, involvement, power,...)	A topical list can add structure and provide a clear overview about the nature and role of each stakeholder and when they are involved.
Stakeholder personas	A fictional profile that represent a group of people that share characteristics in relation to your project.
Segmentation	Divide stakeholders into groups that share similar characteristics to relate (better) to each segment.

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STAKEHOLDER NEEDS

STAKEHOLDER IDENTIFICATION

Stakeholder identification

PRIORITY: INFLUENCE – INTEREST MATRIX

INFLUENCE

KEEP SATISFIED

- *User*
- *Customer (office manager)*
- *Regulator*

MANAGE CLOSELY

- *Project Steering Commitee*
- *Management*

MONITOR

- *Partner (maintenance)*
- *Marketing department*

KEEP INFORMED

- *Suppliers*
- *R&D department*
- *Production*
- *Sales*

POWER

STAKEHOLDER NEEDS

STAKEHOLDER IDENTIFICATION

Stakeholder identification

STAKEHOLDER PERSONAS

NAME

Age:

Job Title:

Education:

Location:

Interests:

Preferences that influence a certain decision

Goals:

Task that needs to be completed

Desired result

Needs:

What functionality is needed?

Challenges:

What do they struggle with achieving their goals?

Pain points:

What is frustrating / lacking?

STAKEHOLDER NEEDS

STAKEHOLDER IDENTIFICATION

Stakeholder identification

STAKEHOLDER PERSONAS

Elisa

Age: *35*

Job Title: *Office manager*

Education: *University*

Location: *Antwerp, BE*

Interests:

Novel technology
Sustainability

Goals:

Maintain coffee machine
Colleague coffee break satisfaction

Needs:

Warning when maintenance is needed

Challenges:

Spends a lot of time in managing coffee machine errors and faillures

Pain points:

No warning when machine is broke
Frustrated colleagues

STAKEHOLDER NEEDS

STAKEHOLDER IDENTIFICATION

Stakeholder identification

SEGMENTATION

DEMOGRAPHIC

Gender
Religion, ethnicity
Age
Family structure

B2B

Industry
Company size / type
Revenue

GEOGRAPHIC

Country
Language
Region, city
Climate

BEHAVIORAL

Habbits
Loyalty
Preferences
Interests

B2B

Engagement
Purchasing volume
Loyalty

PSYCHOGRAPHIC

Lifestyle
Social status
Activities
Personality

B2B

Company culture or values

STAKEHOLDER NEEDS
LIFE CYCLE CONCEPTS

Operational Concepts

WHAT

Scenarios of product life cycle concepts describing how the system functions and how actors interact with it

THE PERSON(S) INTERACTING (WHO)

CONTEXT OF USE (WHERE & WHEN)

CONCEPT OF USE (HOW & WHY)

GOAL (RESULT)

STAKEHOLDER NEEDS
LIFE CYCLE CONCEPTS

Operational Concepts

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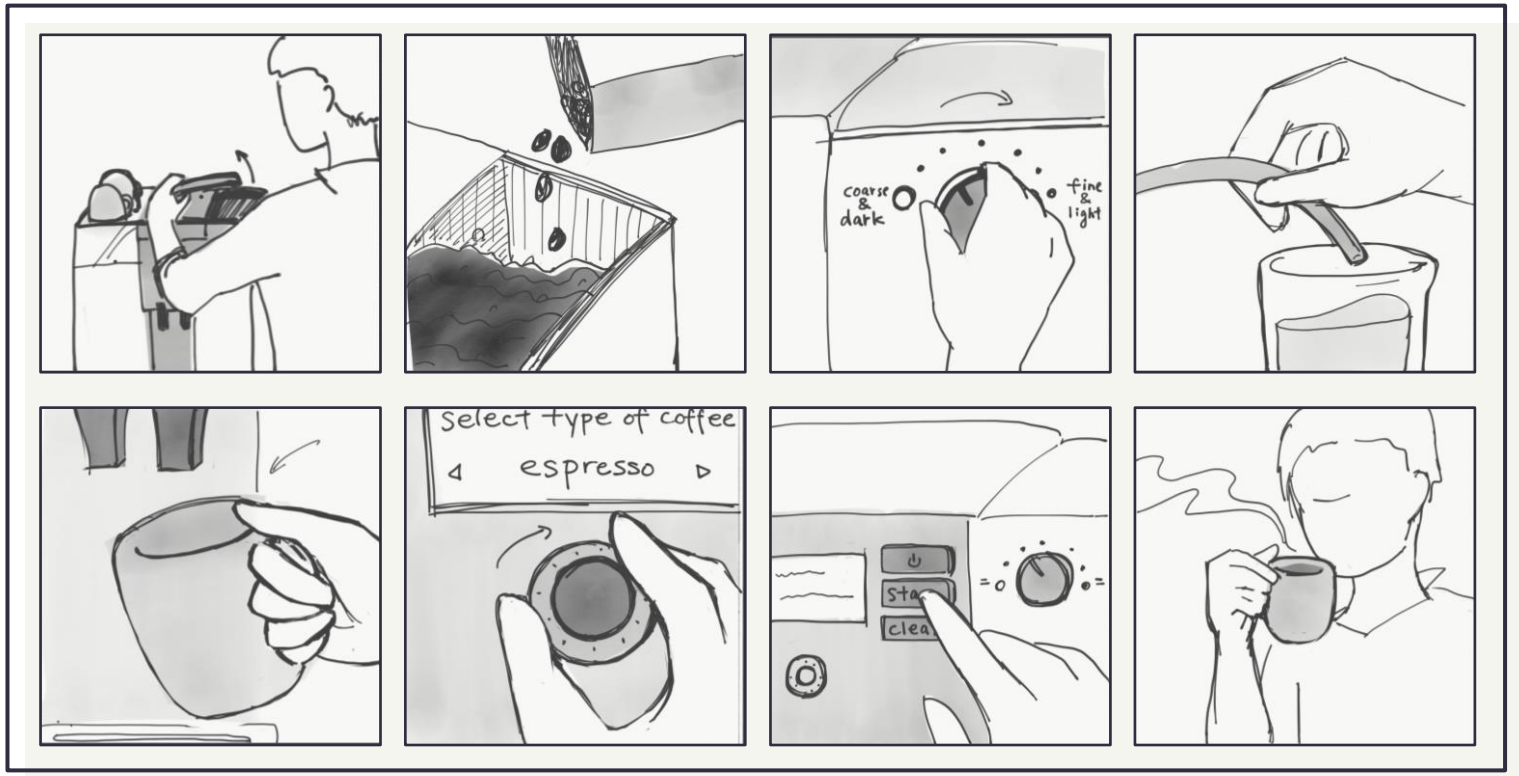
Scenarios of product life cycle concepts describing how the system functions and how actors interact with it



STAKEHOLDER NEEDS
LIFE CYCLE CONCEPTS

Operational Concepts

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Scenarios of product life cycle concepts describing how the system functions and how actors interact with it

TECHNIQUES (BRAINSTORMING)

Brainstorming	A technique employed to generate creative, or "out-of-the-box," ideas through collaboration.
Reverse thinking	A problem-solving technique where the problem is turned upside down to invoke alternative ideas
Serious play	A problem-solving exercise in which participants are led through a series of questions, diving deeper and deeper in the subject
SCAMPER	Substitute / combine / adjust / modify / put to another use / eliminate / reverse or rearrange
Journey mapping	A map that depicts the user's behavior and underlying motivation to accomplish a goal
Design Thinking	A problem-solving approach which has the intention to improve products by emphazising with the user

STAKEHOLDER NEEDS
LIFE CYCLE CONCEPTS

Use cases

WHAT

Scenarios of product life cycle concepts describing how the system functions and how actors interact with it

TECHNIQUES (SPECIFICATION)

Storytelling	Describe the product life cycle concept via a story.
Use case diagram	As a graphical representation that describe ste of user's possible interactions with a system or of a business process.
Storyboarding	A visual exercise that shows the user's interaction with a product via sketches or stories

STAKEHOLDER NEEDS
LIFE CYCLE CONCEPTS

Innovatrix

WHAT

Imec's innovation canvas that helps to gather and validate your most critical innovation assumptions.

Customer Segment
Needs
Current practices
Value proposition
Solution
Key Partners
Value Capture
Barriers

Reason from your most important stakeholder segments

Map your innovation's assumptions under each of the criteria

Identify your critical assumptions and (in)validate them step by step

STAKEHOLDER NEEDS
CONSTRAINTS & NEEDS

Eliciting stakeholder needs

WHAT

Capture stakeholder needs (& barriers) by directly interacting with the stakeholder, identificying implicit stakeholder needs based on domain knowledge, context understanding or documented gaps from previous activities.

SOME KEY QUESTIONS TO BE ANSWERED

- What are the main challenges for the stakeholder?
- What are the challenges related to this subject?
- What are pains & needs?
- How is the stakeholder dealing with this problem today?
- What would add / reduce the value?
- What are constraints?
- What would be the impact on the organization?

STAKEHOLDER NEEDS
CONSTRAINTS & NEEDS

Eliciting stakeholder needs

WHAT

Capture stakeholder needs (& barriers) by directly interacting with the stakeholder, identificying implicit stakeholder needs based on domain knowledge, context understanding or documented gaps from previous activities.

TECHNIQUES (EXPLICIT)

Interviews	Structured conversations with stakeholders
Contextual inquiry / Observation	Watch stakeholders in a real life environment to understand the context-of-use
Focus groups	A semi-structured group interview involving stakeholder that share common characteristics
Surveys	A method for collecting qualitative or quantitative information about the stakeholder
Task analysis	Study the stakeholder's habbits, daily activities and behavior by collecting a diary of their activities

STAKEHOLDER NEEDS
CONSTRAINTS & NEEDS

Eliciting stakeholder needs

WHAT

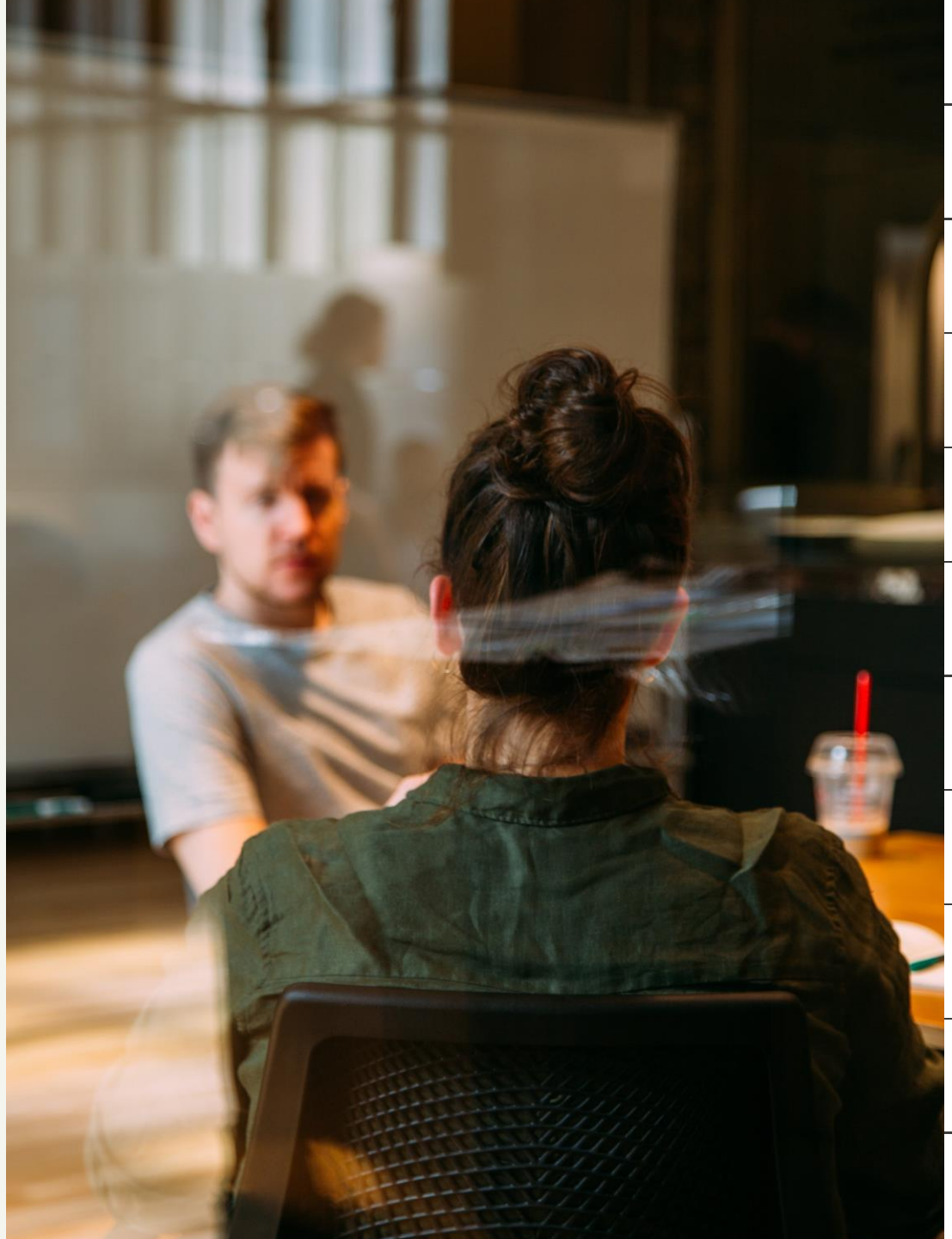
Capture stakeholder needs (& barriers) by directly interacting with the stakeholder, identificying implicit stakeholder needs based on domain knowledge, context understanding or documented gaps from previous activities.

TECHNIQUES (IMPLICIT)

Literature review	Desk research to learn more about the stakeholder (e.g. socio-demographic data, ergonomics, etc..)
Gather internal research	Evaluate and use insights from previous activities
Customer feedback	Information provided by clients about their experience with your product or service
Google trends	Analyse product features that your target audience looks for
Personas	A fictional character that represents a stakeholder segment that describe their behavior, goals, attitudes, …

Interviews

1. Research goals
2. Topic guide
3. Informed consent
4. Interview techniques



STAKEHOLDER NEEDS

ELICITING STAKEHOLDER NEEDS

Interviews

1. RESEARCH GOALS

Define the objective of your interview. The goal can differ between respondents.

Decompose the goal in multiple sub-goals or topics. Focus on key assumptions.

2. TOPIC GUIDE

Provides you with the right guidance during your interview. The topic guide contains the topics, questions and activities that will happen during the interview.

FREQUENTLY OCCURING TOPICS

- Introduction and general topic
- Current way of working
- Challenges and needs
- Future needs and opportunities
- Innovation confrontation

Define how much time you wish to spend on each topic.

Questions should follow a logical flow that build up the conversation. See [funnel technique] for more info.

STAKEHOLDER NEEDS

ELICITING STAKEHOLDER NEEDS

Interviews

FUNNEL TECHNIQUE

The art of a good interview lies in the power of your story, your questions build up that story. The **funnel technique** works as you would image: we start by gathering broad information and then filter down to more specific details we're interest in. We build up the conversation from simple to complex questions.

First ask **open questions** to get your respondent to talk. These questions can't be answered by a single word and require thought. E.g. "*Tell me about...*" / "*Explain to me...*" / "*Describe for me...*"

In case the answer goes off-topic, bring them back to topic by using **probing questions**. Probing questions are open but specific questions that allow us to ask further about the topic we are interested in. E.g. "*Why...*"/ "*What...*" / "*Where...*" / "*When...*" / "*Who...*" / "*How...*" .

The last step is on our funnel is asking **specific questions** or to clarify a certain situation.

STAKEHOLDER NEEDS

ELICITING STAKEHOLDER NEEDS

Interviews

FUNNEL TECHNIQUE

GENERAL BEFORE SPECIFIC QUESTIONS

- *Tell me about …*
- *Do you agree*

BEHAVIORAL BEFORE ATTITUDE QUESTIONS

- *What do you do …*
- *How do you feel about …*

POSITIVE BEFORE NEGATIVE QUESTIONS

- *What do you like most about …*
- *What do you like least about …*

UNAIDED BEFORE AIDED QUESTIONS

- *Do you know any similar solutions…*
- *Do you know this certain solution …*

RESPONDENT'S CATEGORY BEFORE OWN

- *What are the 3 most important …*
- *Is this product feature important to you …*

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STAKEHOLDER NEEDS

ELICITING STAKEHOLDER NEEDS

Interviews

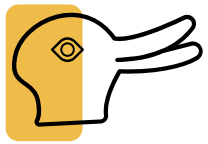
3. INFORMED CONSENT

Make sure you do all necessary formalities (e.g. record the session, GDPR). Explain how their answers will be used and have them formaly consent.

4. INTERVIEW TECHNIQUES

Some tips and tricks to conduct your interview

Get acquainted



Be aware of bias

Use silence

Body language

Ask more / play dumb

STAKEHOLDER NEEDS
STAKEHOLDER REQUIREMENTS

Needs prioritization

WHAT

Draw conclusions by prioritizing the needs and challenges expressed by the stakeholders. These can then be transform into solution and (ultimately) translated into stakeholder requirements.

TECHNIQUES

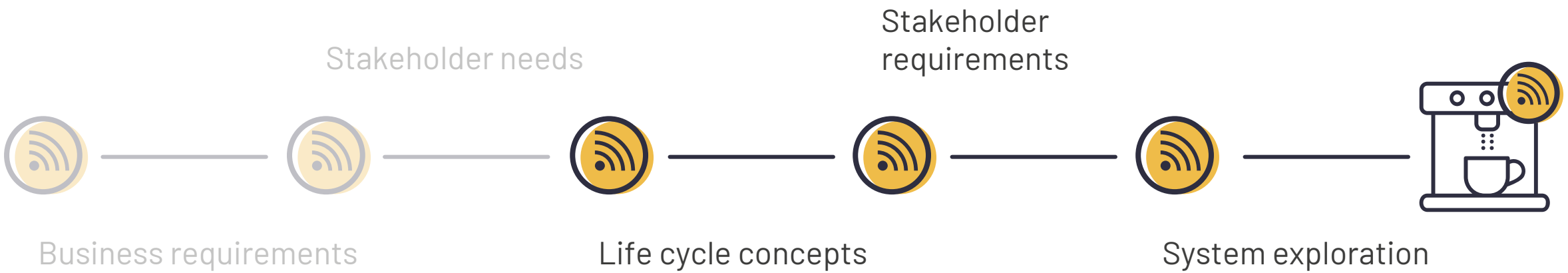
MOSCOW Prioritization	A method for clustering needs into four groups (must have, should have, could have, won't have)
Weighted ranking, dot voting	Numerical scoring to rank stakeholder needs against percieved benefit vs value vs cost vs risk
Insight selector	Place stakeholder insights onto one of the 4 building blocks
Impact-effort matrix	A 2D-visual that plots relative user value against implementation complexity
Needs filter	Filter the needs based on project scope, functionality, testability and/or project priorities

SOLUTION SPACE EXPLORATION AND VALIDATION

17TH OF JUNE

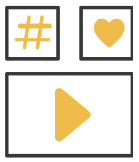
How to approach the fuzzy front-end of product development which transforms first stakeholder needs insights and ideas of a (smart) product-based solution into a validated concept upon which a Product Requirements Document (PRD) can be based.

Exploration and validation activities, tools and methods

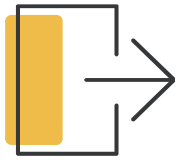


SOLUTION SPACE EXPLORATION AND VALIDATION

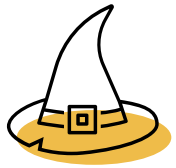
17TH OF JUNE



(Rapid) Prototyping

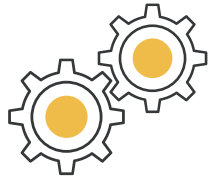


Business modelling



Testing Wizard of Oz

Critical performance measures



Enabling systems

IMPLEMENTATION – INDUSTRIEPARTNERSCHAP

ORIENTATION
2 DAYS

Exploring problem / opportunity space regarding integration of a (smart) technological component in your company's offer or business processes

70 % subsidized
981 € excl. VAT

CONCEPT VALIDATION
3 DAYS

Validation of the solution space: build a roadmap for your innovation track with referral to potential partners and requirements for validating the concept.

70 % subsidized
1.612 € excl. VAT

IMPLEMENTATION – CONTACT US

Thomas De Meester

Project Lead

Thomas.Demeester@imec.be

+32 472 75 44 34

Geert Willems

Program Manager
EDM Forum

Geert.Willems@imec.be

+32 498 91 94 64

WEBINARS

INTRODUCTION TO (SMART) PRODUCT EXPLORATION

Friday
20th of May

PROBLEM SPACE AND STAKEHOLDER NEEDS EXPLORATION

Friday
3rd of June

SOLUTION SPACE EXPLORATION AND VALIDATION

Friday
17th of June

embracing a better life