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PRACTICAL TOOLS FOR SMART PRODUCT EXPLORATION
AND CONCEPT VALIDATION

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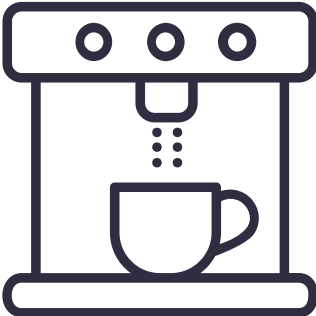
ADVANCED
ENGINEERING**2022**
11 & 12 May, Antwerp Expo

CONFIDENTIAL

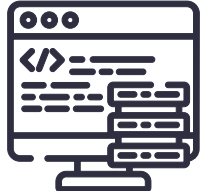
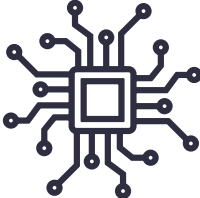
Met steun van:
 AGENTSCHAP
INNOVEREN &
ONDERNEMEN

INNOVATION CHALLENGE

SMART COFFEE MACHINE



Intelligence, sensors and communication



"Ordinary" coffee machine

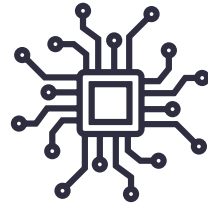
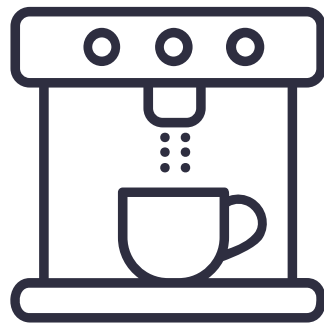


"Smart" coffee machine

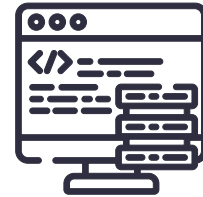
- What smart functionality would add value?*
- Who would be interested in such product?*
- What technology can we use?*
- What revenue model would be profitable?*
- ...

INNOVATION CHALLENGE

SMART COFFEE MACHINE



Intelligence, sensors and
communication



“Ordinary” coffee machine

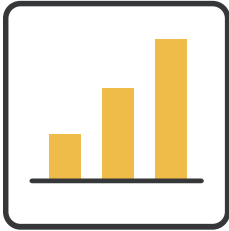
- Competences
- Customers
- Suppliers
- Partners
- Business Model



“Smart” coffee machine

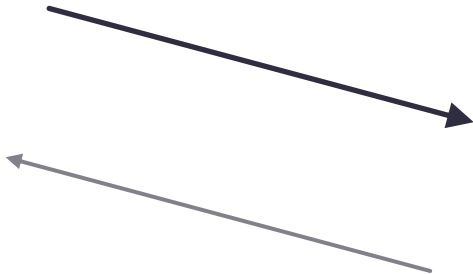
- *New* Competences
- *New* Stakeholders
- *New* Suppliers
- *New* Partners
- *New* Business Model

INNOVATION CHALLENGE ACTIVITIES



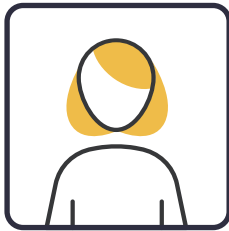
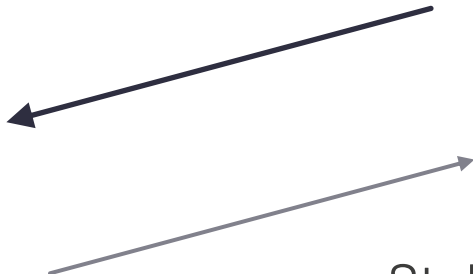
Business

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



Concept validation

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



Stakeholder needs

For **whom** do we do it?

INNOVATION CHALLENGE

(SMART) PRODUCT IDEA



Does it fit within our portfolio and companies' mission?



Do we have the right expertise?



What (alternative) technologies are available?



Which (new) markets to serve? What will be the market size?



What will be the revenue model? How to set a price? Who will be our competitors?

PRODUCT EXPLORATION AND CONCEPT VALIDATION

PROBLEM → SOLUTION SPACE



Problem research

Insights in stakeholder needs
and the business motivation for
innovating

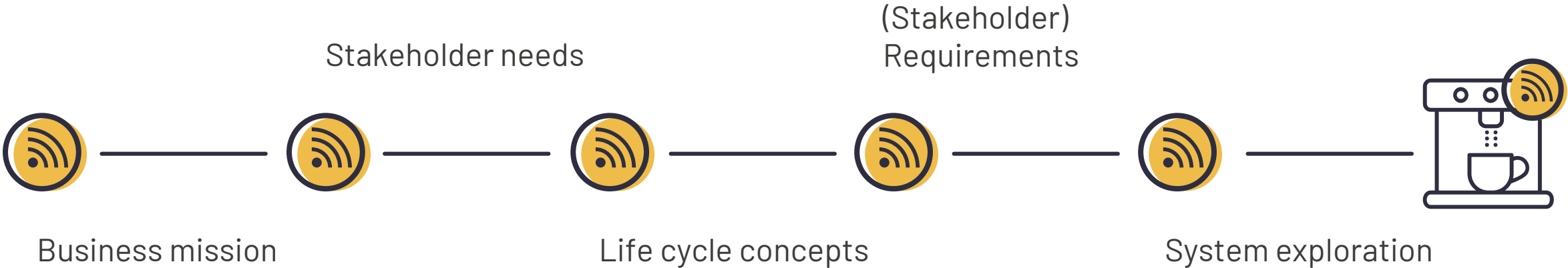


Product research

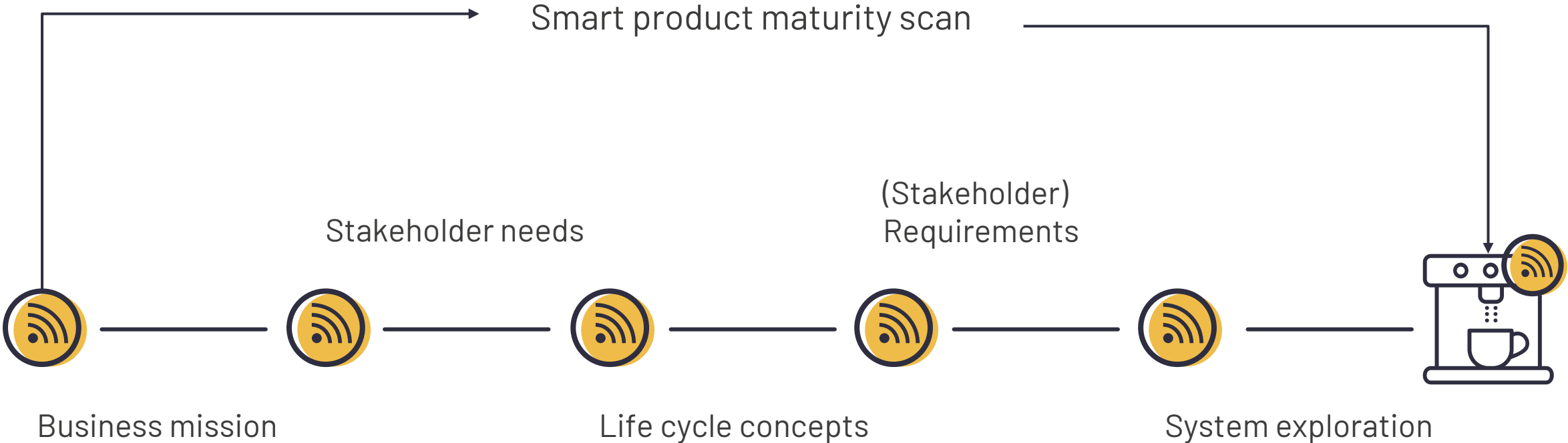
Validation of the problem
space insights and the most
viable system solution options



PRODUCT EXPLORATION AND CONCEPT VALIDATION



PRODUCT EXPLORATION AND CONCEPT VALIDATION



SMART PRODUCT MATURITY SCAN



Smart product maturity scan



ORGANIZATIONAL CAPABILITIES

Product Lifecycle
Project Management
Organization
Agreement processes

43
criteria



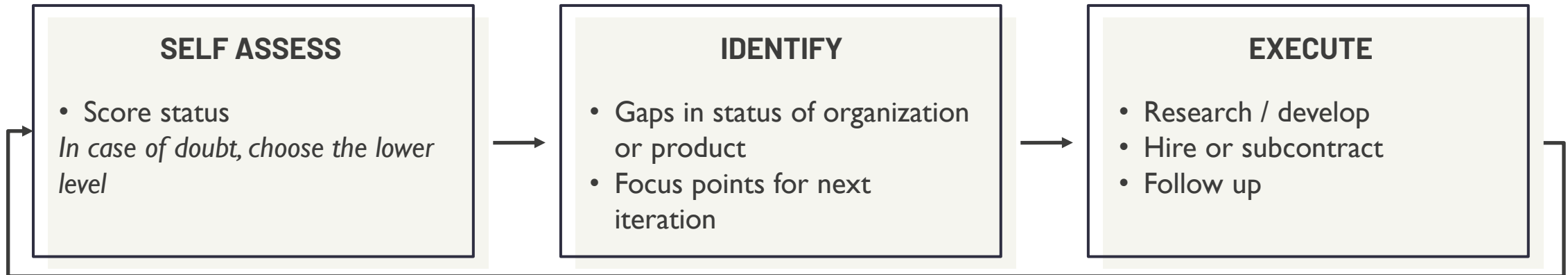
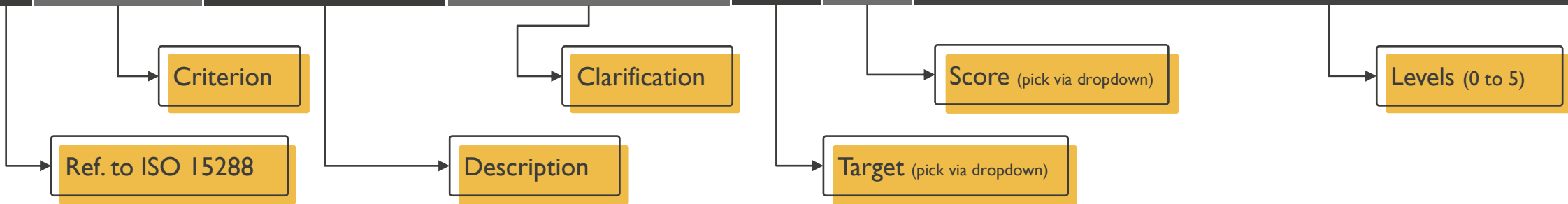
PRODUCT DEVELOPMENT STATUS

Exploration
Project management
Development
Organization
Agreements

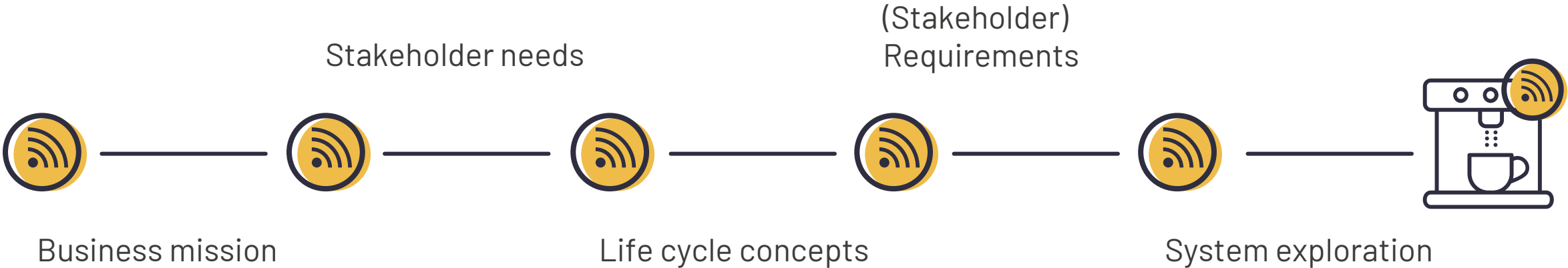
71
criteria

SMART PRODUCT MATURITY SCAN

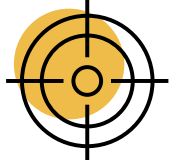
Exploration		Status: Exploration	Extend to which the organization possesses the knowledge and competence for the technical processes							
4.0	Product: General Status	Life-cycle status of your product. How far are you in the life cycle of the product?	Level 1	Level 4	No (product) idea	Product idea conceptualized. Problem Research completed.	Product concept validated. NPE completed.	Product requirements defined. Development plan available. NPP completed.	First product (version 1) launched. NPI completed.	We have (multiple) product(s) in our portfolio operational.
4.1	Business / Mission Analysis	Status of the business/mission analysis regarding the envisaged product or service. The Business/Mission Analysis process defines the business/mission problem or opportunity, characterizes the solution space, and determines potential solution class(es) that could address a problem or take advantage of an opportunity.	Level 2	Level 2	No results/capability (yet)	Business or mission analysis performed.	Problem/opportunity space is defined.	Solution space is characterized.	Alternative solution classes are evaluated.	Business or mission analysis is completed and managed.
4.1.1.	Profit Model Evaluation	Evaluation of the contribution of the product to the profit model. A profit model refers to a company's plan that defines how the company will create value for itself and its shareholders. It defines the gross and net margins the organization must achieve, given the structure and magnitude of the fixed and variable costs inherent in its resources. (M. W. Johnson (2018) Reinvent your business model, pp 35.)	Level 3	Not Applicable	Unknown	Basic understanding of the relevant metrics to evaluate the profit model.	Initial tracking of the relevant metrics to evaluate the profit model.	Systematic tracking of the relevant metrics to evaluate the profit model.	Metrics relevant to profit model evaluation are known and look promising.	Metrics relevant to profit model evaluation are known and ready for fast scale-up.



PRODUCT EXPLORATION AND CONCEPT VALIDATION



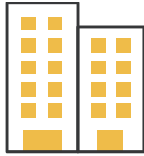
PRODUCT EXPLORATION AND CONCEPT VALIDATION



Mission, vision and strategy



IP scan



Int / ext SWOT



PESTEL



Business mission



Stakeholder needs



Life cycle concepts



(Stakeholder) Requirements



System exploration



PRODUCT EXPLORATION AND CONCEPT VALIDATION



Interviews



Observations



Personas /
segmentation



Needs
prioritization



Business mission



Stakeholder needs



Life cycle concepts



(Stakeholder)
Requirements



System exploration



Research goals

Topic guide

Informed consent

Interview techniques

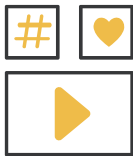
Analyse and capture stakeholder needs



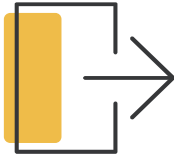
PRODUCT EXPLORATION AND CONCEPT VALIDATION



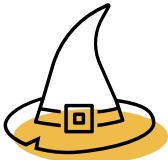
Ideation of solution classes



(Rapid) Prototyping



Business modelling



Wizard of Oz



Business mission



Stakeholder needs



Life cycle concepts



(Stakeholder) Requirements

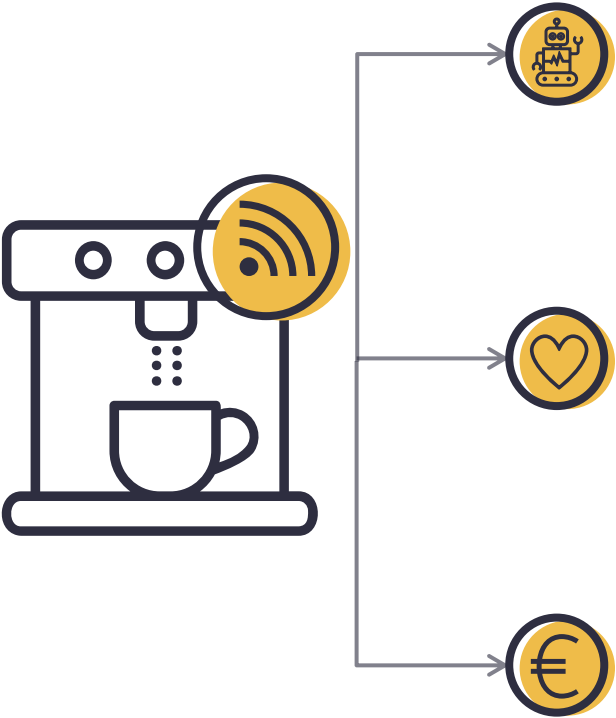


System exploration



PRODUCT EXPLORATION AND CONCEPT VALIDATION

Validate whether the concept is...



Desirable

Do people want it?

Feasible

Can we make it?




Viable

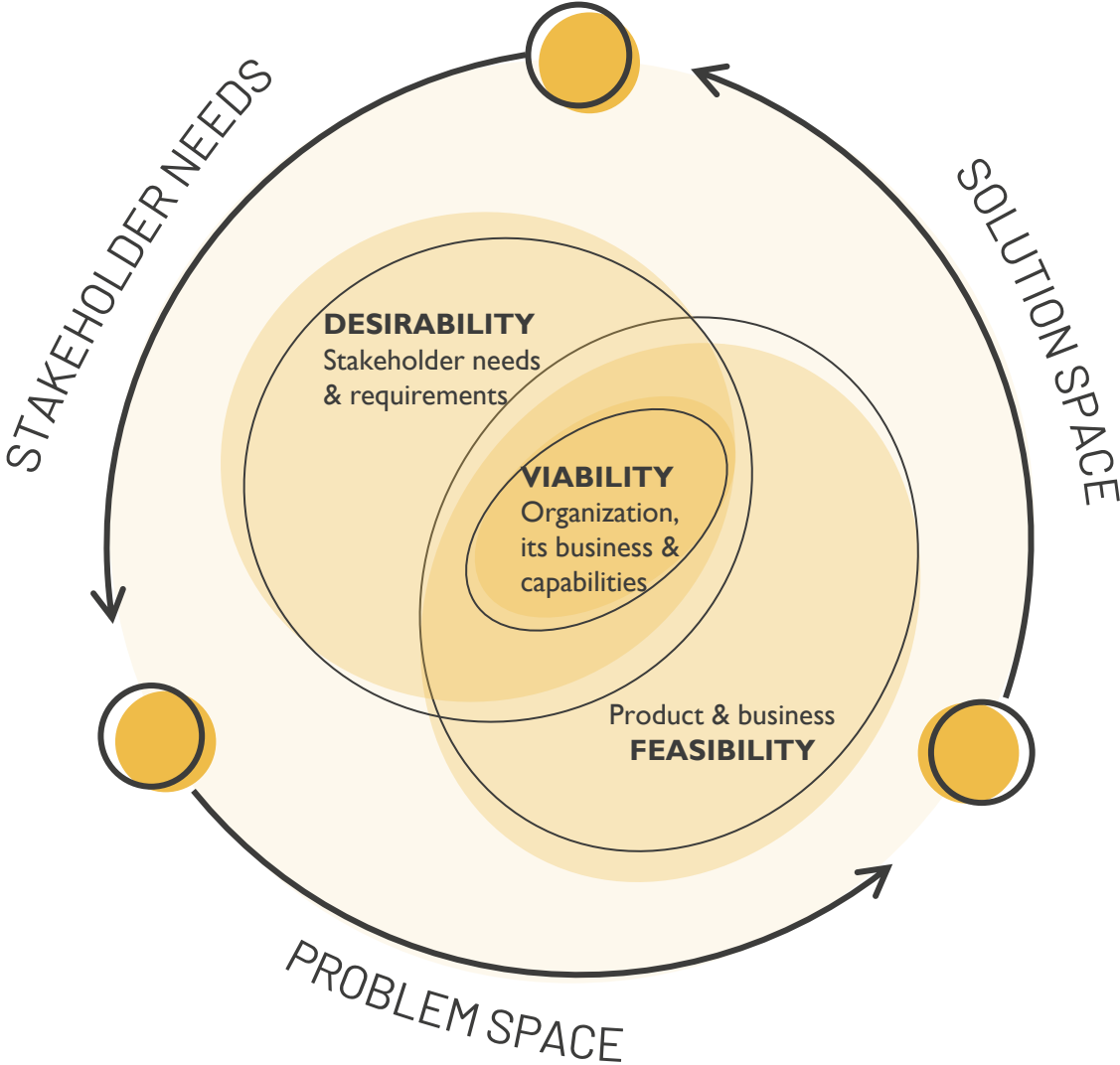
Can we earn money with it?



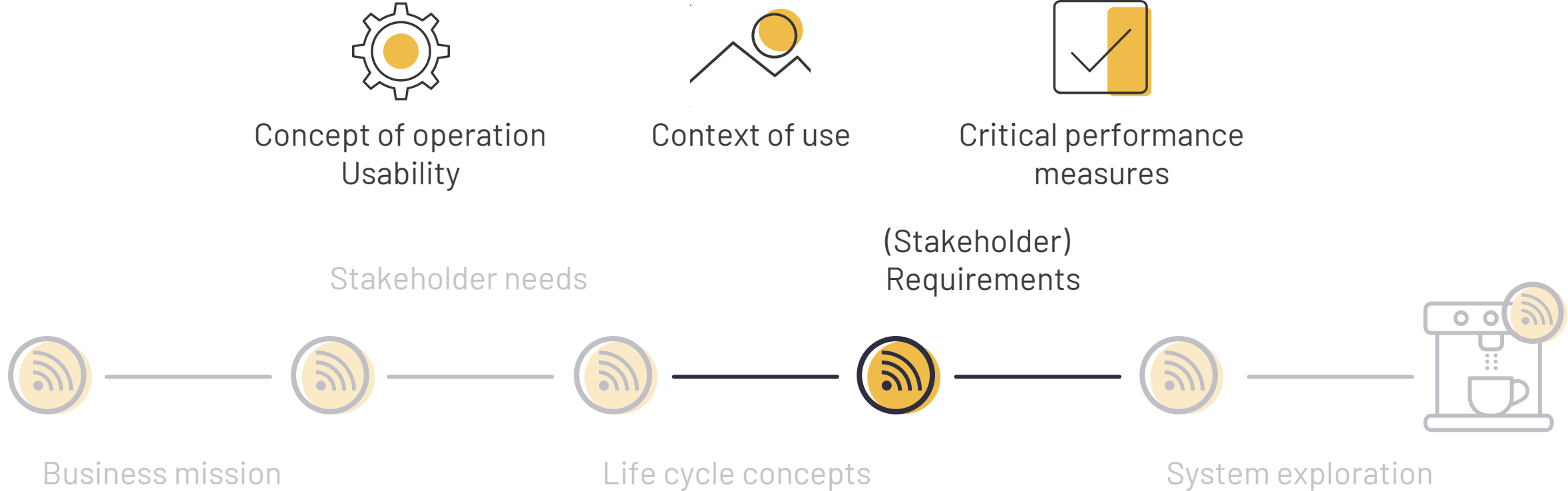
PRODUCT EXPLORATION AND CONCEPT VALIDATION



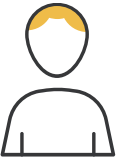
- Validate whether the concept is...
-  **Desirable**
Do people want it?
 -  **Feasible**
Can we make it?
 -  **Viable**
Can we earn money with it?



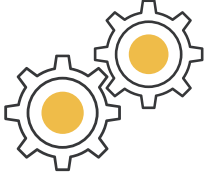
PRODUCT EXPLORATION AND CONCEPT VALIDATION



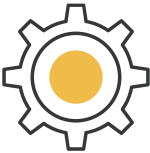
PRODUCT EXPLORATION AND CONCEPT VALIDATION



Competences / supply chain



Enabling systems



(Embedded) Technology



Legal and certification

Stakeholder needs

(Stakeholder) Requirements



Business mission



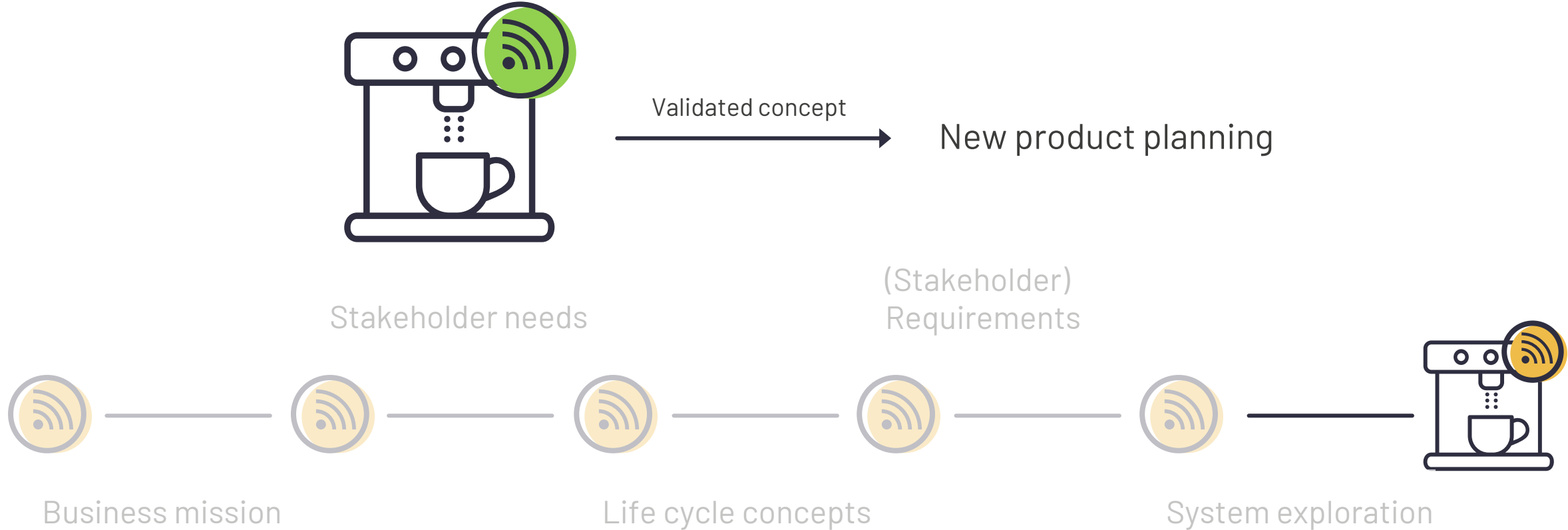
Life cycle concepts



System exploration



PRODUCT EXPLORATION AND CONCEPT VALIDATION





embracing a better life