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INTRODUCTION TO (SMART) PRODUCT EXPLORATION

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With support from:

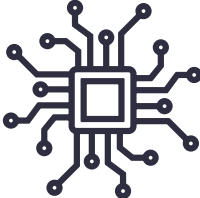


INNOVATION CHALLENGE

SMART COFFEE MACHINE



Intelligence, sensors and communication



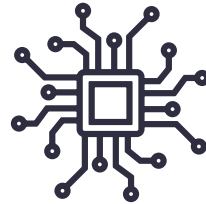
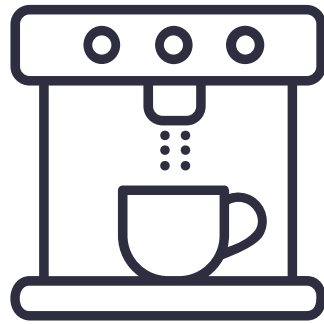
"Ordinary" coffee machine



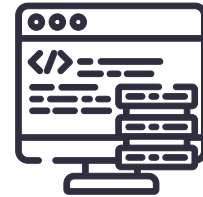
"Smart" coffee machine

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

INNOVATION CHALLENGE

(SMART) PRODUCT IDEA



Company fit

Does it fit within our portfolio and companies' mission?



Capabilities

Do we have the right expertise?



Technology

What technology can we use?
Is it available?



Stakeholder value

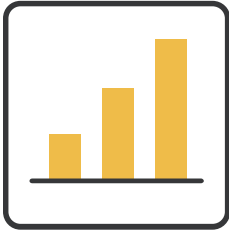
What smart functionality would add value? Who would be interested in such product?



Business model

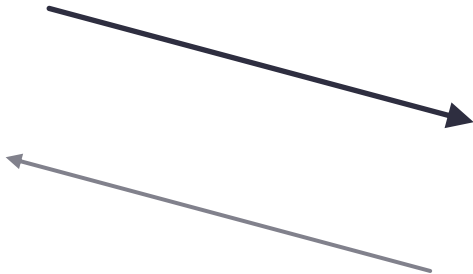
What will be the revenue model? How to set a price?
Who will be our competitors?

INNOVATION CHALLENGE ACTIVITIES



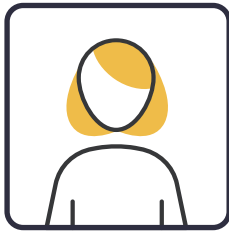
Business

What and how will we do it?



Concept validation

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



Stakeholder needs

For **whom** do we do it?

PRODUCT EXPLORATION AND CONCEPT VALIDATION

PROBLEM → SOLUTION SPACE



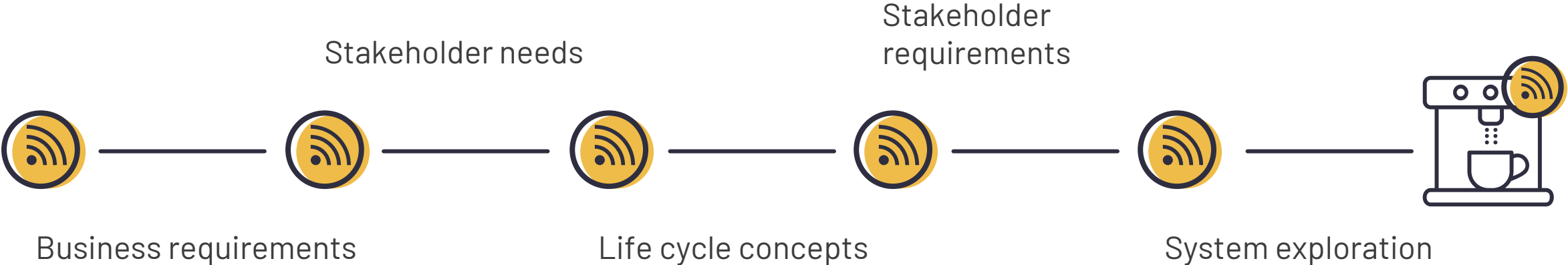
Problem research

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

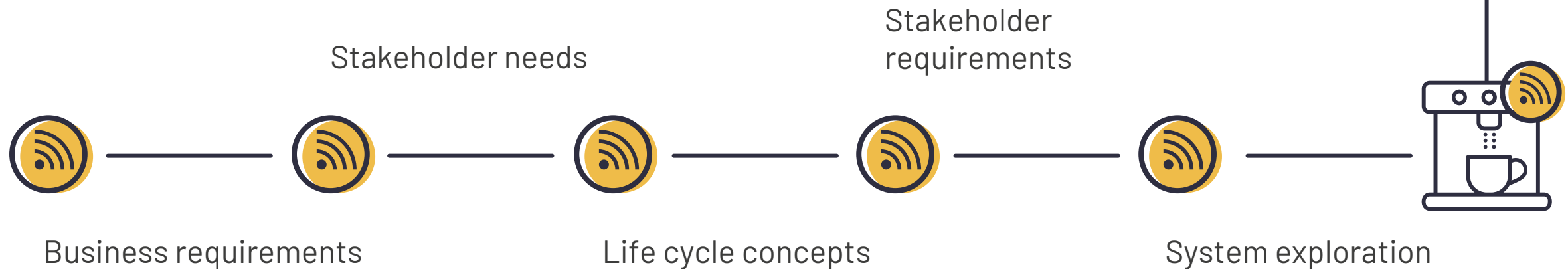
PRODUCT EXPLORATION AND CONCEPT VALIDATION



PRODUCT EXPLORATION AND CONCEPT VALIDATION

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*)

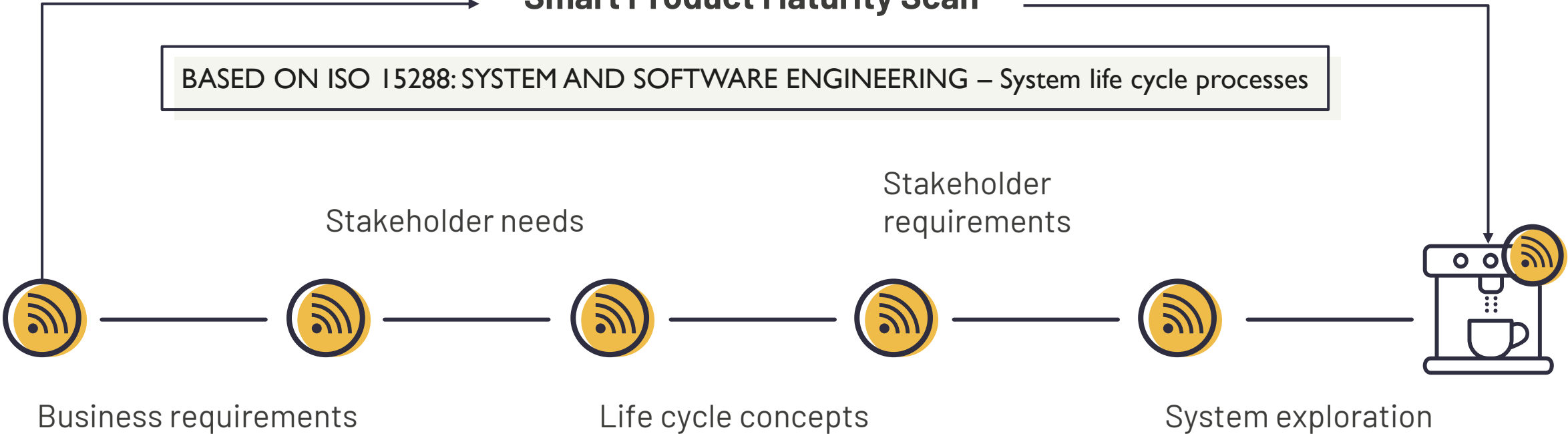


PRODUCT EXPLORATION AND CONCEPT VALIDATION



Smart Product Maturity Scan

BASED ON ISO 15288: SYSTEM AND SOFTWARE ENGINEERING – System life cycle processes



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



Smart product maturity scan



Focusses on your organization's capability to develop, manage and maintain a (smart) product in all stages of the PLC.

Each criterion assesses the internal knowledge or ability to subcontract

TARGET	SCORE	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
Level 3	Level 4	No knowledge	Notions / desk research.	Basic / academic knowledge.	Able to subcontract / junior execution	Professional execution	Senior / expert knowledge in organization.

SMART PRODUCT MATURITY SCAN



Smart product maturity scan



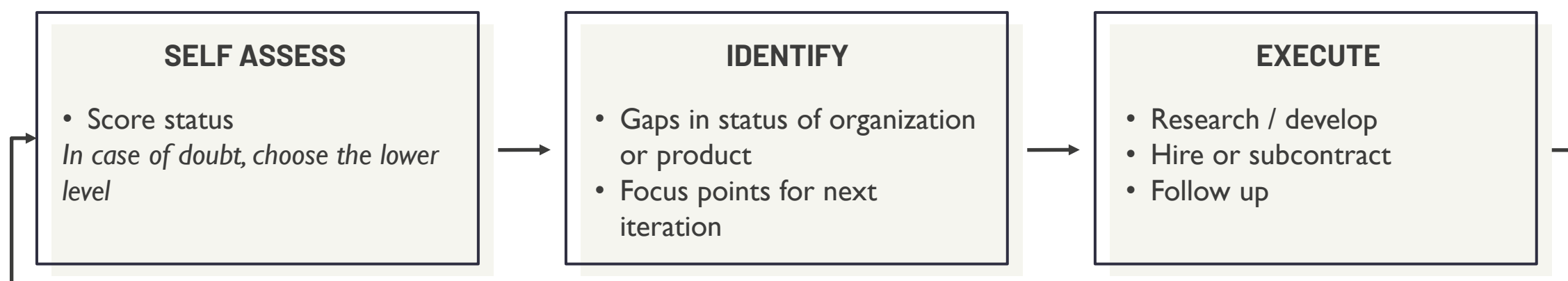
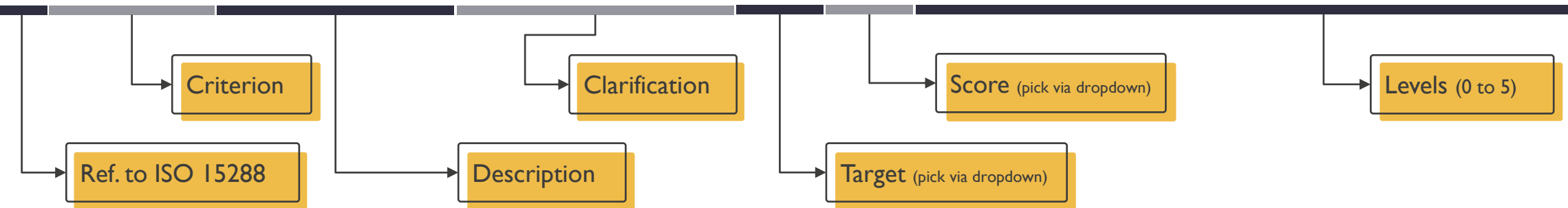
Evaluates the product concept during its entire lifecycle.

- Identifies focus points and jobs to be done in the life-cycle processes
- Levels are specific to each criteria: they describe the status of the activities

TARGET	SCORE	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
Level 3	Level 2	Unknown	First ideas (e.g. via brainstorming) on the user needs.	Desk research corroborated view on user needs.	View corroborated with (some) interactions with users, customers, experts and other stakeholders.	Structured interactions with users, customers, experts and other stakeholders established.	Real-life observations of the user needs established.

SMART PRODUCT MATURITY SCAN

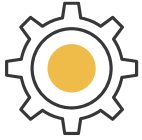
Exploration		Status: Exploration	Extend to which the organization possesses the knowledge and competence for the technical processes							
4.0	Product: General Status	Life-cycle status of your product. How far are you in the life cycle of the product?	Level 1	Level 4	No (product) idea	Product idea conceptualized. 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.



DEMO



SMART PRODUCT MATURITY SCAN IN DEPTH TOOLS



Knowledge Scan – Product Life Cycle

Assesses the required knowledge to realize a product life cycle



Knowledge Scan – Customer

Assesses the required knowledge to analyze customer / user needs and requirements



Organization Maturity per ISO 15288

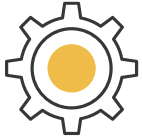
Assesses the maturity on all system life cycle processes for the organization and supply chain



New Product Exploration per ISO 15288

Project follow up tool for all NPE activities

SMART PRODUCT MATURITY SCAN IN DEPTH TOOLS



Knowledge Scan – Product Life Cycle

Assesses the required knowledge to realize a product life cycle



Knowledge Scan – Customer

Assesses the required knowledge to analyze customer / user needs and requirements

SELF ASSESS

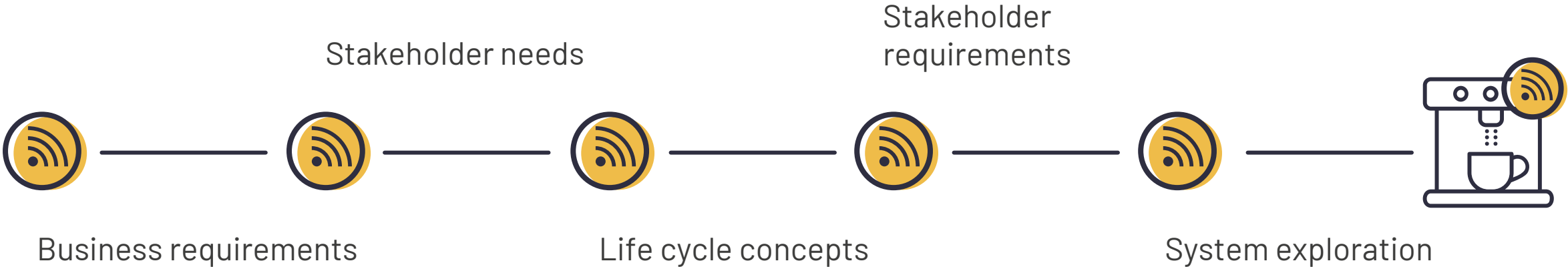
An overview of all competences required for product life-cycle realisation / stakeholder analysis

Knowledge required for product life-cycle realisation: 0202 Electrical and Electronic Engineering						
	A	B	C	D	E	F
1	Knowledge required for product life-cycle realisation: 0202 Electrical and Electronic Engineering		Mastership		Target	Specificat
2						
3	020201	Communications				
4	02020101	Display technology			Notions	1
5	02020102	Wireless communication and positioning systems			Junior	3
6	02020199	Communications not elsewhere classified			Not applicable	0
7	020202	Communications technology				
8	02020201	Antennas and propagation			Academic	2
9	02020202	Broadband and modern technologies			Academic	2
10	02020203	Computer communication networks			Academic	2
11	02020204	Data communications			Academic	2
12	02020205	Microwave and millimeter wave technology			Academic	2
13	02020206	Optical fibre communications			Academic	2
14	02020207	Optical networks and systems			Academic	2
15	02020208	Satellite communications			Academic	2
16	02020209	Telecommunication and remote sensing			Academic	2
17	02020210	Video communications			Academic	2
18	02020211	Wireless communications			Academic	2
19	02020299	Communications technology not elsewhere classified			Academic	2
20	020203	Control systems, robotics and automation				
21	02020301	Automation and control systems			Working	4
22	02020302	Electromagnetism and antenna technology			Academic	2
23	02020303	Photonics, light and lighting			Not applicable	0
24	02020304	Robotics and automatic control			Expert	5
25	02020399	Control systems, robotics and automation not elsewhere classified				
26	020204	Electronics				
27	02020401	Analogue, RF and mixed signal integrated circuits				
28	02020402	Digital integrated circuits			Expert	5
29	02020403	Electronic circuit and system reliability				

BASED ON FRDS 2019

-PHYSICAL | PLC-CHEMICAL | PLC-OTHER SCI | PLC-ELECTR

PRODUCT EXPLORATION AND CONCEPT VALIDATION



PRODUCT EXPLORATION AND CONCEPT VALIDATION



Validate whether the concept is...



Desirable

Do people want it?



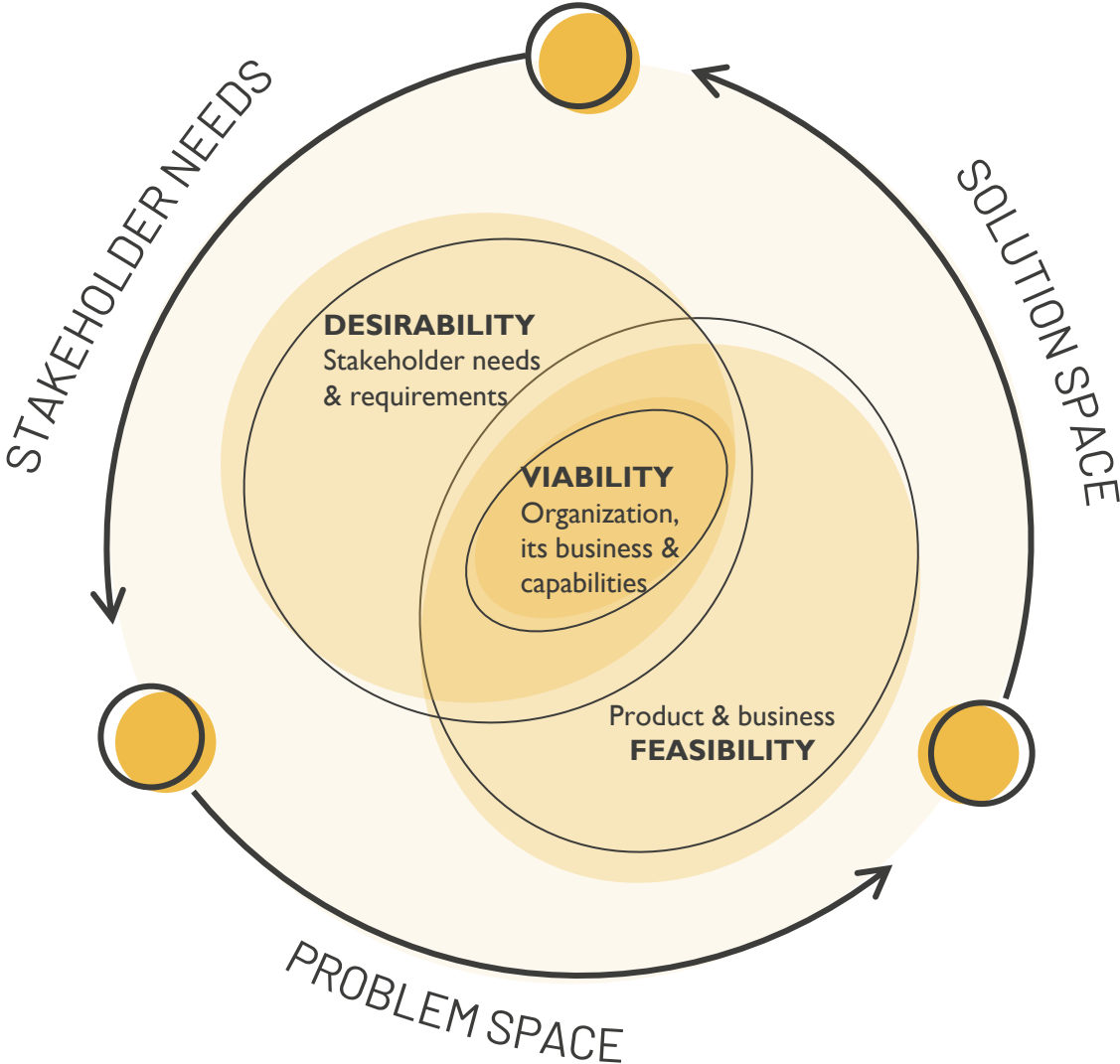
Feasible

Can we make it?



Viable

Can we earn money with it?

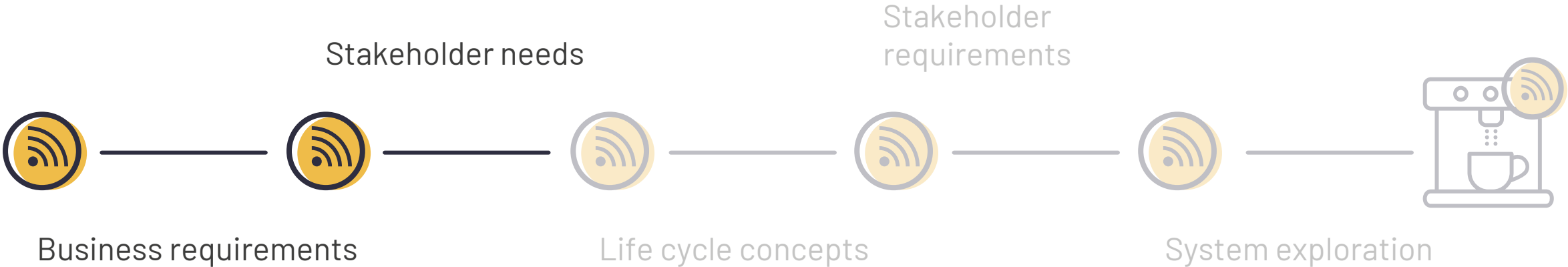


PROBLEM SPACE AND STAKEHOLDER NEEDS EXPLORATION

3RD OF JUNE

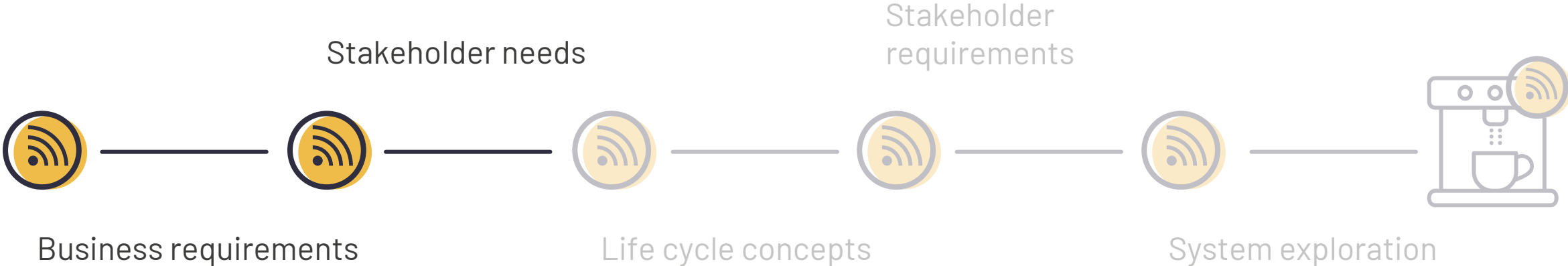
How to explore, understand and validate the needs of the stakeholders of the product to be developed, as well as the problems or opportunities for which the new product needs to offer an answer.

Exploration and validation activities, tools and methods



PROBLEM SPACE AND STAKEHOLDER NEEDS EXPLORATION

3RD OF JUNE

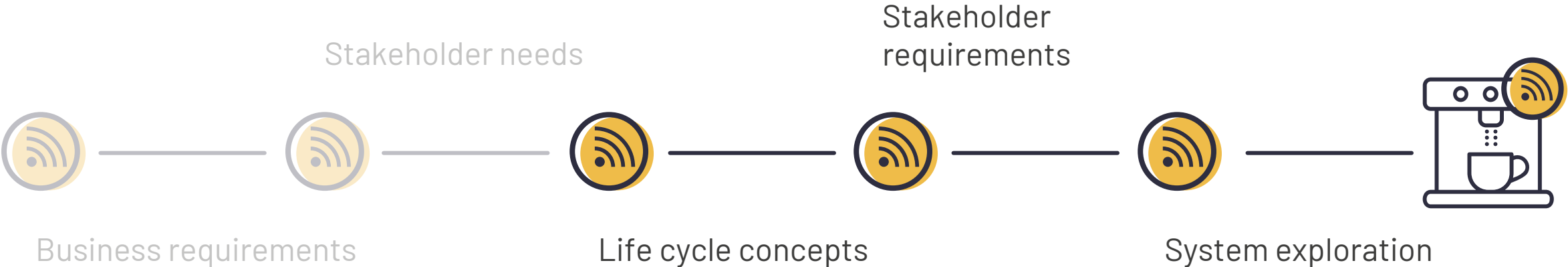


SOLUTION SPACE EXPLORATION AND VALIDATION

17TH OF JUNE

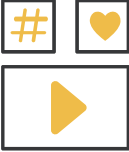
How to approach the fuzzy front-end of product development which transforms first stakeholder needs insights and ideas of a (smart) product-based solution into a validated concept upon which a Product Requirements Document (PRD) can be based.

Exploration and validation activities, tools and methods



SOLUTION SPACE EXPLORATION AND VALIDATION

17TH OF JUNE



(Rapid)
Prototyping



Business
modelling



Testing
Wizard of Oz

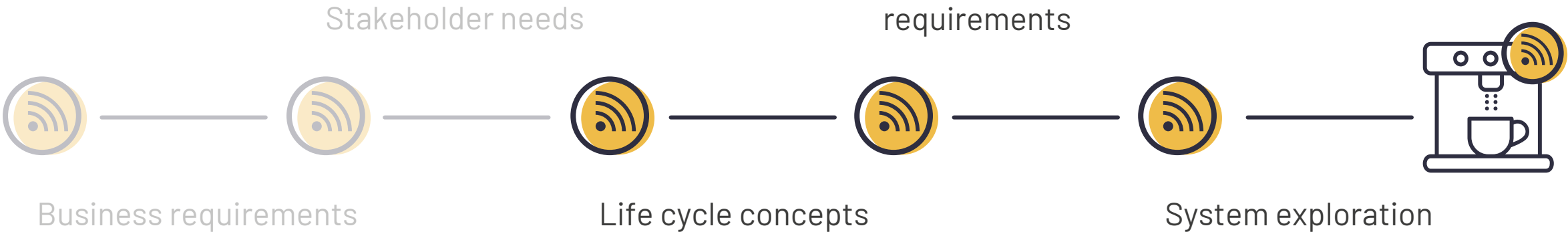


Critical performance
measures



Enabling systems

Etc..



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

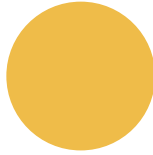
3 DAYS

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



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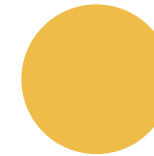


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WEBINARS



**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