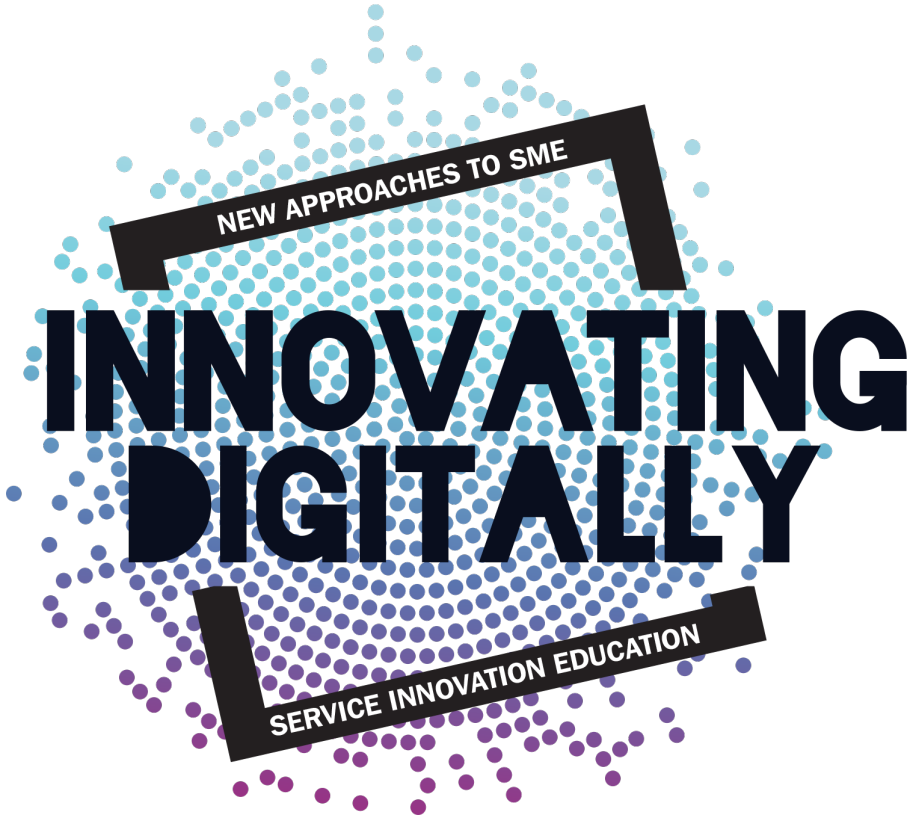
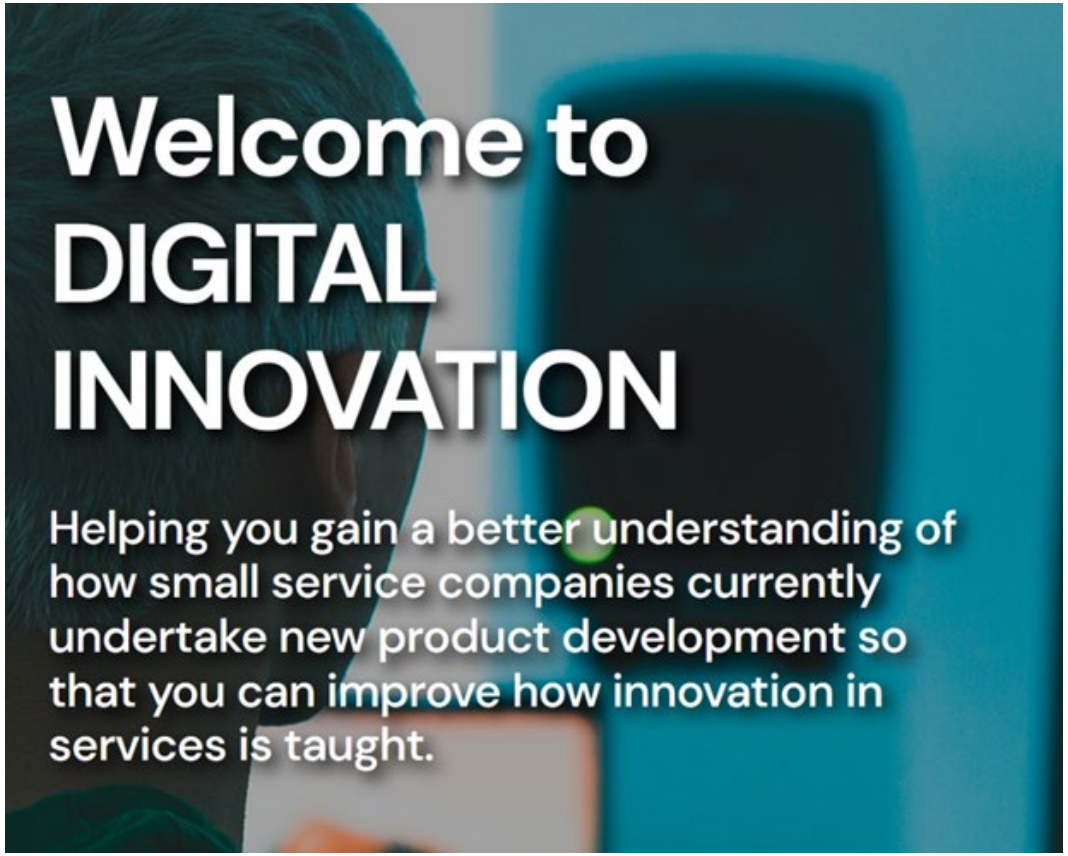


Innovating Digitally

Exploring new resources and tools for your organization

Burcu Kör b.kor@hva.nl

Co-funded by the Erasmus+ Programme of the European Union



- **Digital Innovation Audit**
- **Digital Innovation Benchmarking Tool**
- **Problem-Based Learning Open Educational Resources**

Our Creative Partners

Amsterdam University of Applied Sciences

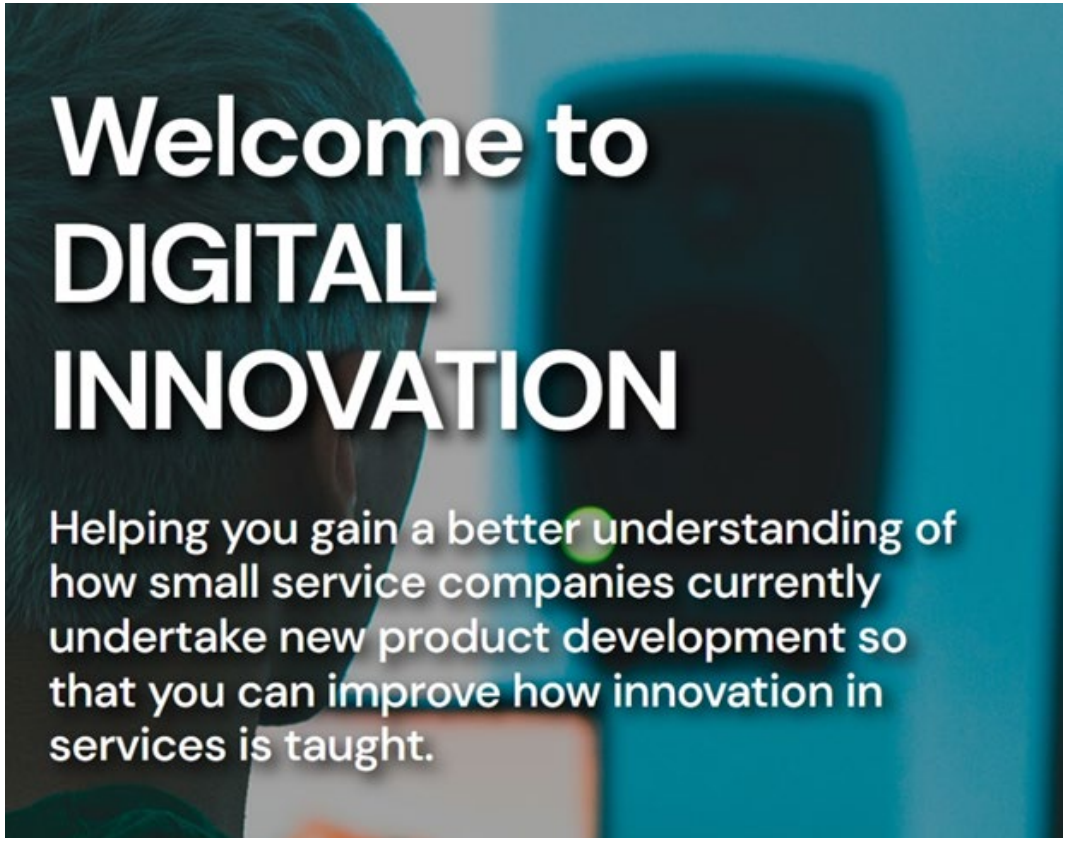
momentum [educate + innovate]

FH MÜNSTER University of Applied Sciences

eucen

Uniwersytet Szczeciński

European E-Learning Institute



Amsterdam University of Applied Sciences

Our Creative Team

Dr. Ingrid Wakkee

Dr. Burcu Kör

Digital Innovation Project Resources

- The Digital Innovation Audit
- The Digital Innovation Benchmarking Tool
- Problem-Based Learning Open Educational Resources

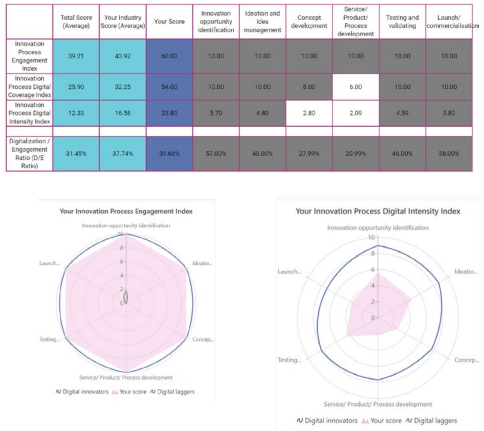
EU Service Industry has been slow to adapt Transformative Technology

Our Solution

'Innovating Digitally' addresses this issue by improving how service innovation is taught via:

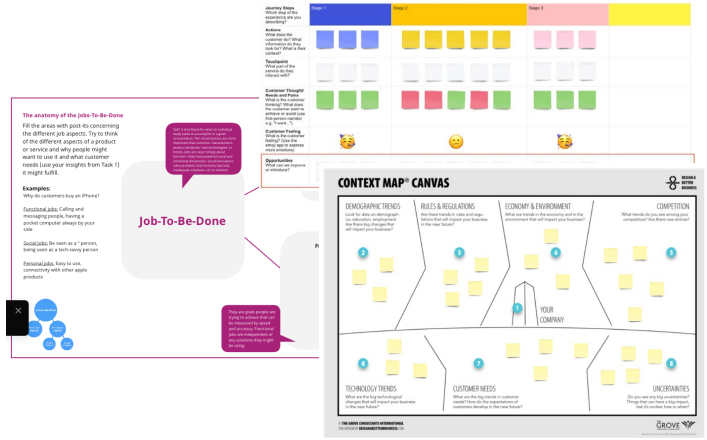
Digital Innovation **Audit on new service** development processes

IO1



Digital Innovation **Benchmarking Tool** for Service SMEs to identify their current digitisation levels

IO2



Open Educational Resources to teach Digital Innovation for service sector SMEs

IO3

NEW APPROACHES TO SME SERVICE INNOVATION EDUCATION

IO1 – Research Aim

Aim

Digital Innovation Audit **maps available digital tools supporting new service development practices** based on the recent and well-grounded theories of innovation process.

Approach

Investigating literature to map a “digital innovation process for services” based on **25 scientific models**

Investigating through **26 qualitative interviews** how “digital innovation process for services” should be taught

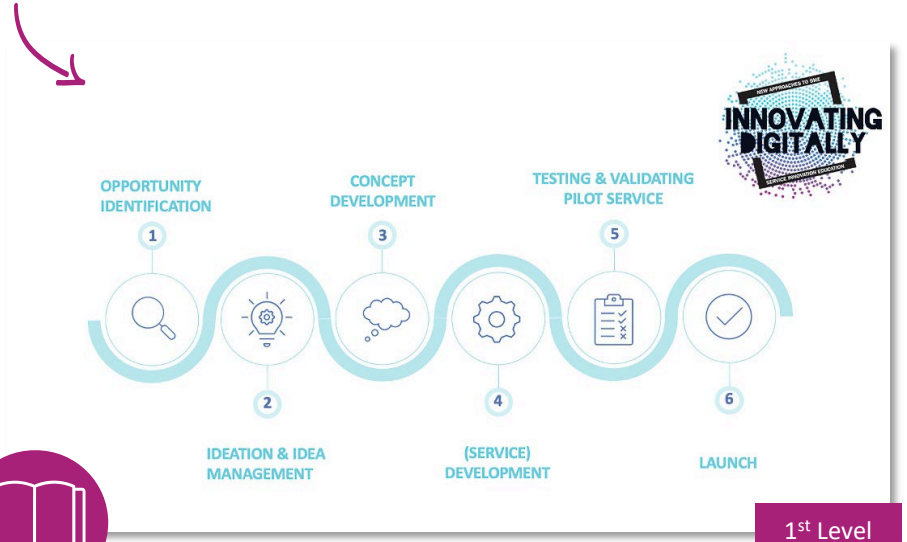
Mapping **30 digital innovation tools** along the process

1. **Literature Research** — 242 results

2. **Literature Review** — 25 scientific articles

3. **Process Mapping** — One process as mapping base

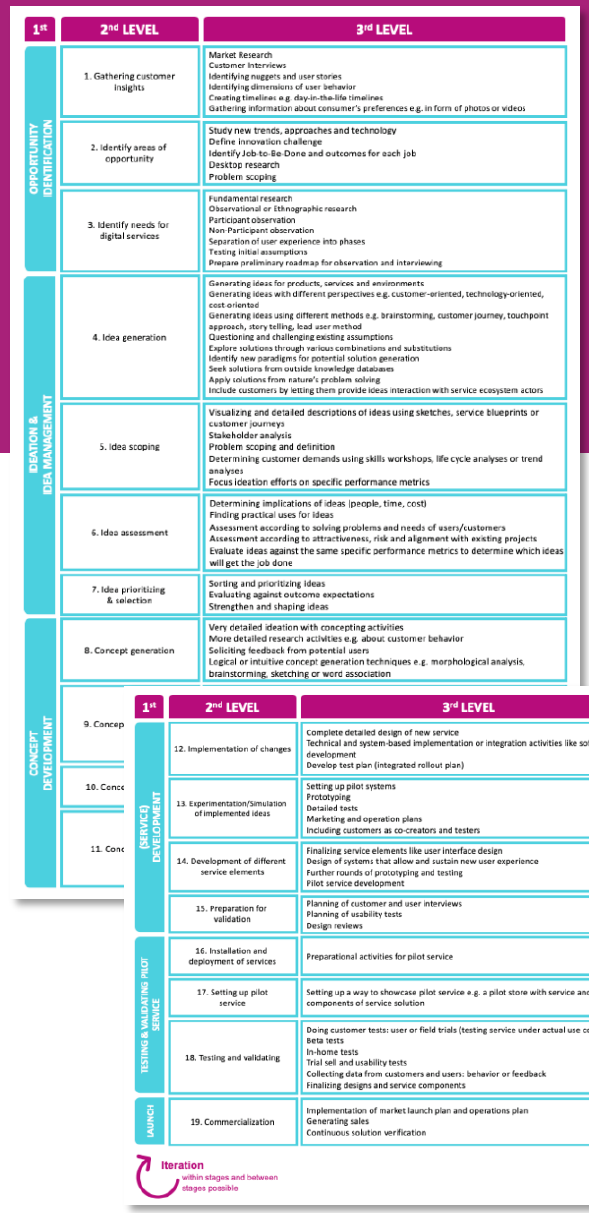
4. **Process Development** — Three-level process



1st Level

1. Gathering customer insights
2. Identify areas of opportunity
3. Identify needs for digital services
4. Idea generation
5. Idea scoping
6. Idea assessment
7. Idea prioritizing
8. Concept generation
9. Concept description
10. Concept selection
11. Concept testing
12. Implementation of changes
13. Experimentation/Simulation of implemented ideas
14. Development of different service elements
15. Preparation for validation
16. Installation and deployment of services
17. Setting up pilot service
18. Testing and validating
19. Commercialization

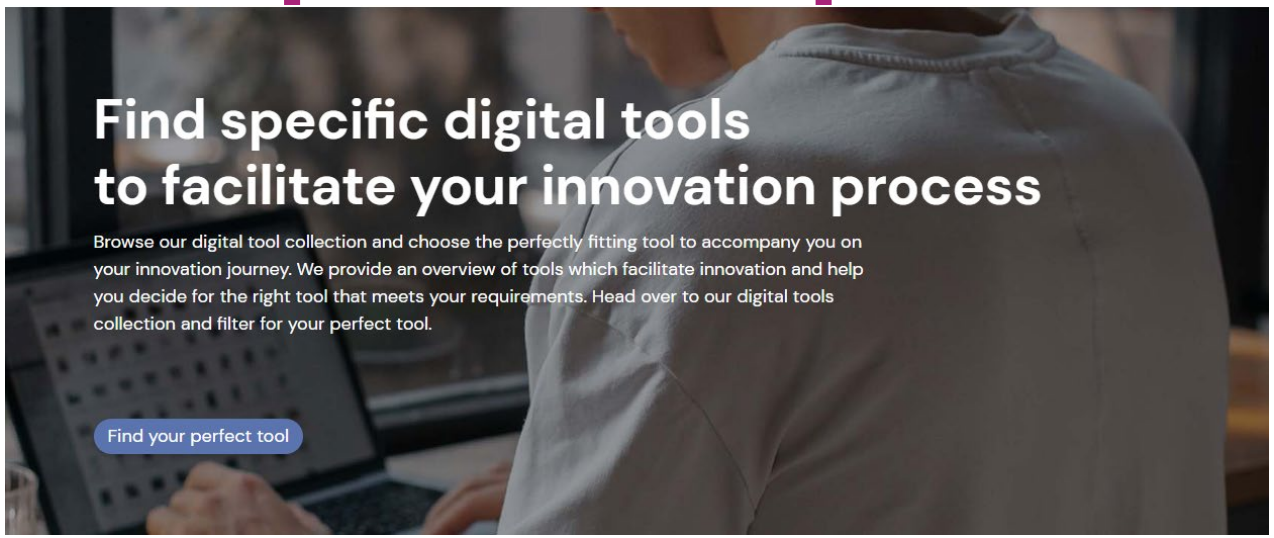
2nd Level



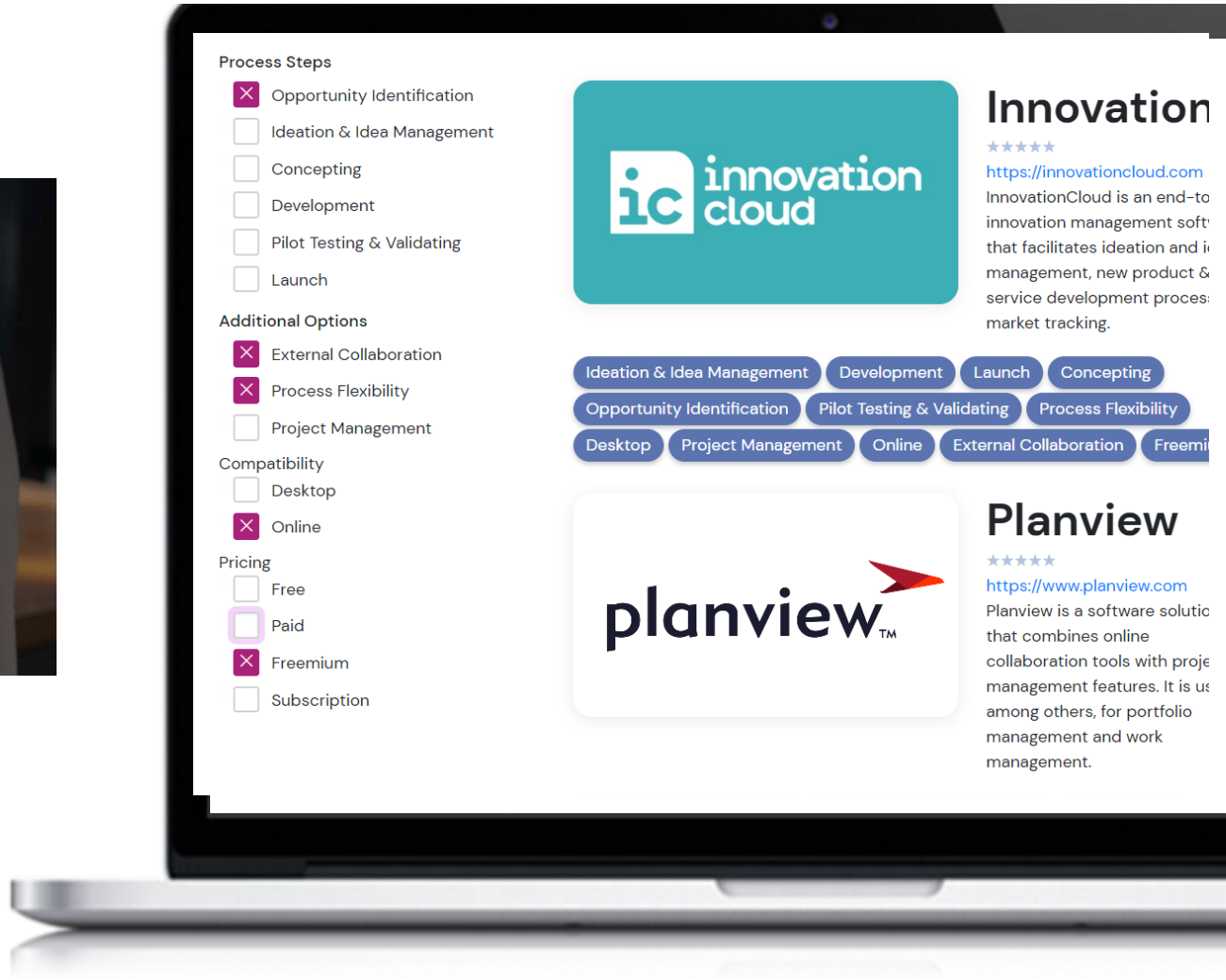
1st	2nd LEVEL	3rd LEVEL
OPPORTUNITY IDENTIFICATION	1. Gathering customer insights	Market Research Customer Interviews Identifying nuggets and user stories Identifying dimensions of user behavior Creating timelines e.g. day-in-the-life timelines Gathering information about consumer's preferences e.g. in form of photos or videos
	2. Identify areas of opportunity	Study new trends, approaches and technology Define innovation challenge Identify Job-to-Be-Done and outcomes for each job Desktop research Problem scoping
	3. Identify needs for digital services	Fundamental research Observational or Ethnographic research Participant observation Non Participant observation Separation of user experience into phases Testing initial assumptions Prepare preliminary roadmap for observation and interviewing
IDEATION & IDEA MANAGEMENT	4. Idea generation	Generating ideas for products, services and environments Generating ideas with different perspectives e.g. customer-oriented, technology-oriented, cost-oriented Generating ideas using different methods e.g. brainstorming, customer journey, touchpoint approach, story telling, load user method Questioning and challenging existing assumptions Explore solutions through various combinations and substitutions Identify new paradigms for potential solution generation Seek solutions from outside knowledge databases Apply solutions from nature's problem solving Include customers by letting them provide ideas interaction with service ecosystem actors
	5. Idea scoping	Visualizing and detailed descriptions of ideas using sketches, service blueprints or customer journeys Stakeholder analysis Problem scoping and definition Determining customer demands using skills workshops, life cycle analyses or trend analyses Focus ideation efforts on specific performance metrics
	6. Idea assessment	Determining implications of ideas (people, time, cost) Finding practical uses for ideas Assessment according to solving problems and needs of users/customers Assessment according to attractiveness, risk and alignment with existing projects Evaluate ideas against the same specific performance metrics to determine which ideas will get the job done
	7. Idea prioritizing & selection	Sorting and prioritizing ideas Evaluating against outcome expectations Strengthen and shaping ideas
CONCEPT DEVELOPMENT	8. Concept generation	Very detailed ideation with concepting activities More detailed research activities e.g. about customer behavior Soliciting feedback from potential users Logical or intuitive concept generation techniques e.g. morphological analysis, brainstorming, sketching or word association
	9. Concep	
	10. Conce	
	11. Conc	

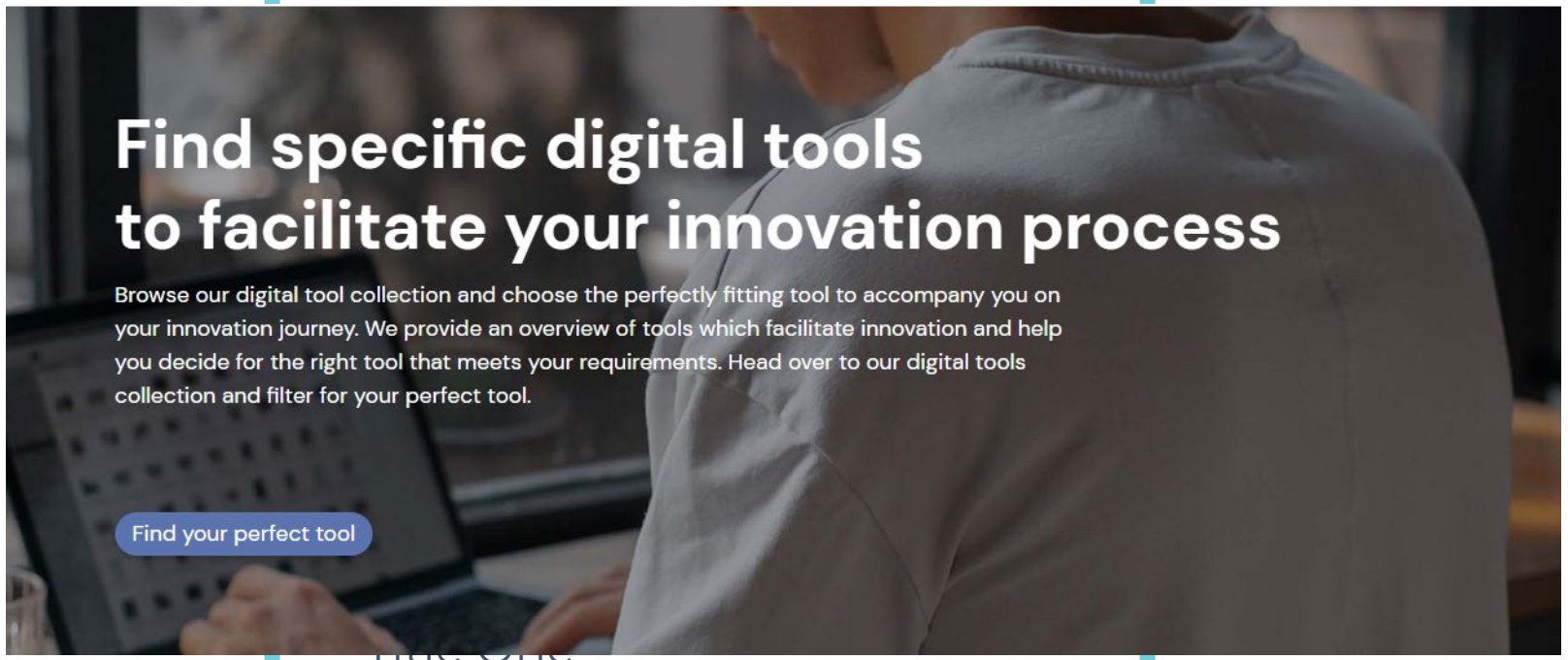
1st	2nd LEVEL	3rd LEVEL
(SERVICE) DEVELOPMENT	12. Implementation of changes	Complete detailed design of new service Technical and system-based implementation or integration activities like software development Develop test plan (integrated rollout plan)
	13. Experimentation/Simulation of implemented ideas	Setting up pilot systems Prototyping Detailed tests Marketing and operation plans Including customers as co-creators and testers
	14. Development of different service elements	Finalizing service elements like user interface design Design of systems that allow and sustain new user experience Further rounds of prototyping and testing Pilot service development
	15. Preparation for validation	Planning of customer and user interviews Planning of usability tests Design reviews
TESTING & VALIDATING PILOT SERVICE	16. Installation and deployment of services	Preparational activities for pilot service
	17. Setting up pilot service	Setting up a way to showcase pilot service e.g. a pilot store with service and tangible components of service solution
	18. Testing and validating	Doing customer tests: user or field trials (testing service under actual use conditions) Beta tests In-home tests Trial sell and usability tests Collecting data from customers and users: behavior or feedback Finalizing designs and service components
LAUNCH	19. Commercialization	Implementation of market launch plan and operations plan Generating sales Continuous solution verification

Iteration
within stages and between stages possible



Mapping digital tools to the different innovation processes



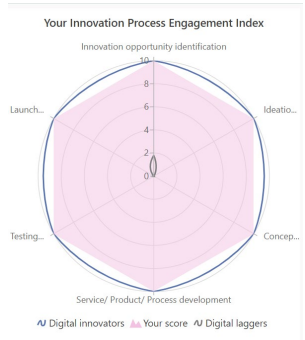


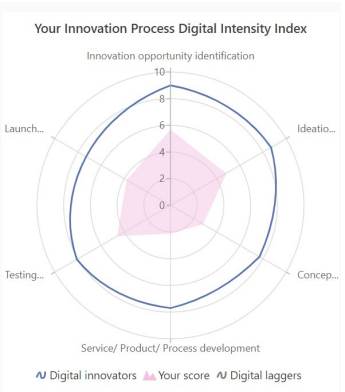
https://scanner.innovatingdigitally.eu/

INNOVATING DIGITALLY

IO2

	Total Score (Average)	Your Industry Score (Average)	Your Score	Innovation opportunity identification	Ideation and idea management	Concept development	Service/ Product/ Process development	Testing and validating	Launch/ commercialisation
Innovation Process Engagement Index	39.21	43.92	60.00	10.00	10.00	10.00	10.00	10.00	10.00
Innovation Process Digital Coverage Index	25.90	32.25	54.00	10.00	10.00	8.00	6.00	10.00	10.00
Innovation Process Digital Intensity Index	12.33	16.58	23.80	5.70	4.80	2.80	2.09	4.59	3.80
Digitalization / Engagement Ratio (D/E Ratio)	31.45%	37.74%	39.66%	57.00%	48.00%	27.99%	20.99%	46.00%	38.00%





Learn what is the current level of your enterprise's innovation process digitalisation

Get access to the information on how your position can be improved

Find out what is your position in relation to other enterprises according to criteria of your choice

Track progress of your enterprise's innovation process digitalisation and how your relative competitive position is changing

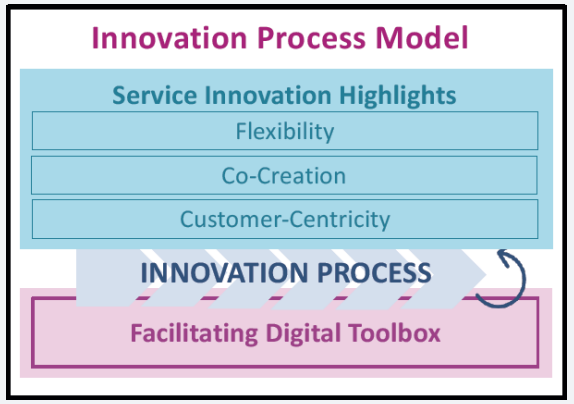
https://questapp.azurewebsites.net/

IO3 – Teaching Materials

Goal

- Developing an **up-to-date innovation process** to enhance the limited scientific knowledge
- Develop digital platforms to **enhance the engagement of industry in education** and vice versa
- Gain insights on **how to develop modern entrepreneurship** course curricula in this context

Innovation Process Model



Five case materials according to steps...

...applied in diverse digital tools...

...accompanied by a teachers' guideline

Facilitating Digital Toolbox
The model was integrated into a digital tool platform that maps over 30 tools which is provided throughout the course to help solve the 5 cases.

Flexibility
Modular, iterative concept with 5 cases equaling the first 5 process steps. Lecturers can freely design the teaching format.

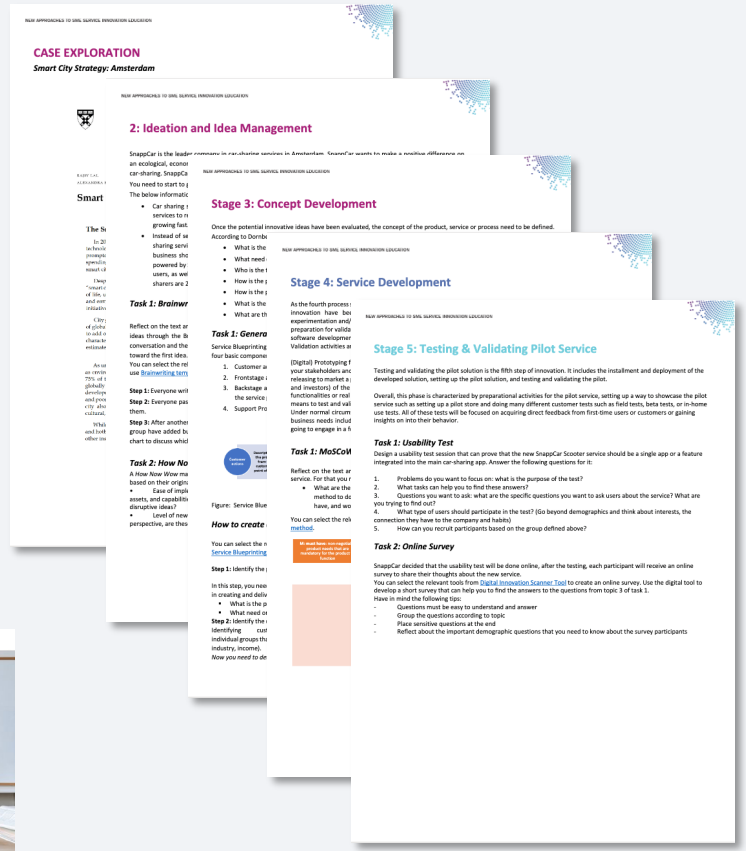
Co-Creation
Guest lecturers, industry experts or stakeholders can be added to co-create during teaching the course.

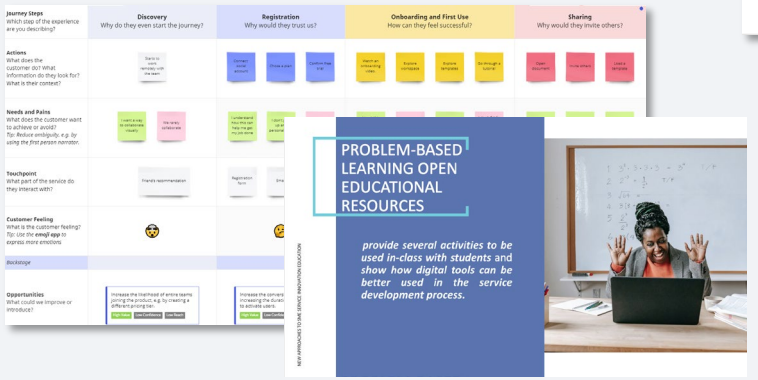
Customer Centricity
Problem-based tasks taking on customers' perspectives such as customer journey maps.

NEW APPROACHES TO SME SERVICE INNOVATION EDUCATION

IO3- Problem-Based Learning Materials

- **Problem-Based Learning Open Educational Resource** as a part of the Erasmus+ Strategic Alliances Project “Digital Innovation for Service Sectors”
- Providing several activities to **be used in-class** with students
- Show how digital tools can be **better used in the service development process**

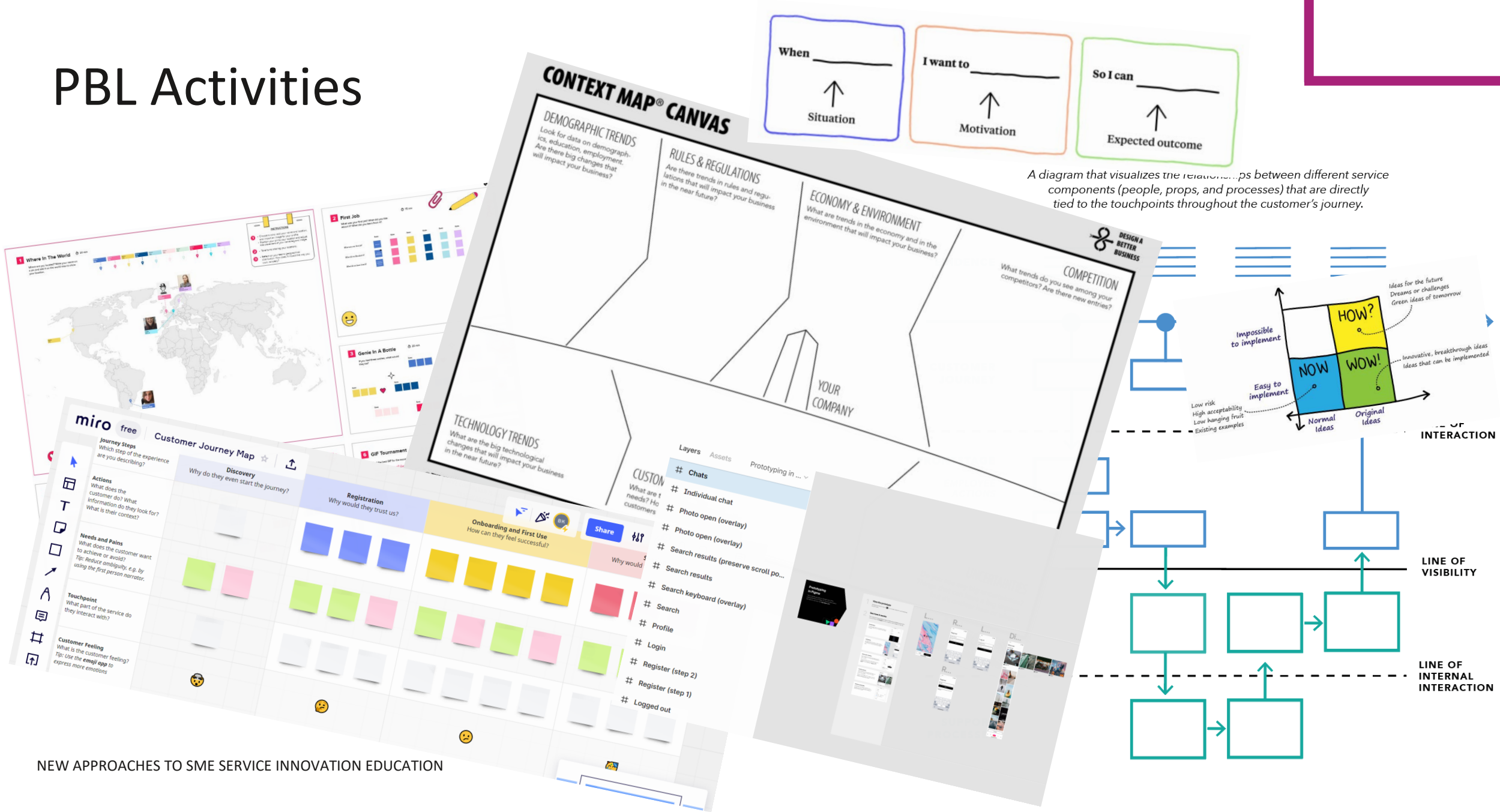




Final materials will be published soon

NEW APPROACHES TO SME SERVICE INNOVATION EDUCATION

PBL Activities



A diagram that visualizes the relationships between different service components (people, props, and processes) that are directly tied to the touchpoints throughout the customer's journey.

Hypotheses

H1: PBL educational resources are positively related to students' innovative behavior.

H2: PBL educational resources are positively related to students' entrepreneurial orientation.

H3: Students' innovative behavior is positively related to students' entrepreneurial orientation.

H4: Digital tool usage is positively related to students' innovative behavior.

H5: Digital tool usage is positively related to students' entrepreneurial orientation.

H6: Students' innovative behavior mediates the relationship between PBL educational resources and students' entrepreneurial orientation.

Methodology

- Determining the case, which should be related to a real-business life situation,
- Developing PBL activities for each innovation process step,
- The pilot training to apply learning-based problems, and
- Evaluation of the impact of PBL open-source educational resources in entrepreneurship and innovation management courses.

		Number (89)	%
Country	Germany	28	31.5
	The Netherlands	20	22.5
	Poland	41	46.1
Education	Bachelor	47	52.8
	Master	42	47.2

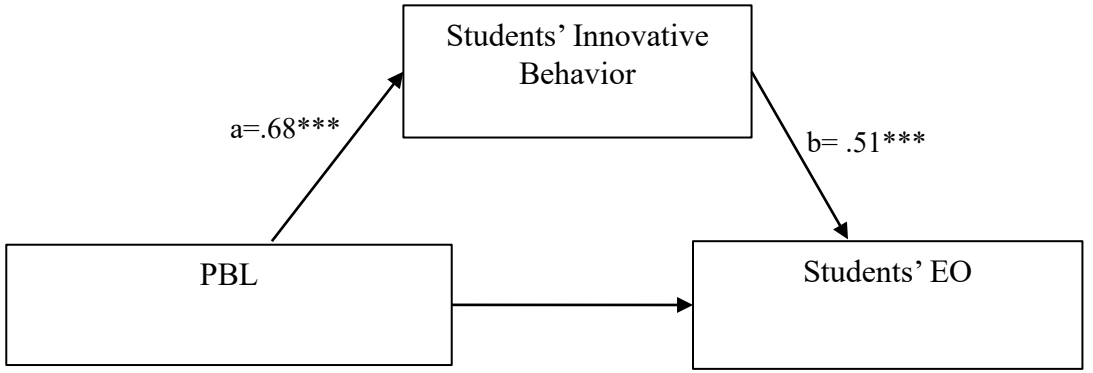
Results

Path	β	t	p	Adjusted R^2	Results
PBL → Students' Innovative Behavior	.681	8.658	.000***	.462	Supported
PBL→ Students' EO	.357	3.526	.000***	.117	Supported
Student's Innovative Behavior→Students' EO	.524	5.679	.000***	.267	Supported
Digital Tool Usage→ Students' Innovative Behavior	.638	7.601	.000***	.400	Supported
Digital Tool Usage→ Students' EO	.387	3.875	.000***	.140	Supported

The mediation model

Preacher and Hayes' bias-corrected nonparametric bootstrapping technique with 5000 bootstrap samples, is used to estimate direct and indirect effects.

H6: Students’ innovative behavior mediates the relationship between PBL educational resources and students’ entrepreneurial orientation.

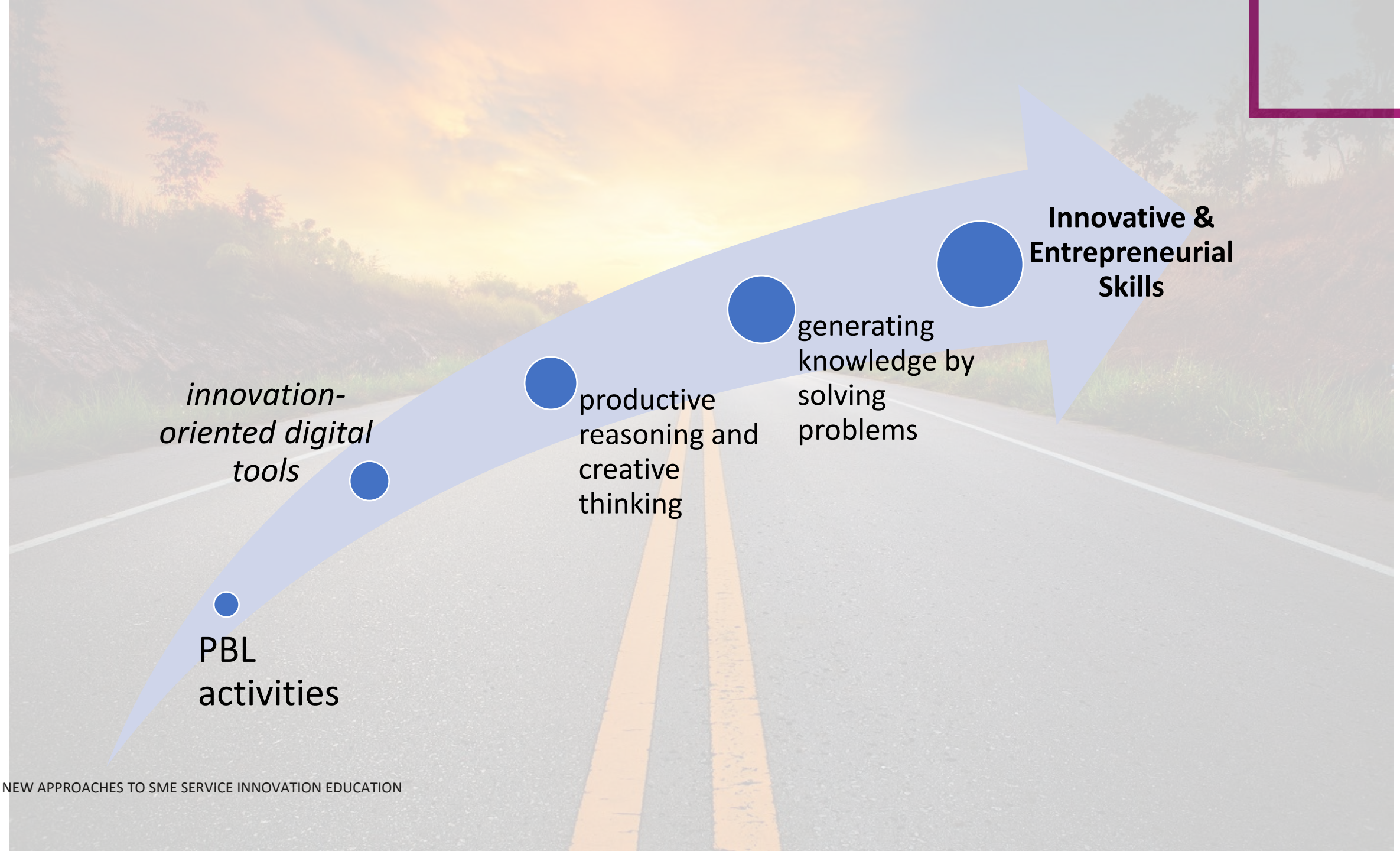


(95% Confidence Interval (CI) lower limit (LL): .1832 and upper limit (UL): .5400)

Mediation Analysis

Variable / Effect	β	SE	t	p	95% Confidence Interval	
					LLCI	ULCI
PBL→SEO	-.003	.122	-.0263	.98	-.2458	.2393
PBL→SIB	.68	.079	8.6583	.000***	.5248	.8377
PBL→SIB→SEO	.51	.122	4.1330	.000***	.2628	.7503
Effects						
Direct	-.003	.122	-.0263	.98	-.2458	.2393
Indirect	.35	.0913	–	-	.1832	.5400
Total	.34	.0970	3.5262	.000***	.1491	.5346

Note: Based on 5000 bootstrap samples, *p<.05; **p<.01; ***p<.001. SEO: Students' EO, SIB: Students' Innovative Behavior


PBL activities
innovation-oriented digital tools
productive reasoning and creative thinking
generating knowledge by solving problems
Innovative & Entrepreneurial Skills

NEW APPROACHES TO SME
INNOVATING DIGITALLY
SERVICE INNOVATION EDUCATION

IO1

Digital Innovation **Audit on new service** development processes

IO2

Digital Innovation **Benchmarking Tool** for Service SMEs to identify their current digitisation levels

IO3

Open Educational Resources to teach Digital Innovation for service sector SMEs

Thank You

Any Questions?

Get all project related info here

Co-funded by the Erasmus+ Programme of the European Union

Project Website
https://www.innovatingdigitally.eu/

Newsletter
https:llmailchi.mpld35e79a20855/innovating-digitally

LinkedIn
https:l/www.linkedin.com/groups/9011227 I

Ingrid Wakkee **i.a.m.wakkee@hva.nl**
Burcu Kör **b.kor@hva.nl**

NEW APPROACHES TO SME
INNOVATING DIGITALLY
SERVICE INNOVATION EDUCATION