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Employing the Hidden Competences in Digital Transformation Projects

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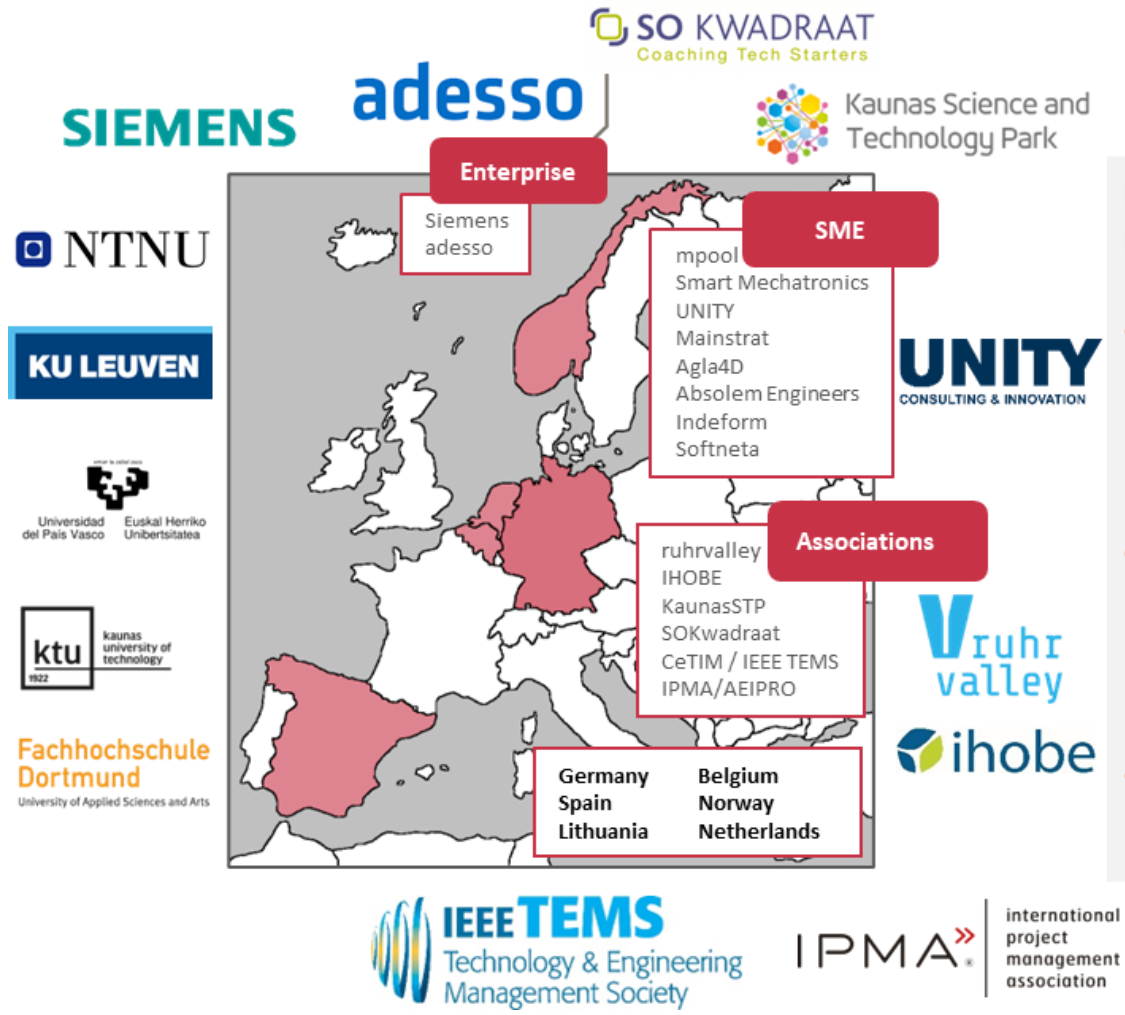
Erasmus+ Knowledge Alliance “Projects for the Digital Transformation (ProDiT)”



Project Runtime: 01.2021 - 12.2024
Project Budget: 999.315 €

- Erasmus+ Knowledge Alliance => **Co-Production of novel concepts and solutions with triple helix cooperation of academia, industry and society**
- How can we **manage the digital transformation with projects** => methods and tools for successful digital transformation projects
- **Competences: Knowledge, Skills, Ability & Attitude** => Competence Model for the Digital Transformation (CMDT)

Pre-story: Taxonomy of Competence Models* (1)

	Conceptual label	Dimension	Characteristics' categorisation				
Competence structures	Denotation of Underlying Dimensions	sub-constructs	none	input-based[14,18,23]	output-based[9,14,17,18,23]		
		type	actual[1,5,11,15,24]	prerequisite[1,15]	target[1,5,11,15,24]		
		evidence grade	none	hidden[16,20]	visible[8,15,16,20]		
	Flexibility of Constructs	conceptualisation	atomistic[1,2]	holistic[2,6,11,16,22,23]			
		contextualisation	specific[2,5,8,15,17,23]	general[2,5,15]			
		scaling	binary[2,11]	continuum[2,11]			
		dynamic change	acquisition[11,15,23]	loss[1,11]	fatigue[11]		
		interrelation	none	comparison[9,10,15]	interaction[11,17]		
	Representational Means	clusters	none	hierarchy[1,4,11]	dimension[6,16,22]	set[3,10,14,18]	type[12,15]
		modes	graph[1,11]	mathematical notation[1,10,11]	natural language[5,15]		
		media	abstract[10,15]	catalogue[14]	codebook[6,12]	ontology[15,24]	tool[1,11]
Competence levels	Demonstration of Continuous Progression	competency	emerging[2]	developing[2]	secure[2]		
		experience	quantification of related work experience/licenses[11,21,23]				
		proficiency	(1…5) scale[3,7]				
		mastery/expertise	(1...10) scale[4]				
	Interpretation of Continuous Assessment	performance	beginner[5,15]	intermediate[5,15]	advanced[5,15]	expert[15]	
Synthesis of both	Intended Purpose	standardisation	profile description[3,6,13,20-22]	integration of frameworks[2,7,12]			
		assessment	individual assessment[1,24]	cognitive diagnosis[10]	work performance[11]		
		resources allocation	optimal assignment[1,4,9,11]				
		training processes	learning personalisation[5,8,15]	design of training/evaluation[2,13,18,19]	gap evaluation[8,9]		

1) "*Models of competence **structures*** deal with the relations between performances in different contexts and seek to identify common underlying dimensions", which are "especially interesting for explaining performance in specific domains in terms of underlying basic abilities and can provide a basis for more differentiated measurement results of individual-centred assessments".

2) "*Models of competence **levels*** define the specific situational demands that can be mastered by individuals with certain levels or profiles of competencies", which are "particularly useful for assessing and evaluating educational outcomes".

3) "Empirical findings" after competence models application, and "structure and behaviour" of the competence system, namely, **competence structures** put on **competence levels**, "that is supposed to produce the **phenomenon** of interest".

* Mikhridinova, N., Wolff, C. and Van Petegem, W. (2024) 'Taxonomy of competence models based on an integrative literature review', *Education and Information Technologies*, 29(13), pp. 16997–17033. Available at: https://doi.org/10.1007/s10639-024-12463-y.

Pre-story: Taxonomy of Competence Models* (2)

	Conceptual label	Dimension	Characteristics' categorisation				
Competence structures	Denotation of Underlying Dimensions	sub-constructs	none	input-based[14,18,23]	output-based[9,14,17,18,23]		
		type	actual[1,5,11,15,24]	prerequisite[1,15]	target[1,5,11,15,24]		
		evidence grade	none	hidden[16,20]	visible[8,15,16,20]		
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		scaling	binary[2,11]	continuum[2,11]			
		dynamic change	acquisition[11,15,23]	loss[1,11]	fatigue[11]		
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	Representational Means	clusters	none	hierarchy[1,4,11]	dimension[6,16,22]	set[3,10,14,18]	type[12,15]
		modes	graph[1,11]	mathematical notation[1,10,11]	natural language[5,15]		
		media	abstract[10,15]	catalogue[14]	codebook[6,12]	ontology[15,24]	tool[1,11]
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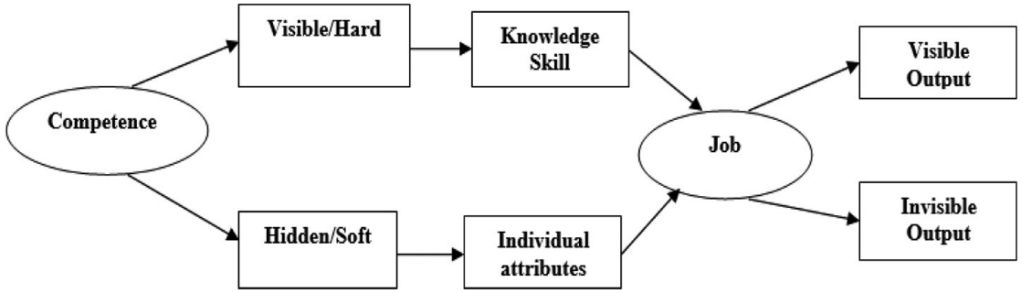
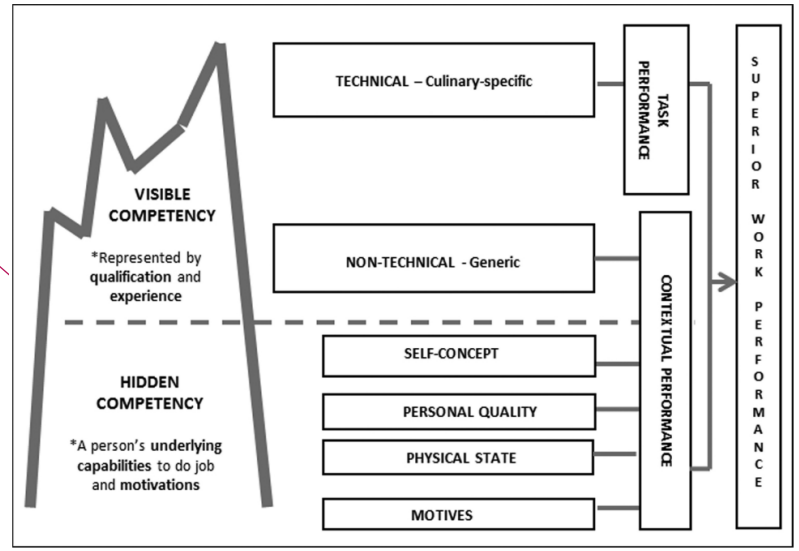


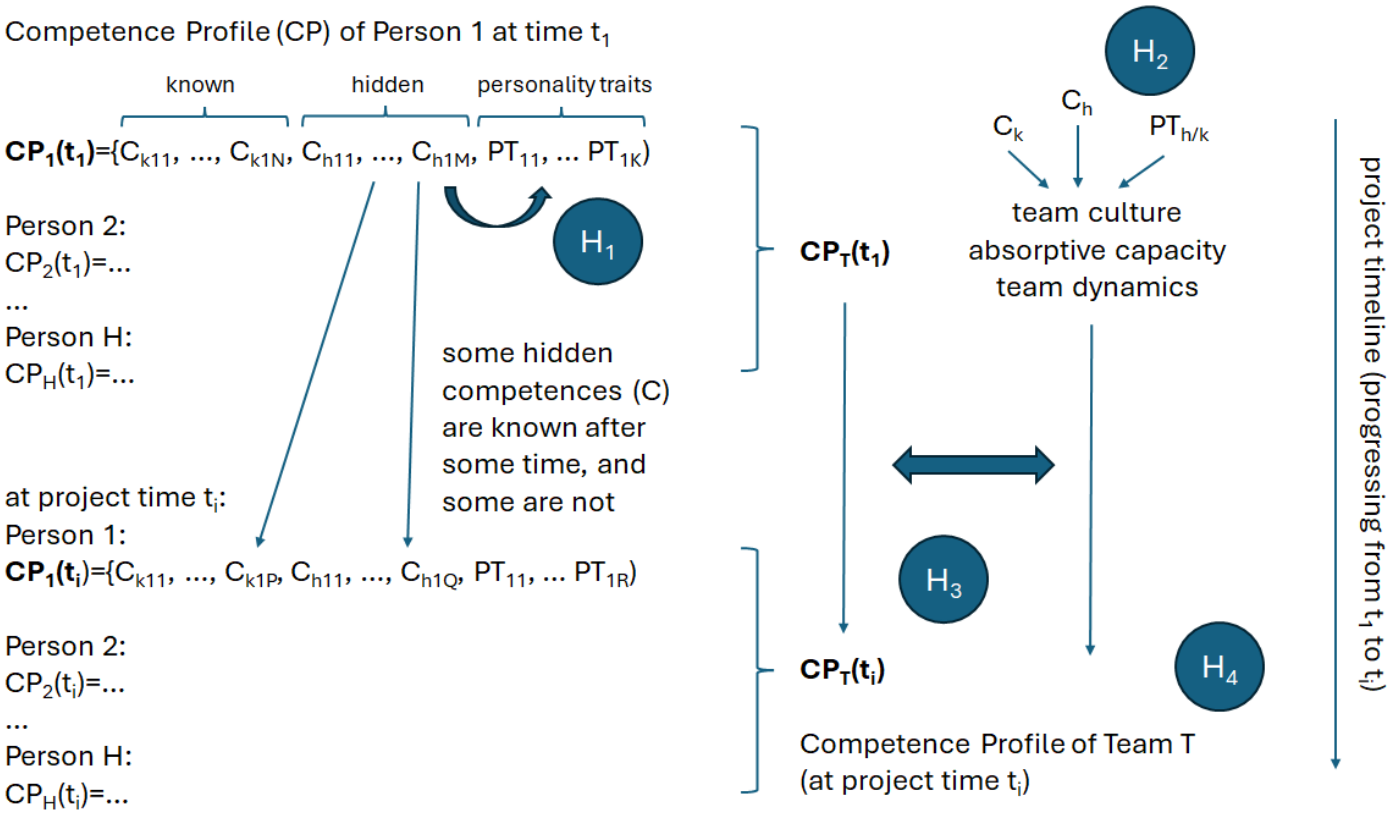
Salman et al., 2020: The concept of competence: a thematic review and discussion'



Suhairom et al., 2018: 'Quality culinary workforce competencies for sustainable career development among culinary professionals'

* Mikhridinova, N., Wolff, C. and Van Petegem, W. (2024) 'Taxonomy of competence models based on an integrative literature review', *Education and Information Technologies*, 29(13), pp. 16997–17033. Available at: https://doi.org/10.1007/s10639-024-12463-y.

Influence of hidden competences on team competence: conceptual model



H1 Hidden competences provide information about the **soft skills** and the **personality traits** of team members which are supporting a good team performance.

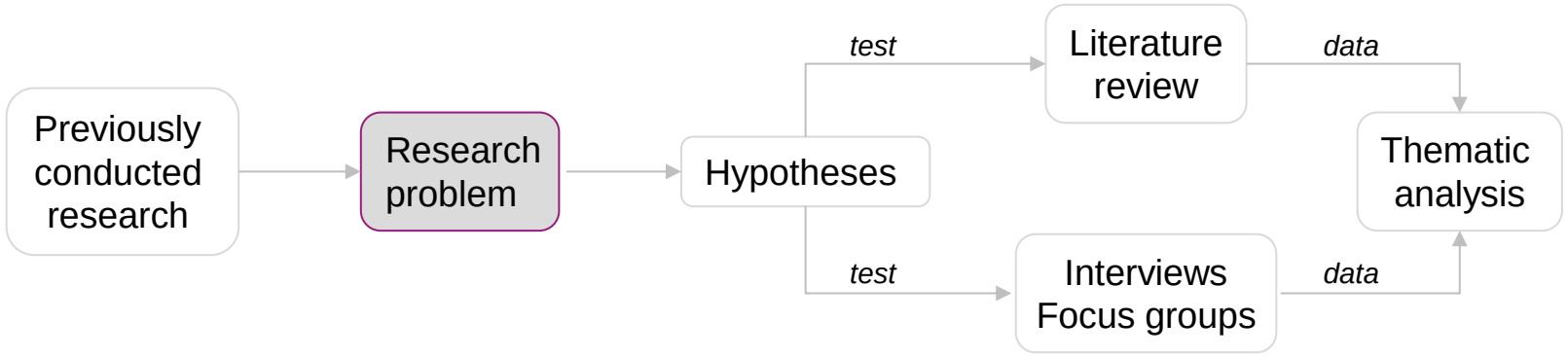
H2 Teamwork competences are **partly depending** on hidden competences and **support the development** of a team competence profile which is contributing to a project success.

H3 Teamwork competences are **encouraging positive team dynamics**, including the ability to learn (in the team) and the absorptive capacity of the team.

H4 Good teamwork, positive team dynamics, the **ability to learn** (in the team) and the absorptive capacity of the team are specifically relevant for dealing with the VUCA/BANI aspects of digital transformation projects (DTPs).

Research methodology: interviews & focus groups

*Fig.: Research process based on the qualitative hypothesis' testing **



How to set up a project team which will develop a team competence profile for the successful implementation of DTP?

TITLE-ABS (hidden AND (competenc* OR skill*) AND team)

TITLE-ABS ((competenc* OR skill*) AND team AND performance AND success)

TITLE ((competenc* OR skill*) AND team AND development AND learning) OR KEY ((competenc* OR skill*) AND team AND development AND learning)

TITLE ((competenc* OR skill*) AND team AND (development OR learning OR growth) AND project*) OR KEY ((competenc* OR skill*) AND team AND (development OR learning OR growth) AND project*)

*method**

+ thematic analysis

- Team Competences and Project Success
- Learning in Teams and Academic Performance
- Teams and Business Performance

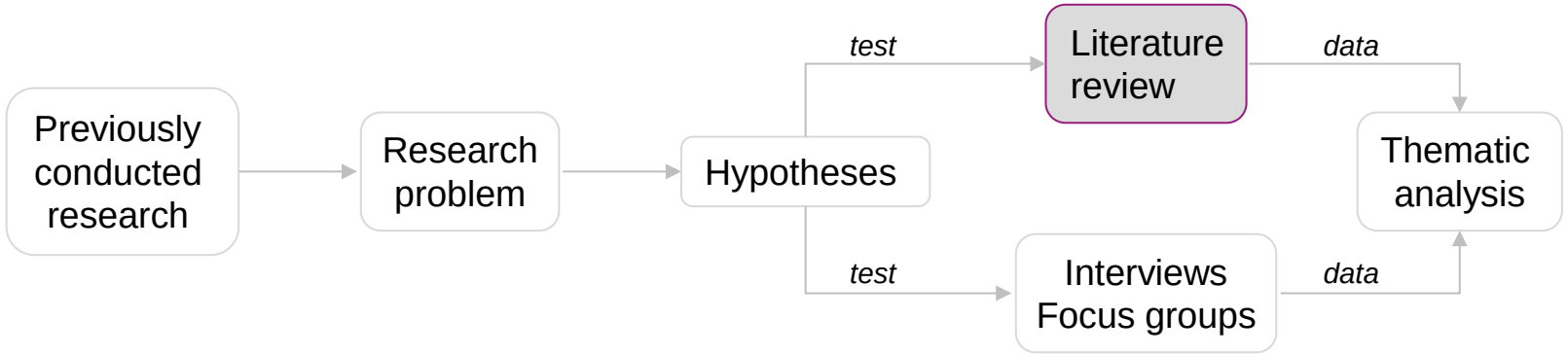
→ the review **did not** specifically shed light on hidden or soft aspects of competences

→ results remained partly **inconclusive** reg. the hidden competences and the specific aspects of DTPs

* Chigbu, U.E. (2019) 'Visually hypothesising in scientific paper writing: Confirming and refuting qualitative research hypotheses using diagrams', *Publications*, 7(1). Available at: https://doi.org/10.3390/PUBLICATIONS7010022.

Research methodology: interviews & focus groups

Fig.: Research process based on the qualitative hypothesis' testing



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Research methodology: interviews & focus groups

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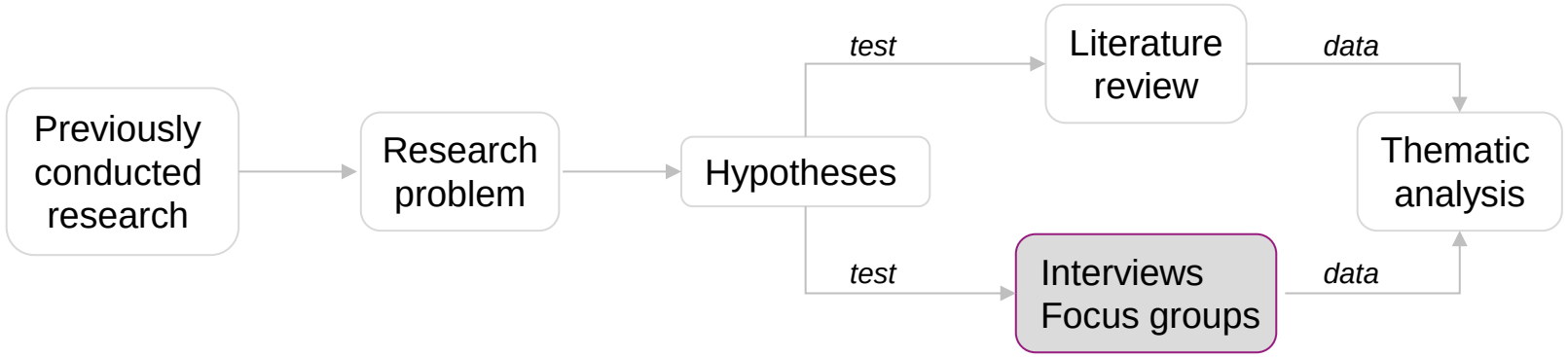
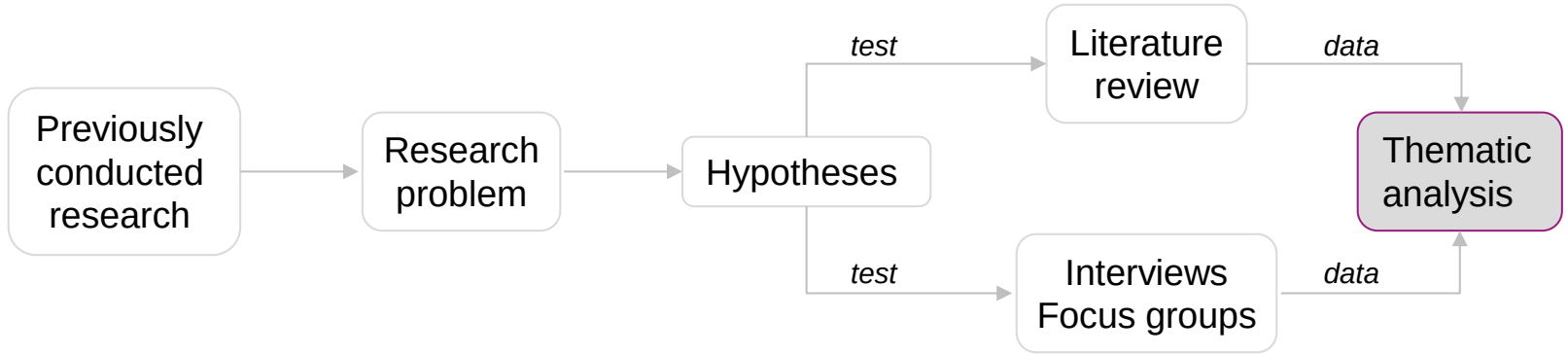


Table: Profiles of interviewees

ID	Role	Experience, years	Branch/type	Country
1	CEO	17	Startup accelerator A	Belgium
2	Project manager	14	Engineering company B	Germany
3	Personnel manager	5	Engineering company B	Germany
4	CEO	14	Engineering company B	Germany
5	CEO	20	Management consultancy C	Germany
6	Consultant	5	Management consultancy C	Germany
7	CEO	15	Engineering company D	Lithuania
8	CTO	15	Engineering company D	Lithuania
9	Head of department	2	Startup accelerator E	Lithuania
10	COO	22	Startup accelerator E	Lithuania
11	Expert manager	17	Startup accelerator E	Lithuania
12	Project manager	13	Startup accelerator E	Lithuania

Research methodology: interviews & focus groups

Fig.: Research process based on the qualitative hypothesis' testing



Uncertainty and DTPs

Mixed Teams for Unique Solutions

Soft Factors and Competences in DTPs

Learning from DT Experts

Learning in DT Settings or Learn, Unlearn or Transform

Discussion

H_1	Hidden competences provide information about the **soft skills** and the **personality traits** of team members which are supporting a good team performance.	 systematic analysis of hidden competences to derive information about the soft skills/personality traits of team members could be a **promising approach**, but there is **no proof** or systematic investigation known in this respect;
H_2	Teamwork competences are **partly depending** on hidden competences and **support the development** of a team competence profile which is contributing to a project success.	 teamwork competences are **probably** related to the hidden competences: the development of a team competence profile is **positively** influenced by good teamwork, what supports project success;
H_3	Teamwork competences are **encouraging positive team dynamics**, including the ability to learn (in the team) and the absorptive capacity of the team.	 teamwork competences are encouraging **positive** team dynamics: beneficial for the “team **atmosphere**” and “team **health**” (prerequisite for the ability to learn and the absorptive capacity of the team);
H_4	Good teamwork, positive team dynamics, the **ability to learn** (in the team) and the absorptive capacity of the team are specifically relevant for dealing with the VUCA/BANI aspects of digital transformation projects (DTPs).	 good teamwork and positive team dynamics are very **important** for creating new and innovative solutions: (a) the ability to learn (in the team), absorptive capacity are specifically relevant for developing the **required competences** to perform successful DTPs; (b) practitioners rate the **importance** of a “good” team **higher** for DTPs compared to other types of projects.

Conclusion: research agenda

Which **dynamic aspects** of competence development and **interrelation of competences** can influence teamwork, and the **development** of individual and team competence profiles (including learning effects)?

Is the concept of “hidden competences” **helpful** for assessing the **potential** for competence development in DTP?

How can **incomplete** competence requirements and **unknown** competences of potential team members be complemented or replaced in project staffing and **team composition** by the consideration of **hidden** competences?

Limitations

- development and further testing of **qualitative** hypotheses remains acceptable for extending **state-of-the-art** literature *
- methodological **triangulation** would enhance the **reliability** and make our findings **complete** **
  → validate the results of the literature review/interviews with **expert feedback** or **surveys** for further quantitative analysis

* Supino, P.G. (2012) ‘The Research Hypothesis: Role and Construction’, in *Principles of Research Methodology: A Guide for Clinical Investigators*, pp. 31–53.
** Thurmond, V.A. (2001) ‘The point of triangulation’, *Journal of Nursing Scholarship*, 33(3), pp. 253–258. Available at: https://doi.org/10.1111/j.1547-5069.2001.00253.x.

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Thank you for your attention!

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