



# WP2 – Suggestion of a coordination model for use of existing resources based on a knowledge capital repository

## D2.3 – Introducing a bridging model to align knowledge cases to knowledge gaps

**INTER**nationalization at Home: Embedding Approaches and Structures to Foster Internationalization at Western **BA**lkans

610429-EPP-1-2019-1-AL-EPPKA2-CBHE-JP



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



**INTERBA**



Version	Revision	Date	Author	Modification
3	1	27/09/2021	Giorgio Giacinto, Luca Didaci	
3	2	19/06/2023	Giorgio Giacinto, Luca Didaci	Minor changes





## 1. Work Package and Task Description

The INTERBA project aims to adopt an innovative approach to creating a repository of knowledge capital and reshaping knowledge to deliver new insights and practices. In this respect, Work Package 2 (WP2) aims to create a coordination model that helps exploit the knowledge capital of all partner institutions effectively.

WP2 started from the results attained in WP1, which analyses the knowledge capital in partner countries, conducts a needs analysis and prioritizes internationalization areas. Considering these needs, WP2 established a method that helps to align knowledge capital cases to the uses that can bring clear benefits to other consortium institutions.

### 1.1. Work Package Description

WP2 is articulated in the following three tasks:

T2.1: Creating a knowledge repository

T2.2: Creating a network of knowledge experts

T2.3: Introducing a bridging model to align knowledge cases to knowledge gaps

The work of WP2 is composed of the following main steps:

1. The definition of templates that describe the knowledge cases and the experts' profiles. This data will populate the Knowledge Repository (KR) and the Network of Experts (NoE) repository, respectively.
2. The selection of the most suitable technical infrastructure to create the repositories.
3. The creation and population of the repositories.
4. The definition of a model to bridge the gaps between existing knowledge capital and the knowledge capital cases to acquire.

This deliverable is specifically devoted to describing methods, actions and achieved results related to task **T2.3: Introducing a bridging model to align knowledge cases to knowledge gaps.**

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### 1.2. Task Description

Task 2.3: "Introducing a bridging model to align knowledge cases to knowledge gap" aims to create matchmaking between the needs of the partners and the knowledge made available by the partners themselves. The need to expand the knowledge and take courses in specific sectors have been analyzed and categorized by WP1. The partners' wealth of knowledge, both in terms of experts and courses immediately available, has been analyzed and categorized by WP2. Based on the data collected so far, this goal was achieved through the following steps:

- Suggest an approach for matchmaking expertise to knowledge gaps.
- Identify the criteria to be used for selecting appropriate expertise.
- Document the process for aligning knowledge cases to knowledge gaps.



Based on WP1 input, the work within T2.3 has developed a model to compare the needs with the existent knowledge capital collected in the Expert Repository and in the Knowledge Repository. The experts were characterized by the keywords ISCED<sup>(1)</sup> and ESCO<sup>(2)</sup>, and by their curriculum and previous experience. The courses were characterized by ISCED category and topic. A textual description of the courses is also available. All the available courses are reported in Table 1. As regards the needs, PC partners have indicated a topic and a description for the needed training courses (see Table 2).

All the details about the courses and the experts are available in deliverables D2.1 and D2.2. All the partners' needs details are available in the WP1 related deliverables.

Course Number	PARTNER	TITLE
C01	University of Tirana (P1)	Integration of refugees
C02	University of Tirana (P1)	Achieving gender equality through gender equality plans and gender budgeting
C03	University of Tirana (P1)	Comm-On-Environment
C04	University of Tirana (P1)	Cross-border enforcement of executive titles
C05	University of Tirana (P1)	Data Systems Analysis, Design and Implementation
C06	University of Tirana (P1)	Digital Transformation at Albanian Universities (IT Governance for Albanian Universities)
C07	University of Tirana (P1)	Entrepreneurship and Innovation for Sustainable Blue Economy
C08	University of Tirana (P1)	EUREQA
C09	University of Tirana (P1)	Increasing the quality of teaching in the HEIs by using digital platforms and applications
C10	University of Tirana (P1)	Labor market issues, career guidance and addressing youth unemployment.
C11	University of Tirana (P1)	Leading Towards Sustainable Gender Equality Plans in Research Performing Organizations
C12	University of Tirana (P1)	Private International Law
C13	University of Tirana (P1)	Reaching the policy level/dialogue with decision makers
C14	University of Tirana (P1)	Simulation software in crude oil refinery process (case study in Albania)
C15	University of Tirana (P1)	Sustainable development of BLUE economies through higher education and innovation in Westerns Balkan Countries
C16	University of Tirana (P1)	The economics of advertising
C17	University of Tirana (P1)	The school climate
C18	University of Tirana (P1)	Tourism marketing strategies
C19	University of Tirana (P1)	Training for career orienting
C20	European University of Tirana (P6)	Basics of Informatics
C21	European University of Tirana (P6)	Capital Markets and its institutions
C22	European University of Tirana (P6)	Contemporary Political Theories
C23	European University of Tirana (P6)	Data literacy: introducing the concept in HE
C24	European University of Tirana (P6)	Developing Skills Validation Model in HEIs
C25	European University of Tirana (P6)	Establishing sustainably partnerships between the industry and academia
C26	European University of Tirana (P6)	History of European Integration and EU institutions
C27	European University of Tirana (P6)	Integrating Research into Teaching
C28	European University of Tirana (P6)	Integration of VR into teaching
C29	European University of Tirana (P6)	Intro to Business Management
C30	European University of Tirana (P6)	Introduction to communication
C31	European University of Tirana (P6)	IT Governance for Higher Education Institutions
C32	European University of Tirana (P6)	Knowledge and Innovation Centers in HEIs Knowledge transfer in HEIs: University to society collaboration, regulatory and operationalization framework
C33	European University of Tirana (P6)	Management of new media and design elements
C34	European University of Tirana (P6)	Modernization of study programs in Renewable Energy in HEIs
C35	European University of Tirana (P6)	Natural heritage and cultural tourism
C36	European University of Tirana (P6)	Pedagogical Didactic
C37	European University of Tirana (P6)	Project Design and Management
C38	European University of Tirana (P6)	Project Management and evaluation
C39	European University of Tirana (P6)	Public policy
C40	European University of Tirana (P6)	Quality Development of International Cooperation and Project Management
C41	European University of Tirana (P6)	Quality Management
C42	European University of Tirana (P6)	School administration
C43	European University of Tirana (P6)	Software engineering
C44	European University of Tirana (P6)	The Strategy of Management in Information Technology
C45	European University of Tirana (P6)	Theory of Databases
C46	European University of Tirana (P6)	Web design and applications
C47	European University of Tirana (P6)	Agile methodology in retail
C48	Universum College (P7)	Anglia Language Certifications
C49	Universum College (P7)	Behavioral Economic in Retail
C50	Universum College (P7)	

<sup>1</sup> <http://uis.unesco.org/en/topic/international-standard-classification-education-isced>

<sup>2</sup> <http://data.europa.eu/esco/skill/K>



Course Number	PARTNER	TITLE
C51	Universum College (P7)	Blockchain 101
C52	Universum College (P7)	Course relevant to industry needs
C53	Universum College (P7)	Designing courses and study programmes that have industry relevance
C54	Universum College (P7)	Designing industry relevant courses and study programmes
C55	Universum College (P7)	Digital Marketing Training
C56	Universum College (P7)	Entrepreneurship
C57	Universum College (P7)	Expert in Lean Methodology from Branches
C58	Universum College (P7)	Lean Management
C59	Universum College (P7)	Management and Public PR
C60	Universum College (P7)	Social Entrepreneurship
C61	Universum College (P7)	Training in Marketing and Sales
C62	Universum College (P7)	Universum Blockchain Institute
C63	University of Prishtina (P8)	Methodologies of scientific research
C64	University of Prishtina (P8)	Methodologies of scientific research in ICT
C65	University of Prishtina (P8)	Online Collaboration Tools
C66	University of Tuzla (P9)	Application of ICT technologies in agriculture (Internet of things in agriculture)
C67	University of Tuzla (P9)	Combined Water and Energy integration in the Process Industries
C68	University of Tuzla (P9)	Development and implementation of the advanced master curricula in Ecological Monitoring and Aquatic Bioassessment in the WB HEIs in line with the Bologna requirements and national accreditation standards
C69	University of Tuzla (P9)	Energy efficiency in Chemical Processes by Pinch Analysis
C70	University of Tuzla (P9)	Implementation of new tools for the quality assessment of study programs (KREF) in pharmacy studies
C71	University of Tuzla (P9)	Innovations in Professional Education for Speech and Language Therapy
C72	University of Tuzla (P9)	Internet of Things Systems
C73	University of Tuzla (P9)	Lifelong learning in higher education - the connection between higher education, students and the labor market
C74	University of Tuzla (P9)	Pain management
C75	University of Tuzla (P9)	The Impact of COVID-19 on Students with Disabilities
C76	University of Tuzla (P9)	Video editing and camera tracking
C77	University of Mostar (P10)	Curriculum development in higher education
C78	University of Mostar (P10)	didactics and curriculum planning
C79	University of Mostar (P10)	Event management in cultural tourism
C80	University of Mostar (P10)	Financing of events and projects in cultural tourism
C81	University of Mostar (P10)	Fundamentals of the andragogical approach in higher education
C82	University of Mostar (P10)	Networking and team building
C83	University of Mostar (P10)	Research Methodology, Scientific Writing and Result Presentation: Humanities and Social Sciences
C84	University of Mostar (P10)	Scientific Writing and Publication
C85	University of Mostar (P10)	Software project management
C86	University of Mostar (P10)	Urban agriculture

Table 1 - Courses proposed by partners (from D2.1)



Partner	Need	Topic of the training
P10	Training in cooperation between HEI and business	Cooperation between educational institutions and business
P10	Training in career guidance	Labour market issues incl. career guidance / youth unemployment
P10	Training on quality and relevance of HE	Quality and Relevance of Higher Education in Partner Countries
P6	International Best Practices for Entrepreneurship Education	Enterprise, industry and SMEs (incl. entrepreneurship)
P6	Improvement of existing units for Internationalization at Home at the university	International cooperation, international relations, development cooperation
P7	Effective business start-up incubation at university	Labour market issues incl. career guidance / youth unemployment
P7	Training on international best practices for student retention	Quality and Relevance of Higher Education in Partner Countries
P8	Training for Entrepreneurship Canvas Model	Open and distance learning
P9	Creating effective platforms for tracking graduates' employability	Labour market issues incl. career guidance / youth unemployment
P9	Internationalization as a part of university strategy development	International cooperation, international relations, development cooperation
P1	Development of new innovative curricula	New innovative curricula/educational methods/development of training courses
P10	Development of training courses	New innovative curricula/educational methods/development of training courses
P8	To learn modern way of teaching and curricula is more activity based, using questioning, explaining, demonstration and collaboration techniques	New innovative curricula/educational methods/development of training courses
P1	Digital transformation	ICT - new technologies - digital competences
P6	Training for new online platforms	ICT - new technologies - digital competences
P7	Designing Hybrid Classroom	ICT - new technologies - digital competences
P1	Innovation in research methodology	Research and innovation
P9	Integrating Research in Teaching	Research and innovation
P1	Project Writing	Key Competences (incl. mathematics and literacy) - basic skills
P8	Training on Project Writing	Cooperation between educational institutions and business
P8	Training on Project Writing.	Green skills
P8	Training on Project Writing	ICT - new technologies - digital competences

Table 2 – Needs expressed by partners (from D1.2)





On the basis of these data, it is possible to design a system based on text analysis techniques to extract relevant words from the topics' needs and the course description. The system can use the relevant words, join with a match between keywords, to estimate a similarity degree between i) the needs and the experts, and ii) the needs and the course.

This procedure only suggests which courses or experts could be of potential interest to the partners and satisfy their needs. This indication must be confirmed and validated by examining the individual courses' descriptions in the knowledge repository. Based on these considerations and given that at present, the partners are interested in immediately available and shareable knowledge, and therefore in courses that can be concretely delivered in the short term, we have decided to define also an alternative and immediately usable matchmaking path.

Based on their topic and description, we have grouped the needs into possibly homogeneous clusters (Table 3). In this way, we obtained five clusters that include similar needs. For four of these clusters, we have identified one or more courses that could at least partially satisfy the needs that emerged thanks to the analysis carried out by WP1 (Table 4). Partners used this first proposal to define more precisely which courses they might use. If this proposal does not meet their needs, they could select a course from the complete list.

## 2. Matchmaking and selected courses

As described in the previous paragraph, we have examined the partners' needs, reported in Table 2. Based on their topic and description, we have grouped the needs into possibly homogeneous clusters, assigning them a 'macro topic' marked with a numeric value (Table 3). For each of these clusters, we have identified one or more courses that could at least partially satisfy the needs that emerged thanks to the analysis carried out by WP1 (Table 4)

Macro topic	Partner	Need	Topic of the training
1	P10	Training in cooperation between HEI and business	Cooperation between educational institutions and business
1	P10	Training in career guidance	Labour market issues incl. career guidance / youth unemployment
1	P10	Training on quality and relevance of HE	Quality and Relevance of Higher Education in Partner Countries
1	P6	International Best Practices for Entrepreneurship Education	Enterprise, industry and SMEs (incl. entrepreneurship)
1	P6	Improvement of existing units for Internationalization at Home at the university	International cooperation, international relations, development cooperation
1	P7	Effective business start-up incubation at university	Labour market issues incl. career guidance / youth unemployment
1	P7	Training on international best practices for student retention	Quality and Relevance of Higher Education in Partner Countries
1	P8	Training for Entrepreneurship Canvas Model	Open and distance learning
1	P9	Internationalization as a part of university strategy development	International cooperation, international relations, development cooperation
2	P1	Innovation in research methodology	Research and innovation
2	P9	Integrating Research in Teaching	Research and innovation
3	P1	Digital transformation	ICT - new technologies - digital competences



3	P9	Creating effective platforms for tracking graduates' employability	Labour market issues incl. career guidance / youth unemployment
3	P6	Training for new online platforms	ICT - new technologies - digital competences
3	P7	Designing Hybrid Classroom	ICT - new technologies - digital competences
4	P1	Development of new innovative curricula	New innovative curricula/educational methods/development of training courses
4	P10	Development of training courses	New innovative curricula/educational methods/development of training courses
4	P8	Modern way of teaching using an activity based approach and collaboration techniques	New innovative curricula/educational methods/development of training courses
5	P1	Project Writing	Key Competences (incl. mathematics and literacy) - basic skills
5	P8	Training on Project Writing	Cooperation between educational institutions and business
5	P8	Training on Project Writing	Green skills
5	P8	Training on Project Writing	ICT - new technologies - digital competences

Table 3 - Needs of partners grouped into 5 macro topics

Partner	Macro topic	Need
P6, P7, P8, P9, P10	1	Training in cooperation between HEI and business and in career guidance; training on quality and relevance of HE; International Best Practices for Entrepreneurship Education; Improvement of existing units for Internationalization at Home at the university; Effective business start-up incubation at university; International Best Practices for Entrepreneurship Education
P1, P9	2	Innovation in research methodology; Integrating Research in Teaching
P1, P6, P7, P9	3	Digital transformation; Training for new online platforms; Designing Hybrid Classroom; Creating effective platforms for tracking graduates' employability
P1, P8, P10	4	Development of new innovative curricula; Development of training courses; teaching using collaboration techniques
P1, P8	5	Project Writing

Table 4 – Matchmaking table. Proposed courses for each macro topic

Using this approach, Partners selected nine courses from the matchmaking table (table 4). The list of courses is shown in Table 5.





Couse Number	PARTNER	Title	Macro topic
C11	P1	Leading Towards Sustainable Gender Equality Plans in Research Performing Organizations	1
C31	P6	IT Governance for Higher Education Institutions	3
C41	P6	Quality Development of International Cooperation and Project Management	1
C55	P7	Digital Marketing Training	3
C60	P7	Social Entrepreneurship	1
C64	P8	Methodologies of scientific research in ICT	2
C65	P8	Online Collaboration Tools	3
C78	P10	Didactics, curriculum development and curriculum design	4
C83	P10	Research Methodology, Scientific Writing and Result Presentation: Humanities and Social Sciences	2

*Table 5 – Courses currently activated.*

### 3. Conclusion

In this task, we have examined the results of WP1 (needs) and the previous steps of this WP (courses, experts). Based on these results, we proposed i) a semi-automatic procedure to suggest matchmaking between the needs and the available resources, and ii) clustering of needs and a matchmaking proposal between each group of needs and courses. Partners chose nine courses from this proposed matchmaking.