MICRO IDEA

MICRO-credentials
Identifying,
DEveloping, testing and
Assessing innovative approaches

Making microcredentials applicable to all sectors

PROJECT NUMBER: 101132889 – MICROIDEA – ERASMUS-EDU-2023-PI-FORWARD

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Introduction

Education and labour markets across Europe are undergoing rapid transformation. Traditional qualification systems are increasingly challenged to keep pace with evolving skills demands, particularly as digitalisation, demographic shifts, and changing job profiles reshape work. Within this context, microcredentials –focused, short-cycle certifications of specific learning outcomes– have emerged as a powerful means to enhance flexibility, employability, and lifelong learning. However, despite their potential, existing microcredential initiatives often lack consistent quality standards, transparent assessment mechanisms, and broad recognition, undermining their value for learners, employers, and public authorities alike.

The MICROIDEA project responds to this challenge with a bold premise: to design and implement an innovative, ISO 17024-aligned microcredential system that bridges national qualification frameworks with international certification standards. The result is a methodological model and online ecosystem for microcredentials that enhances trust, portability, and labour market relevance.

Why MICROIDEA Matters

European labour markets are struggling with persistent mismatches between certified qualifications and workplace needs. Skills shortages in key industries coexist with unemployment or under-employment of learners whose competences are not sufficiently visible to employers. National qualification systems, while comprehensive, tend to be slow to adapt and difficult to harmonise across borders. Microcredentials –if poorly defined or assessed– risk compounding fragmentation rather than solving it.

MICROIDEA's strategic response is based on three convictions:

1. **Microcredentials must be credible.**

   Linking them to **ISO 17024**, an internationally recognised standard for certification of persons, ensures transparent, objective, and repeatable assessment of competence that is meaningful to all stakeholders.

2. **Microcredentials must integrate with existing systems.**

   They should enhance, not disrupt, national qualification frameworks, allowing systems to adapt without costly overhauls.

3. **Learning outcomes must be tied to real needs.**

   Skills must be demonstrable, verifiable, and aligned with labour market demand to make microcredentials relevant for learners and employers alike.

In exceptionally plain terms for decision makers: MICROIDEA is not about creating another training catalogue. It is about **creating a trusted bridge between learning and labour market validation** that public authorities, social partners, and employers can rely on.

Project Concept and Mission

MICROIDEA is a strategic European cooperation project funded under Erasmus+, designed to **introduce a holistic methodology for the design, issuance, assessment, validation, and certification of microcredentials**. The approach aims to be widely recognised at European level and integrated into existing quality assurance systems, thereby enhancing both training practice and policy relevance.

At its core, the project's mission is to develop a forward-looking microcredential ecosystem that:

- **Aligns microcredential design and assessment with ISO 17024 standard criteria,** ensuring consistency, transparency, and validity.
- **Supports harmonisation between national certification systems and international benchmarks,** responding to the need for cross-border recognition.
- **Facilitates practical tools for skills needs analysis** and learning design that are open and accessible to all.
- **Demonstrates the model through pilot implementation** in real occupational contexts.

Core Project Components

The MICROIDEA model rests on four interlocking pillars, each with strategic relevance for policy makers and stakeholder engagement:

1. ISO 17024-Aligned Microcredential System

The project develops a **microcredential system formally linked to ISO 17024**, an international standard that defines principles and requirements for personnel certification bodies. This connection grounds the system in established **quality assurance principles** and ensures that assessments reflect agreed criteria rather than ad-hoc, unverified measures.

Key features include:

- Transparent competency definitions linked to performance outcomes.
- Standardised assessment processes to ensure repeatability and impartiality.
- Portability of credentials across sectors and borders.

2. Harmonisation Methodology

MICROIDEA formulates a methodology to **harmonise national certification systems with international validation standards**. This framework guides how microcredentials can be integrated into existing national qualification structures, reducing the risk of fragmentation and enhancing alignment with public policy objectives.

3. Open Skills Needs Analysis Tool

The project delivers an **online tool for skills needs analysis** that supports learners, educators, and policymakers in identifying demand-driven competencies. This tool is designed to be open access, facilitating evidence-based decisions about curriculum design and workforce planning across sectors.

4. Pilot Implementation

As a demonstration of the methodology, the project implements the microcredential system in a **pilot occupational domain**. While the tourism sector and waiter role are used as initial contexts for testing and refinement, the underlying system is intentionally **sector-agnostic** and scalable to other occupations.

Alignment with European Policy Priorities

MICROIDEA aligns with key European policy frameworks that emphasise:

- **Lifelong learning and upskilling:**
  Microcredentials provide flexible pathways for workers at all stages of their careers to acquire validated skills.
- **Transparency and recognition:**
  By linking to ISO standards, the project supports transparency of qualifications and facilitates recognition across jurisdictions.
- **Skills-based labour markets:**
  The initiative supports a shift toward skills-first workforce development, making qualifications more responsive to employer needs.

Stakeholder Relevance

The project was designed with the needs of multiple stakeholder groups in mind:

- **National Ministries of Education and Labour:** It offers a tested methodology for integrating microcredentials into national frameworks with international credibility.
- **Regional Authorities and Chambers of Commerce:** A practical way to support workforce development aligned with local economic priorities.
- **Trade Unions and Worker Organisations:** Mechanisms for transparent skills validation that protects workers' interests and mobility.
- **Training Providers and Employers:** Tools to assess competence meaningfully and hire with confidence.

By foregrounding **trust, transparency, and international standards**, MICROIDEA strengthens the basis for cooperation among these stakeholders.

Expected Impact

The project's ambitious yet realistic impact agenda includes:

- **Greater trust in microcredentials**, reducing uncertainty for employers and learners.
- **Improved labour market signalling** of verified skills linked to ISO-aligned assessment criteria.
- **Enhanced policy capacity** for evidence-based skills development through open tools and harmonised frameworks.
- **Scalable models for broad sector uptake**, enabling replication beyond pilot contexts.

For strategic planners and economic stakeholders, the MICROIDEA approach offers a **concrete pathway** to operationalise microcredentials within existing education and qualification ecosystems.

1. Introduction: AI as an Enabler of Evidence-Based Skills Development

Across Europe and beyond, education, training, and employment systems face a persistent challenge: aligning skills supply with rapidly changing labour market demand. This challenge is particularly evident in the tourism and hospitality sector, where seasonal fluctuations, international mobility, and diverse skill requirements create constant pressure on both employers and workers. Traditional approaches to skills planning and training design often rely on static data, fragmented sources, or delayed evidence, limiting their effectiveness.

The MICROIDEA project addresses this challenge by introducing a coherent set of **AI-driven tools** that connect labour market intelligence, individual skills assessment, personalised training recommendations, and career guidance. Rather than treating these elements as separate processes, MICROIDEA integrates them into a single methodological framework that supports **evidence-based policy making, responsive training provision**, and **empowered individual decision-making**.

The AI tools developed within MICROIDEA operate at two complementary levels:

- **System level**, supporting policy makers, public authorities, and training providers through real-time labour market intelligence.
- **Individual level**, supporting workers, jobseekers, and learners through personalised skills assessment, training pathways, and career recommendations.

Together, these tools demonstrate how Artificial Intelligence can be used responsibly to improve transparency, relevance, and impact in skills development systems.

2. Skills in Demand Analysis Tool: AI-Based Labour Market Intelligence

2.1. Purpose and Scope

The **Skills in Demand Analysis Tool** is an AI-powered platform designed to analyse online job advertisements and extract structured information on occupations, skills, qualifications, sectors, and geographic demand. Its primary purpose is to provide **up-to-date, granular labour market intelligence** that reflects real employer needs.

Unlike traditional labour market reports, which are often retrospective or survey-based, this tool continuously monitors job postings, enabling timely insights into emerging trends and changing skill requirements. This makes it particularly valuable for sectors such as hospitality, where demand patterns vary significantly across regions and seasons.

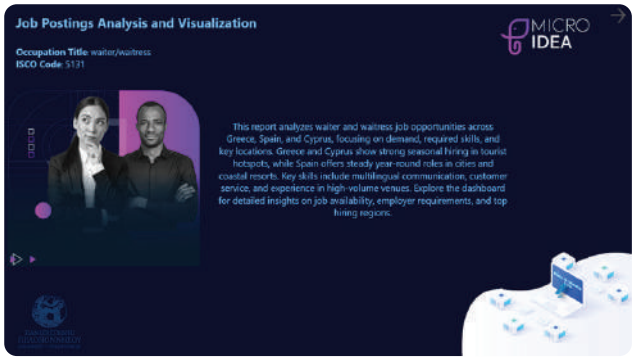

Figure 1. Job Postings Analysis Dashboard (Landing Page)

High-level overview of the AI-powered labour market intelligence environment used in MICROIDEA to analyse job postings by occupation, skills, location, and time.

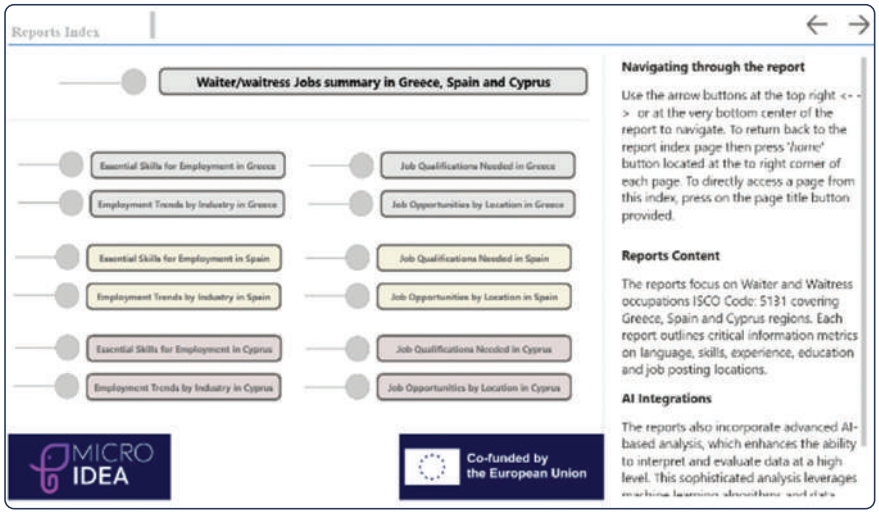

Figure 2. MICROIDEA Job Postings Analysis Dashboard

Index view of the AI-driven dashboard presenting labour market insights on waiter/waitress occupations across Greece, Spain, and Cyprus, with structured navigation to skills, qualifications, employment trends, and regional demand.

2.2. AI Processing Pipeline and Data Reliability

To ensure transparency and reliability, the Skills in Demand Analysis Tool applies a structured AI pipeline that transforms unstructured job advertisements into validated, comparable data.

The process includes:

- Automated crawling of online job portals
- Text cleaning and language harmonisation
- Semantic deduplication of job postings
- Extraction of key information such as occupations, skills, and qualifications
- Normalisation and alignment with international standards using AI-supported methods

All extracted information is aligned with recognised European and international classifications, ensuring interoperability and policy relevance.

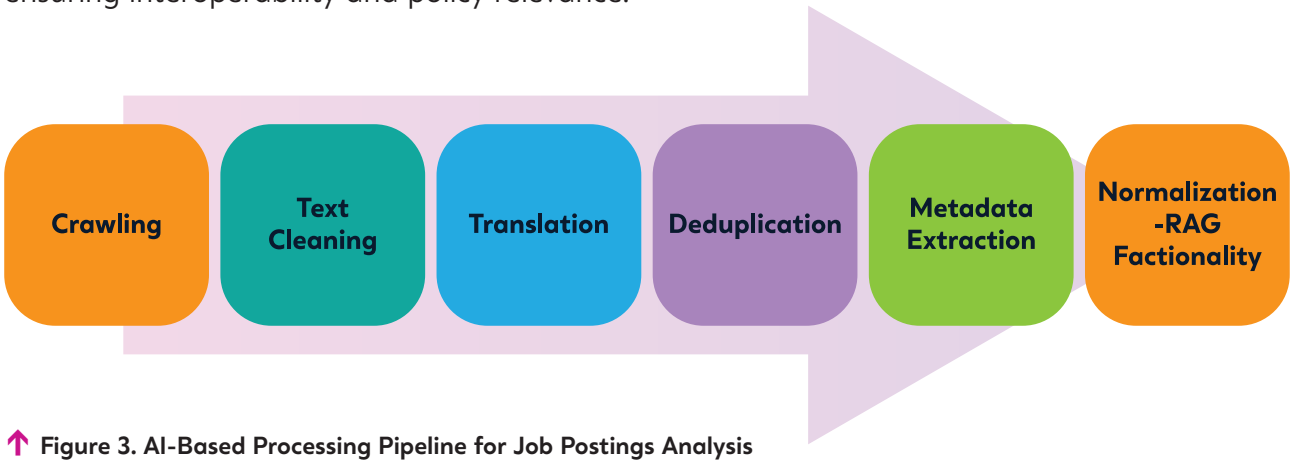

Figure 3. AI-Based Processing Pipeline for Job Postings Analysis
Simplified overview of the AI workflow applied in MICROIDEA, from job data collection to semantic normalisation and skills extraction.

This methodological approach ensures that the insights generated by the tool are robust, comparable across countries, and suitable for policy use.

2.3. Labour Market Trends and Seasonal Demand

The analysis of job postings reveals clear **seasonal and geographic patterns** in the hospitality labour market. For waiter and waitress occupations, Greece shows strong seasonal demand with peaks during spring and summer months, reflecting tourism activity. Spain displays a more balanced distribution of demand throughout the year, combining urban employment with tourism-driven roles, while Cyprus shows concentrated demand in specific periods and locations.

Such insights are critical for:

- planning seasonal training and reskilling initiatives
- anticipating labour shortages
- supporting regional workforce strategies

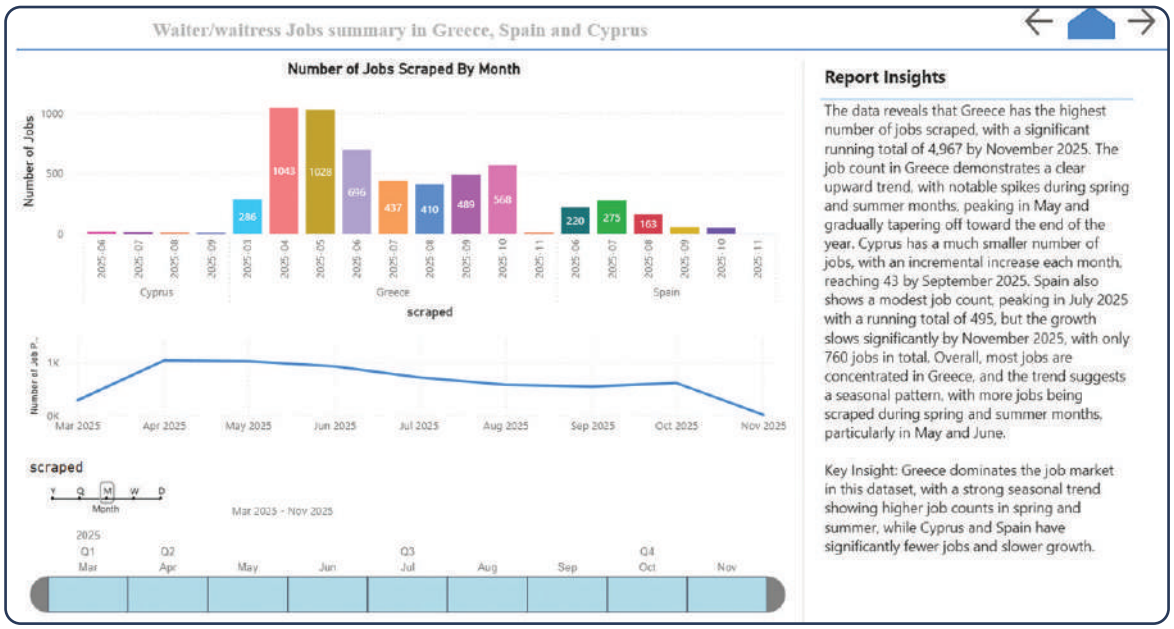

Figure 4. Job Postings by Month and Country
Seasonal trends in waiter and waitress job postings across Greece, Spain, and Cyprus, highlighting peak demand during tourism periods.

2.4. Skills, Qualifications and Geographic Distribution

Beyond volume trends, the AI tool extracts detailed information on **skills in demand, education requirements**, and **job locations**. For hospitality occupations, transversal skills such as communication, customer service, teamwork, and multilingual ability consistently emerge as key requirements. At the same time, many job postings do not require formal qualifications, highlighting the importance of skills-based and experience-based validation.

Geographic analysis shows that demand is concentrated in tourism-intensive regions, urban centres, and coastal areas, supporting targeted regional policy interventions and training provision.

These insights directly inform the design of **micro-credentials** and modular training programmes that respond to real employer needs rather than generic occupational profiles.

3. Skills Self-Assessment Tool: From Personal Profiles to Skills Awareness

3.1. Empowering Individuals Through Structured Self-Assessment

At the individual level, MICROIDEA introduces a **Skills Self-Assessment Tool** that enables users to reflect on their skills, experience, and career preferences in a structured and user-friendly environment. Rather than focusing solely on formal qualifications, the tool captures a broad range of competences, including transversal and sector-specific skills.

Users provide information on areas such as:

- work experience
- skills and competences
- languages
- career interests and preferences

This structured input forms the basis for AI-supported analysis and personalised recommendations.

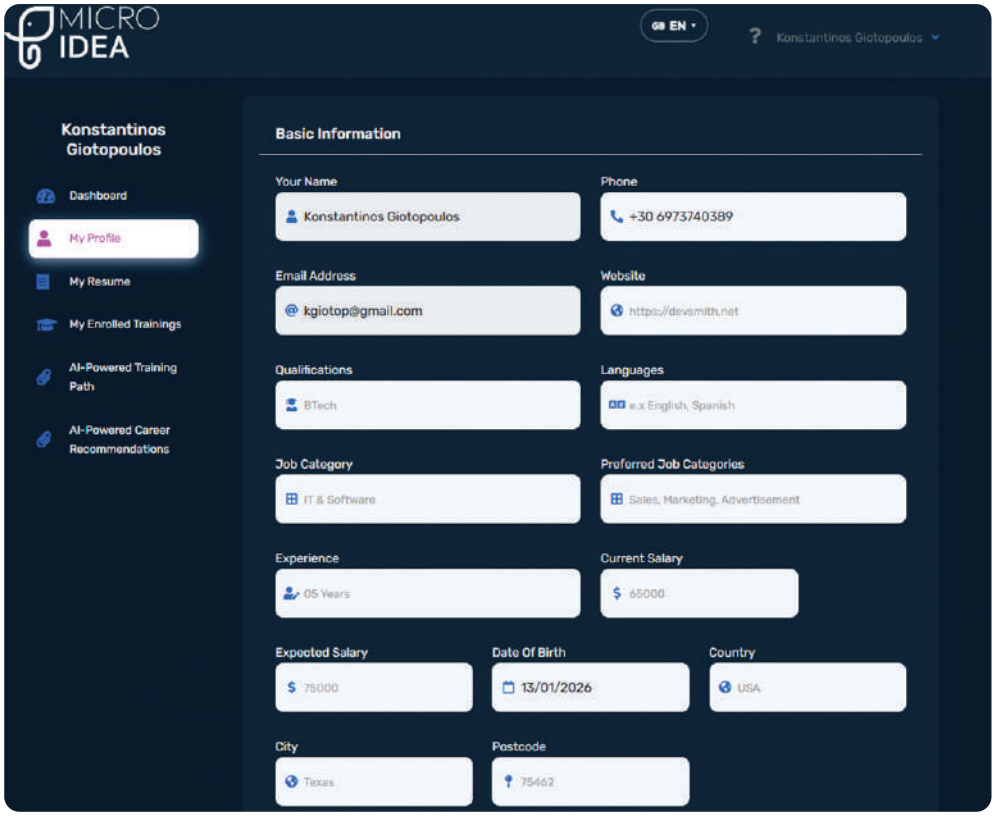

Figure 5. User Skills Profile and Self-Assessment Interface

User-friendly profile environment where individuals provide structured information on skills, experience, languages, and career preferences, forming the basis for AI-driven analysis.

3.2. Linking Individual Profiles to Labour Market Demand

The value of the self-assessment tool lies in its integration with labour market intelligence. The information provided by users is analysed in relation to skills demand identified through job postings. This enables the system to move beyond generic advice and deliver **context-aware guidance** aligned with real employment opportunities.

By focusing on skills rather than job titles alone, the tool supports inclusive learning pathways, particularly for workers in sectors where experience and informal learning play a major role.

4. AI-Driven Training Recommendations and Micro-Credentials

4.1. Personalised Training Pathways

Building on the skills self-assessment, MICROIDEA provides **AI-driven personalised training recommendations**. The system identifies skills gaps and proposes targeted learning activities designed to improve employability and career progression.

Each recommendation is:

- personalised to the user's profile
- clearly explained ("why this training is recommended")
- linked to specific skills and learning outcomes
- designed as short, modular training compatible with micro-credentials

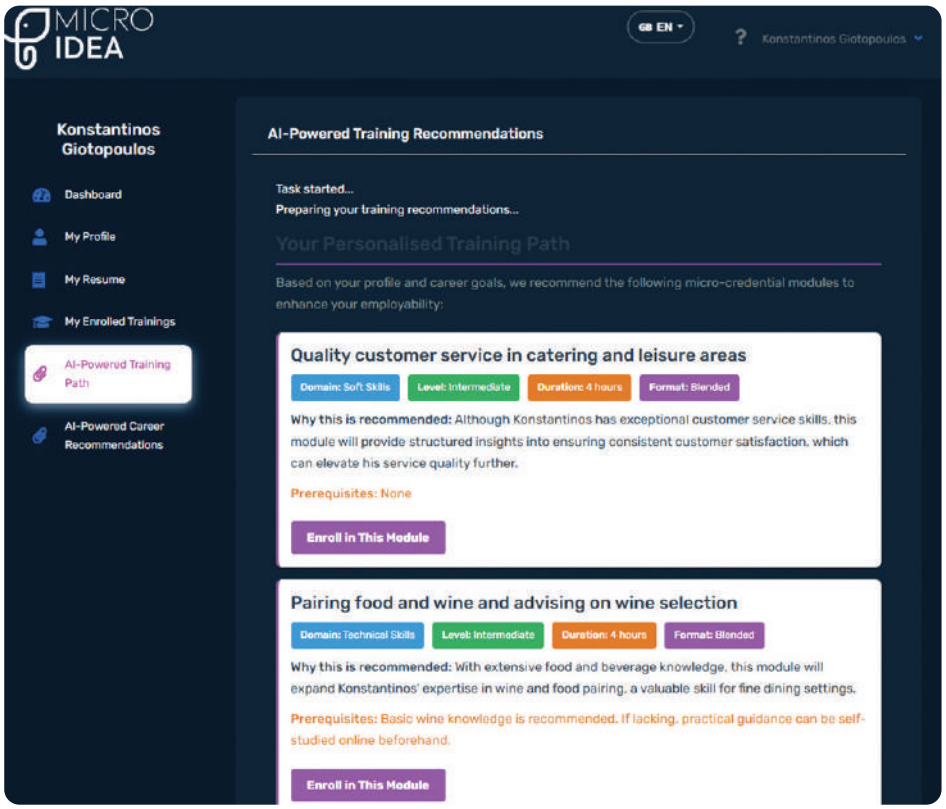

Figure 6. AI-Driven Personalised Training Recommendations

Example of personalised training recommendations generated by the AI Recommender, explaining why specific modules are proposed and linking skills gaps to short-duration, skills-focused training.

This approach supports lifelong learning by making training choices transparent, relevant, and manageable for individuals.

4.2. From Training to Recognition

The recommended training modules are designed to support the acquisition of **micro-credentials**, allowing learners to gain formal recognition for specific competences. This is particularly relevant in hospitality and tourism, where targeted upskilling in areas such as customer service, communication, or specialised technical skills can have immediate labour market value.

By linking AI recommendations to micro-credentials, MICROIDEA contributes to more flexible and responsive credentialing systems that complement traditional qualifications.

5. AI-Powered Career Recommendations and Guidance

5.1. Career Fit and Skills Matching

In addition to training pathways, MICROIDEA offers **AI-powered career recommendations** that help users understand how their skills align with specific job opportunities. The system analyses job postings and compares them with individual profiles to provide qualitative insights into suitability, skills gaps, and areas for improvement.

Rather than offering simplistic matching scores, the tool provides explanatory feedback that highlights:

- strengths relevant to a role
- skills to strengthen or develop
- recommended next steps

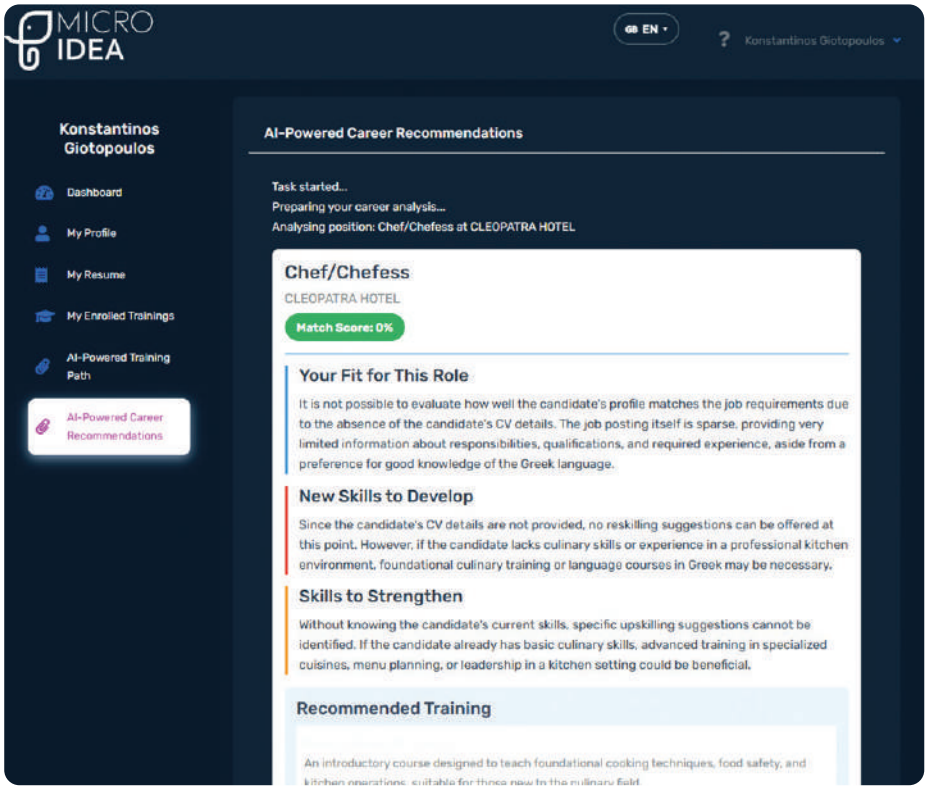

Figure 7. AI-Powered Career Recommendations Interface

AI-supported career analysis showing qualitative assessment of fit, skills to develop, and personalised guidance for career progression.

5.2. Supporting Career Development and Mobility

This form of AI-supported guidance is particularly valuable for workers seeking career progression, sectoral mobility, or re-entry into employment. By combining labour market data with individual profiles, the tool supports informed career decisions and reduces uncertainty for users navigating complex labour markets.

For employment services and counsellors, the tool also offers a structured basis for guidance, supporting more consistent and evidence-based counselling practices.

6. Policy Impact, Transferability and Strategic Value

6.1. Supporting Evidence-Based Policy Making

At system level, the AI tools developed in MICROIDEA demonstrate how digital innovation can strengthen governance in skills development, training, and employment. The integration of real-time labour market intelligence with individual-level tools enables:

- better alignment between training provision and labour market needs
- more responsive skills policies
- improved coordination between stakeholders

By providing transparent, data-driven insights, the tools support policy makers in designing interventions grounded in evidence rather than assumptions.

6.2. Transferability and Scalability

The MICROIDEA AI tools are designed to be both **conceptually transferable** and **technically adaptable**. The underlying methodology can be applied in different countries and sectors by:

- integrating local job data sources
- adapting classification mappings where needed
- aligning training content with national priorities

This makes the approach particularly relevant for third countries and international cooperation contexts, where evidence-based skills development is a strategic priority.

The AI-driven tools developed within MICROIDEA illustrate how Artificial Intelligence can be used responsibly to improve skills intelligence, training relevance, and career guidance. By connecting labour market analysis with individual skills assessment, personalised training pathways, and career recommendations, the project offers a coherent and innovative framework that benefits policy makers, training providers, and individuals alike.

Through its integrated approach, MICROIDEA demonstrates that AI is not an end in itself, but a powerful enabler of more transparent, inclusive, and effective skills ecosystems.

Educational and Training Material for Waiters Leading to the Acquisition of Microcredentials

The MICROIDEA project addresses a critical skills and recognition gap in the hospitality sector by introducing a structured, modular training pathway for waiters, leading to the acquisition of certified skills, including in the form of microcredentials. Across many countries, including EU Member States and third countries, waiting staff often enter the profession through informal routes, without access to standardised training, recognised qualifications, or clear progression pathways. MICROIDEA responds to this challenge by professionalising the occupation while maintaining flexibility and strong labour-market relevance.

The educational and training material developed within MICROIDEA has been designed through close collaboration between training providers, chambers of commerce, industry experts, and academic partners. The curriculum reflects real workplace needs and aligns with European vocational education and training (VET) principles, while remaining adaptable to different national and regional contexts.

Occupational profile of waiter

- Grounded in the labour market needs in the Tourism Sector in Cyprus, Greece, and Spain
- Aligned with EU standards: ESCO
- Accompanied by a set of curricula – **core curriculum and modular microcredentials** - and associated training materials

An occupational profile details the **main** and **optional** tasks of a waiter. The **core curriculum** defines the main professional functions, tasks, and the skills required to meet current and future needs of the tourism and food service industry.

Microcredentials are developed from the **optional tasks** and specialised units of skills linked to these tasks, structured as **derived** or **standalone** units to support targeted training, employability, and industry competitiveness.

The programme is designed for individuals who **already work in the food service sector** as waiters or those who **wish to acquire skills in the waiter profession**. It is suitable for individuals who:

- Hold a professional waiter's diploma
- Have experience in the sector
- Currently work as waiters
- Aspire to work as waiters

Core Curriculum

MPF 1	Prepare the dining and recreation area for service	
Specific Professional Function	1.1 Check the Dining Room Cleanliness	
	Tasks:	Explanation/description:
	1.1.1 Maintain Personal Hygiene Standards	Activities aimed at preserving cleanliness and personal care to prevent illness, promote health, and ensure a presentable appearance
	1.1.2 Comply with food safety and hygiene	Implement the principles of Hazard Analysis and Critical Control Points (HACCP) to ensure that food is handled, prepared, and stored in a manner that prevents foodborne illnesses.
	1.1.3 Clean surfaces	Maintain cleanliness of tables, countertops, and other surfaces by removing dirt, spills, and food residues, ensuring compliance with hygiene standards.

The core curriculum consists of 3 main units representing **main professional functions (MPF)**, each of them covering **specific professional functions (SPF)** in the following way:

- **MPF1**: Prepare the dining and recreation area for service
  - **SPF1.1**: Check the Dining Room Cleanliness
  - **SPF1.2**: Furnishing and equipment of a dining and recreation hall
  - **SPF1.3**: Prepare the restaurant for service
- **MPF2:** Welcoming - assisting and serving guests in the dining and recreation area
  - **SPF2.1:** Welcoming guests in the dining and recreation area and creating a pleasant atmosphere
  - **SPF2.2**: Process reservations in dining areas
  - **SPF2.3**: Assist Customers
  - **SPF2.4**: Informing customers about the products - services and taking orders
  - **SPF2.5**: Preparation and serving alcoholic drinks, beverages, and wines
  - **SPF2.6**: Food serving techniques and food quality control
- **MPF3:** Processing payments and closing procedures for the dining and recreation area
  - **SPF3.1**: Process Payments
  - **SPF3.2**: Evaluating customer satisfaction & maintaining customer contact
  - **SPF3.3**: Clearing dishes from the tables and closing the dining area tasks

The MICROIDEA core curriculum includes **30 individual courses**, each covering a **specific task** under each specific professional function (SPF). For example, for Specific Professional Function **SPF1.1 Check the Dining Room Clean**, the following course has been created:

1.1.1 Maintain Personal Hygiene Standards
1.1.2 Comply with Food Safety and Hygiene
1.1.3 Clean Surfaces

Microcredentials

MPF 1	Prepare the dining and recreation area for service	
Specific Professional Function	1.1 Check the Dining Room Cleanliness	
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Specialised units of skills that can serve as microcredentials	CATEGORY	SKILL
10.1.1 Green cleaning: with the right products and good practices.	Derived from Specific Professional Function	Green Skills

The MICROIDEA **microcredentials** framework consists of **24 modular units** that validate specific competences in:

- **Four distinct domains:**
  - Green skills, e.g. *10.1.2 Environmental protection and recycling in catering and leisure areas*
  - Soft skills, e.g. *30.1.2 Quality customer service in catering*
  - Technical skills, e.g. *40.1.7 Decanting wines*
  - Digital skills, e.g 20.1.1 *Online reservation system for restaurants*

- **Country-specific competences:**
  - 1000.1.1 Understanding the gastronomic culture of different cultures (Greece, Cyprus)
  - Cyprus: 2000.1.1 Coordination of various events in catering and entertainment venues (Cyprus)
  - 3000.1. Digital marketing for restaurants and entertainment (Spain)

- **Standalone unit:** 300.1.1 Detecting drug abuse

Microcredentials are closely linked to professional functions and specific tasks; for example, the microcredential (specialised unit of skills) associated with the tasks within SPF 1.1, Check the Dining Room Cleanliness (described above), is 10.1.1 Green Cleaning.

MICROIDEA Educational Approach

The MICROIDEA training program uses a **hybrid learning approach** that combines:

- Self-paced online study,
- Live online sessions with industry experts,
- Hands-on training in partner businesses.

Theoretical content is delivered through an online platform, while practical experience is gained in real work environments under trainer supervision, with all curriculum and microcredentials educational materials **available online** in English, Greek, and Spanish.

The theoretical education material includes:

- Presentations,
- Detailed study notes,
- Further resources: instructional materials, including videos to support comprehensive, self-directed learning and reinforce understanding through visual and practical examples.

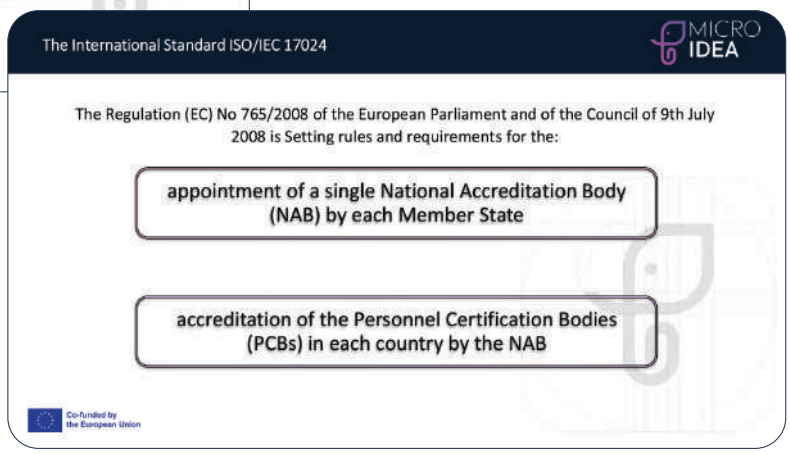
Additionally, teachers and trainers have access to the **Training Guide for Teachers and Trainers**, developed specifically for each course, which provides structured guidance, practical tips, and ready-to-use resources to make lesson planning easier and enhance the learning experience for students.

ISO/IEC 17024 Certification

Ensuring Trust, Transparency, and Recognition

ISO/IEC 17024 is the international standard for certifying individual competences.

It provides a globally recognised framework that ensures certified persons meet clearly defined requirements through objective and impartial assessment.



Key characteristics of ISO/IEC 17024 include:

- Global recognition of certified competences.
- Independent accreditation ensuring impartiality.
- Clear competence requirements linked to assessment.
- Periodic reassessment to maintain relevance over time.

Within MICROIDEA, ISO/IEC 17024 is used to strengthen the credibility and recognition of microcredentials, responding to the need for trusted skills validation across sectors and borders through a **modular and transparent certification model**.

- Each **core module and microcredential** is linked to its own certification scheme.
- **Core credentials and microcredentials are validated separately**, allowing flexible learning pathways and accumulation of certified skills.
- All certification decisions follow documented assessment criteria, ensuring **traceability and transparency**.
- Consistent application of the standard across modules ensures **credibility and comparability** of outcomes.

This model allows microcredentials to function as **stand-alone, verifiable units of competence** or as part of broader qualification structures, while remaining aligned with international certification principles.

Conclusion

The MICROIDEA project represents a **significant step forward** in aligning short-cycle certifications with internationally recognised quality standards. By anchoring microcredentials in ISO 17024 and developing tools that support transparency, mobility, and labour market relevance, the project offers ministries, policy makers, social partners, and employers a **robust and scalable model** for modernising skills recognition systems.

In a landscape where traditional qualifications alone can no longer meet evolving skills needs, MICROIDEA provides a **practical, credible, and policy-ready blueprint** for the future of vocational learning and workforce development in Europe.

MICRO IDEA

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