

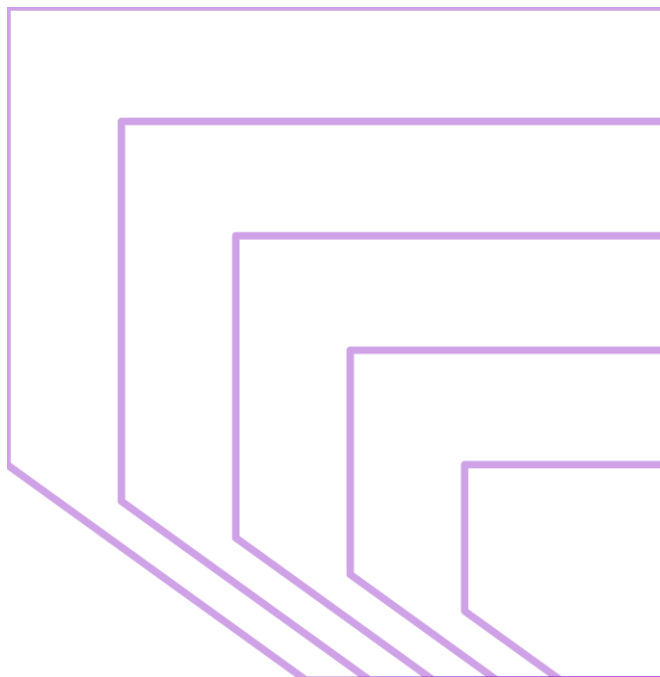


Transnational Report

WP2 – Knowledge Recovery and Methods Framework

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Countries covered: Austria, Ireland, Lithuania, Sweden, Spain, Ukraine



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Desk research

National Context and Overall Situation

Across all analysed countries—Austria, Sweden, Spain, Lithuania, Ireland, and Ukraine—the use of artificial intelligence (AI), virtual reality (VR), and augmented reality (AR) in career guidance is clearly increasing, although at different speeds and levels of maturity. In general, these technologies are not yet fully mainstream but are increasingly moving beyond experimental stages, especially in the case of AI.

In all countries, digital technologies are primarily used to complement existing guidance systems rather than replace them. Public Employment Services, educational institutions, and regional guidance providers remain central actors, while digital tools enhance information provision, career exploration, and decision-making processes.

AI is the most widely implemented technology across all countries and is increasingly embedded in digital career platforms, matching systems, and chatbot-based services. In contrast, VR is mainly used in pilot projects or targeted initiatives, often focusing on young people and vocational orientation. AR plays only a marginal role and is typically integrated into broader immersive technologies rather than used independently.

There are, however, notable differences between the VIRTUAL JOB countries. Ukraine stands out as a frontrunner in terms of rapid and systemic digital innovation, with strong integration of AI into national digital ecosystems. Austria, Sweden and Ireland have well-established institutional frameworks and show steady but more cautious adoption of new technologies. Spain and Lithuania tend to rely more on project-based initiatives, often supported by European funding, and show a more fragmented landscape.

Main Areas of Use

Across all countries, AI, VR, and AR are applied in several common areas of career guidance, although with varying intensity and structure.

AI-supported services represent the most important application area. These include job matching systems, recommender systems, and chatbots that provide career information or assist users in preparing applications. In most countries, these tools are integrated into Public Employment Service platforms or educational guidance systems and are designed to support, rather than replace, professional counselling.

Digital career information platforms and self-assessment tools are also widely used. These platforms provide labour market information, occupational profiles, and skills assessments, allowing users to explore career options independently. In Austria, for example, the Public Employment Service operates a comprehensive ecosystem of digital tools that combine labour market data with user-oriented guidance services.

Virtual reality is primarily used for career exploration. Users can experience workplaces, simulate job tasks, or explore training environments through immersive technologies. These applications are particularly common in vocational guidance contexts and are often targeted at young people.

Cooperation structures are similar across all countries. Public Employment Services, schools, universities, private companies, and research institutions collaborate in the development and implementation of digital tools. However, the degree of coordination differs significantly. While Austria and Sweden show relatively structured cooperation frameworks, Spain and Lithuania rely more on decentralised and project-based partnerships. Ukraine demonstrates a highly integrated approach, with strong coordination between public institutions and digital platforms.

Virtual Reality in Career Guidance Practice

Virtual reality is used in all countries primarily as a tool for experiential career exploration, although its level of integration varies considerably.

In Austria, VR is relatively well developed compared to other countries. Initiatives such as virtual workplace tours and VR-based career orientation studios allow users to experience real work environments through immersive simulations. These initiatives are often implemented in cooperation between Public Employment Services, chambers of commerce, and educational institutions.

In Sweden, Ireland, Spain, and Lithuania, VR is also used, but mainly within pilot projects or specific programmes. These initiatives often rely on external funding and are not yet fully integrated into mainstream guidance systems. Access is typically provided through schools, career centres, or workshops.

In Ukraine, VR is mainly used in educational contexts rather than in career guidance services. While there is strong interest in immersive technologies, their integration into guidance systems remains limited compared to AI.

Overall, VR applications are characterised by on-site access using headsets, although some countries also provide web-based 360° experiences. Despite its potential, VR remains a supplementary tool rather than a core component of career guidance systems in all countries.

Reported Benefits of VR Use

Across all countries, the reported benefits of VR in career guidance are remarkably similar. VR applications tend to increase user motivation and engagement, particularly among young people, by providing interactive and immersive experiences.

Users also benefit from a more realistic understanding of job tasks and working environments. By experiencing occupations virtually, individuals can develop more accurate

expectations and make better-informed career decisions. This contributes to increased self-efficacy and improved decision-making processes.

Another important advantage is accessibility. VR can provide access to workplaces that would otherwise be difficult to visit due to geographical, financial, or organisational barriers. It also allows for self-directed exploration, which can be particularly valuable for users with limited access to traditional guidance services.

Some countries, such as Austria and Sweden, report empirical evidence supporting these benefits, including improvements in decision-making skills and career orientation outcomes.

In other countries, such as Spain and Lithuania, benefits are mainly based on practitioner feedback rather than formal evaluations.

Augmented Reality and Immersive Media

Augmented reality plays a relatively minor role in career guidance across all countries. In most cases, AR is not used as a standalone technology but is instead integrated into broader immersive approaches that combine VR, AR, and 360° media.

Typical applications of AR can be found in educational settings, innovation projects, or training environments. However, these applications are rarely embedded in everyday career guidance practice.

Ukraine shows some potential for AR development, particularly through mobile-based solutions and innovative applications. Austria also experiments with AR within research and pilot projects. In the other countries, AR remains largely underdeveloped and is rarely mentioned explicitly in guidance contexts.

Overall, VR clearly dominates immersive career guidance, while AR remains at an early stage of development.

AI-Supported Career Guidance Offers

AI is the most widely used and most mature technology across all countries. It is applied in various forms, including job matching systems, recommendation engines, and chatbot-based services.

Public Employment Services play a key role in the implementation of AI tools. In Austria, for example, AI is used to analyse labour market data and support matching processes, while tools such as the Berufsinformat provide conversational access to career information.

In Ukraine, AI is deeply integrated into national digital platforms and services. Tools such as AI-based career matching systems and advanced analytics platforms demonstrate a high level of innovation and systemic integration.

In Sweden, Ireland, Spain, and Lithuania, AI is also used in career guidance, but often in a more fragmented or decentralised manner. Chatbots, recommendation systems, and digital platforms are common, but they are typically less integrated into a unified national system.

Across all countries, AI is primarily used as a decision-support and information provision tool. It helps users explore options, access information, and identify suitable career paths, but final decisions remain with human counsellors. Transparency, data protection, and ethical considerations are important aspects of AI implementation in all contexts.

Highlighted AI Application in a transnational perspective

Each country features specific AI applications that illustrate national approaches to digital career guidance.

In Austria, the Berufsinfomat stands out as a central AI tool. It provides conversational access to occupational information and is integrated into the Public Employment Service's digital ecosystem.

In Ukraine, several advanced AI tools can be identified, including LITI, a psycholinguistic analysis system, and SkillLab, a platform for skills-based career matching. These tools demonstrate a high level of technological sophistication and integration.

In the other countries, highlighted AI applications typically include chatbots, matching tools, and career platforms. While these tools are effective, they are often less centralised and less integrated than in Austria or Ukraine.

Overall, Ukraine shows the highest level of innovation, while Austria demonstrates the strongest institutional embedding of AI tools.

Further Training on AI / VR / AR for Career Counsellors

All countries recognise the importance of training and upskilling for career guidance professionals, particularly in relation to AI.

Training programmes are typically offered by Public Employment Services, educational institutions, private training providers, and European projects. They focus on practical applications of AI, ethical considerations, data protection, and labour market implications. Austria stands out for its relatively structured training system, with organised workshops and programmes that have reached a significant number of counsellors. Ukraine also shows strong momentum in training, supported by national digital initiatives.

In the other countries, training is available but often less systematic and more limited in scale. A common gap across all countries is the lack of training specifically focused on VR and AR, which limits the integration of these technologies into practice.

Policy Context and Key Actors

The development of AI, VR, and AR in career guidance is shaped by a similar set of actors across all countries. These include Public Employment Services, ministries responsible for labour and education, regional authorities, educational institutions, and private sector partners.

European funding programmes, such as Erasmus+ and ESF+, play an important role in supporting innovation and pilot projects, particularly in Spain and Lithuania.

Ukraine differs from the other countries in its highly centralised and digitally driven policy approach. National digital strategies and platforms play a key role in shaping career guidance services.

In contrast, EU countries tend to rely on more decentralised systems, where innovation is often driven by individual institutions or projects rather than coordinated national strategies.

Overall Assessment and Trends

The transnational analysis reveals a clear pattern of technological development in career guidance. AI is the most mature and widely adopted technology, while VR is emerging and AR remains largely experimental.

Across all countries, there is a shift towards hybrid guidance models that combine digital tools with human counselling. AI is increasingly used to personalise guidance services and improve access to information, while VR offers new opportunities for experiential learning. However, several challenges persist. These include digital inequalities, ethical concerns related to AI, and the lack of scalable solutions for VR and AR. In addition, the fragmentation of tools and services remains an issue in several countries.

Ukraine represents a unique case of rapid and systemic digital transformation, while EU countries show more gradual and regulated development patterns

Case Study Comparison

The case studies across the six countries (Austria, Sweden, Spain, Lithuania, Ireland, Ukraine) provide concrete insights into how AI, VR and AR are operationalised in different institutional and policy contexts. While all countries show similar directions, the depth, scale, and sophistication of implementation differ significantly.

Austria

Berufsinformat (AI) – Public Employment Service (AMS)

The Berufsinformat is a generative AI-based chatbot integrated into the AMS career guidance ecosystem. It allows users to ask natural-language questions about occupations, training pathways, and labour market conditions. The tool draws exclusively on validated AMS databases (e.g. BIS, Beruflexikon, Ausbildungskompass) and ensures high data quality and reliability.

A key feature is its **low-threshold accessibility**: it is available 24/7, anonymous, multilingual, and does not require registration. It is explicitly positioned as a **first-**

orientation tool, supporting but not replacing counsellors. Its integration into a broader digital ecosystem makes it a **systemic solution rather than a standalone tool**.

Berufe VR (VR) – Austrian Economic Chambers (WKO)

Berufe VR enables users to virtually explore apprenticeship workplaces through immersive 360° experiences. Users can "enter" real companies, observe tasks, and receive explanations from apprentices.

The platform exists in two formats:

- **On-site VR headset experience** (high immersion)
- **Web-based version** (broad accessibility)

This dual structure is a key innovation, bridging digital and physical access. The tool is strongly embedded in career guidance centres and school programmes, making it one of the **most advanced VR career tools in Europe**.

Country-specific characteristic:

Austria combines **strong institutional embedding with moderate technological innovation**, resulting in reliable and scalable tools.

Spain

VIROO Immersive Platform (VR) – Virtualware / Spanish VET Network

VIROO is one of Spain's most advanced immersive VR platforms for vocational education and career exploration. Developed by Virtualware and implemented across dozens of VET centres, the platform enables learners to experience realistic workplace simulations through VR headsets and immersive environments. Users can virtually explore industrial workshops, logistics environments, technical laboratories, and production settings before entering training or employment.

The platform is mainly embedded within vocational education and training (VET) institutions and regional innovation ecosystems, especially in the Basque Country and Andalusia. It is used both for practical training and for career orientation, helping young people better understand workplace expectations and occupational tasks.

A key strength is its strong experiential dimension: learners can "test" professions in a safe, simulated environment without physical risks or costly infrastructure. The immersive format increases motivation and supports informed career decision-making, particularly for technical professions.

Spain's VR implementation is strongly linked to regional innovation policies and public-private cooperation between VET institutions, EdTech providers, and employment services.

AI in Education and Guidance Framework (AI) – INTEF

Spain's most significant AI-related development in career guidance is not a single chatbot or AI platform, but a national framework for responsible AI integration in education and counselling developed by INTEF (National Institute for Educational Technology and Teacher Training).

The framework provides guidance for teachers, counsellors and VET professionals on how to use generative AI tools ethically, transparently, and pedagogically. It addresses topics such as bias, data protection, transparency, critical AI literacy, and the responsible use of AI-supported career tools.

In practice, many Spanish guidance practitioners already use generative AI systems such as ChatGPT or Gemini to support CV writing, cover letters, labour market analysis, and Applicant Tracking System (ATS) optimisation. AI is increasingly used to personalise employability pathways and identify job opportunities aligned with user profiles.

Unlike Austria's highly institutionalised AMS solution, Spain's AI landscape remains more decentralised and practitioner-driven. AI use is widespread at the operational level, but systemic public-sector integration is still developing.

Country-specific characteristic:

Spain combines strong regional innovation ecosystems with experimental and practice-driven implementation. VR is comparatively advanced in VET environments, while AI development is currently shaped more by ethical frameworks and practitioner experimentation than by fully centralised public guidance systems.

Ireland

CareerBot and AI-Supported Guidance (AI) – Ballymun Job Centre (BJC)

Ireland's most visible AI-related career guidance initiatives emerge from community-based employment services and socially inclusive projects. One prominent example is CareerBot, developed through a European partnership project coordinated by the Ballymun Job Centre (BJC) in Dublin.

CareerBot functions as an AI-supported career guidance assistant that helps users explore occupations, improve CVs, prepare for interviews, and identify training opportunities.

Guidance practitioners also use generative AI tools such as ChatGPT to support clients with cover letters, job matching, and interview preparation.

The Irish approach places strong emphasis on inclusion and accessibility. AI tools are particularly targeted at vulnerable groups including long-term unemployed people, migrants, adults returning to education, neurodivergent clients, and people with low digital skills.

Importantly, Irish practitioners consistently position AI as a support tool rather than a replacement for human guidance. Ethical use, GDPR compliance, and practitioner mediation remain central principles.

VR Employability and Social Inclusion Programmes (VR) – BJC / Foróige / DCU

VR in Ireland is mainly used in employability preparation, social inclusion, and confidence-building rather than large-scale occupational simulation. Organisations such as Ballymun Job Centre, Foróige, and Dublin City University use VR headsets for mock interviews, conversational English practice, workplace familiarisation, and communication training.

Foróige's "GoVirtual" initiative is particularly notable. VR headsets are distributed to vulnerable young people who may face barriers related to anxiety, disability, geographical isolation, or social exclusion. Through immersive environments, participants engage with youth workers and employment-related activities remotely.

Similarly, BJC uses VR for interview simulations, presentation skills, and employability training, especially for migrants and clients with low confidence.

The Irish model highlights the psychosocial and confidence-building potential of immersive technologies rather than focusing exclusively on technical career exploration.

Country-specific characteristic:

Ireland combines socially inclusive innovation with community-based experimentation. AI and VR are primarily used to increase accessibility, confidence, and participation among disadvantaged groups rather than through fully institutionalised national systems.

Sweden

WorkMatch.io (AI) – AI-Based Competence Matching

Sweden demonstrates one of the most mature AI ecosystems in career guidance and labour-market matching. WorkMatch.io is an AI-driven competence-based job-matching platform that analyses users' skills, work experience, and ambitions to generate personalised occupational recommendations.

Unlike traditional keyword-based recruitment systems, the platform uses semantic and competence-oriented AI models to identify transferable skills and improve job matching quality. Users receive explanations for suggested occupations, competency requirements, and labour-market relevance through an interactive conversational interface.

The platform supports both jobseekers and recruiters and can be integrated into broader employment-service ecosystems. It is particularly valued for improving transparency, reducing mismatch, and supporting evidence-based guidance conversations.

Sweden's AI development is strongly embedded within broader public digitalisation strategies and ethical governance frameworks led by Arbetsförmedlingen (Swedish Public Employment Service).

Virtuella Arbetsplatsbesök (VR) – WorldSkills Sweden

Virtuella Arbetsplatsbesök ("Virtual Workplace Visits") is Sweden's most prominent VR-based career exploration initiative. Developed by WorldSkills Sweden, the platform offers immersive 360° experiences of authentic Swedish workplaces across vocational sectors such as automation, hospitality, construction, healthcare, and industrial production.

Users can explore professions either through VR headsets or via a browser-based version accessible on computers and mobile devices. The platform allows learners to observe work environments, machinery, workflows, and safety procedures while receiving guided explanations of occupational tasks.

The tool is widely used in schools, VET centres, Komvux (municipal adult education), and employment programmes. It is particularly effective for newly arrived migrants, adults in career transition, and young people unfamiliar with Swedish workplace culture. Sweden's dual-access approach (VR + browser access) closely resembles Austria's Berufe VR model and supports both immersion and scalability.

Country-specific characteristic:

Sweden combines high institutional maturity with strong ethical governance and competence-based AI integration. The country demonstrates one of Europe's most advanced examples of combining AI-driven labour-market intelligence with scalable VR career exploration.

Ukraine

Unified Job Portal and Obriy Ecosystem (AI) – State Employment Service

Ukraine demonstrates rapid AI-driven innovation despite ongoing wartime conditions. The most advanced development is the Unified Job Portal and the broader Obriy digital labour-market ecosystem developed by the State Employment Service and the Ministry of Digital Transformation.

The AI-powered system matches users' CVs with vacancies, analyses competencies, and recommends personalised employment and training pathways. The platform integrates labour-market data, public services, digital documentation, and employment support into a unified ecosystem.

Ukraine also uses AI-driven psycholinguistic tools such as LITI, which analyses speech patterns to identify personality traits, leadership potential, resilience, and behavioural tendencies during recruitment and career counselling processes.

A key innovation is the strong integration between public-sector digitalisation and labour-market services. AI systems are positioned not only as information tools but as central infrastructure for labour-market management and reskilling.

VR/AR Educational and Career Exploration Initiatives (VR/AR) – VET and Regional Projects

VR and AR in Ukraine remain mainly pilot-based and concentrated within vocational education institutions and innovation projects. Several VET centres in regions such as Kharkiv have established immersive learning spaces allowing students to explore professions through VR simulations and interactive digital environments.

- Current applications include:
- virtual workplace simulations,
- 360° profession demonstrations,
- AR-supported educational materials,
- interactive career exploration scenarios.

Projects such as BookVAR demonstrate how AR can "bring professions to life" through smartphone-based interactive experiences. Users can visualise technical procedures, workplaces, and tools directly through mobile devices without expensive infrastructure. Although VR is not yet systematically integrated into career guidance, Ukraine shows strong strategic potential for combining AI, VR, and AR into future digital career ecosystems.

Country-specific characteristic:

Ukraine combines rapid AI-driven digital transformation with highly innovative but still fragmented immersive technology initiatives. The country demonstrates exceptional momentum in public-sector AI integration despite difficult social and economic conditions.

Lithuania

Ema Virtual Assistant (AI) – Lithuanian Employment Service (UŽT)

Lithuania's flagship AI solution in career guidance is "Ema," a conversational AI assistant integrated into the Lithuanian Employment Service (UŽT) digital ecosystem. Ema provides 24/7 support for jobseekers and employers by answering questions about employment services, training opportunities, labour-market programmes, and registration procedures. The tool is designed as a low-threshold first-contact service: it is free, anonymous, and available without registration. Similar to Austria's Berufsinformat, Ema supports but does not replace human counsellors and is embedded within a broader national employment-service infrastructure.

Lithuania also integrates algorithmic self-assessment tools such as "Pažink save" ("Know Yourself"), which supports personalised career guidance through digital skills and interest profiling.

AI in Lithuania is increasingly systemic rather than experimental and forms part of a wider national digital transformation agenda aligned with EU AI governance frameworks.

"Karjeras" Vilnius (VR/Interactive Guidance) – UŽT

Opened in 2025, the Vilnius "Karjeras" centre is the first fully digitalised career exploration centre in Lithuania and the Baltic region. The centre combines interactive career exploration zones, digital self-assessment, professional activation services, and immersive career experiences.

Visitors can explore professions through technology-enhanced environments designed to increase engagement, curiosity, and experiential understanding of occupations. The centre particularly targets NEET youth and young adults struggling with career orientation.

While Lithuania does not yet operate a nationwide VR platform comparable to Austria's Berufe VR, the Vilnius centre serves as a flagship model for future expansion across the national career-centre network.

The Lithuanian model strongly emphasises digital inclusion, career activation, and modernisation of public employment services.

Country-specific characteristic:

Lithuania combines strong public-sector digitalisation with emerging immersive guidance environments. AI integration is already institutionalised, while VR development is progressing through flagship innovation centres and STEAM-oriented career exploration initiatives.

Cross-Country Synthesis of the Case Studies

AI, VR and AR in Career Guidance Across Austria, Spain, Ireland, Sweden, Ukraine and Lithuania

The six country case studies reveal a shared European trend towards the digital transformation of career guidance through Artificial Intelligence (AI), Virtual Reality (VR), and, to a lesser extent, Augmented Reality (AR). Across all countries, these technologies are increasingly used to support career exploration, labour-market orientation, employability preparation, and access to guidance services. However, the level of maturity, institutional integration, technological sophistication, and strategic focus differs considerably between countries.

Common Trends Across All Countries

AI Is the Most Advanced and Widely Integrated Technology

Across all six countries, AI is significantly more mature and operationalised than VR or AR. AI applications are already embedded in public employment services, career guidance platforms, or practitioner workflows.

The most common AI functions include:

- career information and guidance chatbots,
- CV and cover-letter support,
- labour-market matching,
- personalised recommendations,
- skills analysis and profiling,
- support for recruitment preparation.

Examples include:

- Austria's **Berufsinformat**,
- Lithuania's **Ema**,
- Sweden's **WorkMatch.io**,
- Ukraine's **Unified Job Portal / Obriy ecosystem**,
- Ireland's **CareerBot**,

Spain's practitioner-led use of generative AI tools.

In all countries, AI is primarily positioned as a **support tool rather than a replacement for counsellors**. Human mediation, trust-building, emotional support, and contextual understanding remain central elements of guidance practice.

VR Is Mainly Used for Career Exploration and Employability Preparation

VR applications across countries focus primarily on:

- workplace familiarisation,
- immersive occupational exploration,
- simulated work environments,
- interview preparation,
- confidence-building and soft skills training.

A common pattern is the use of VR to allow users to "experience" professions before making educational or employment decisions.

Examples include:

- Austria's **Berufe VR**,
- Sweden's **Virtuella Arbetsplatsbesök**,
- Spain's **VIROO immersive VET platform**,
- Ireland's VR employability programmes,
- Lithuania's **Karjeras** centre,
- pilot initiatives in Ukrainian VET institutions.

In nearly all countries, VR is especially relevant for:

- young people,
- VET learners,
- NEETs,
- adults in career transition,
- migrants or socially excluded groups.

AR Remains the Least Developed Technology

A striking similarity across all countries is the relatively limited implementation of AR.

AR is:

- rarely used as a standalone career guidance tool,
- mostly embedded within broader XR or digital learning environments,
- still experimental and project-based.

Where AR exists, it is mainly connected to:

- STEAM education,
- interactive learning environments,
- digital textbooks,
- technical simulations.

Ukraine demonstrates the strongest visible AR experimentation through projects such as **BookVAR**, while Lithuania and Spain mention AR mostly within broader immersive media contexts.

Overall, AR has not yet achieved mainstream relevance in career guidance systems.

Strong Emphasis on Accessibility and Inclusion

All countries frame digital career guidance technologies as tools to improve accessibility and inclusion.

Common target groups include:

- NEET youth,
- migrants and refugees,
- people with disabilities,
- adults with low qualifications,
- unemployed individuals,
- people in career transition.

The technologies are often described as:

- low-threshold,
- flexible,
- accessible outside office hours,
- supportive for geographically isolated or vulnerable users.

This inclusion-oriented perspective is particularly strong in:

- Ireland (social inclusion and confidence-building),
- Sweden (migrant integration),
- Lithuania (NEET engagement),
- Ukraine (war-related displacement and labour-market adaptation).

Human Guidance Remains Central

Despite increasing digitalisation, all countries strongly emphasise that AI, VR and AR should complement—not replace—human guidance.

Practitioners consistently stress:

- the importance of empathy,
- emotional support,
- motivational coaching,
- contextual understanding,
- ethical oversight.

This is one of the clearest cross-country consensus points.

Expanded Conclusion: Similarities and Differences

The comparative analysis across Austria, Sweden, Spain, Lithuania, Ireland and Ukraine reveals both strong convergence and substantial divergence in the development and implementation of AI, VR and AR within career guidance and counselling.

Core similarities across all countries

All countries are moving towards a hybrid model of career guidance in which digital technologies support — but do not replace — human interaction. Across all national contexts, AI is the most advanced and operationalised technology, while VR is emerging as an increasingly relevant tool for immersive career exploration and AR remains largely experimental and underdeveloped.

Another important similarity is the transformation of the counsellor role. In all countries, career guidance professionals are no longer primarily providers of information. Instead, they increasingly function as navigators, interpreters and critical mediators within complex digital environments. This includes supporting clients in understanding AI-generated recommendations, interpreting labour-market information, navigating digital recruitment systems, and critically assessing automated outputs.

Furthermore, all countries report very similar structural challenges:

- digital inequalities and unequal access to technologies,
- ethical concerns related to bias, privacy and misinformation,
- limited scalability of VR and AR initiatives,
- lack of systematic training opportunities for practitioners,
- growing need for continuous professional development and digital competences.

There is also a shared consensus that technology should strengthen rather than weaken human-centred guidance practices. Human support, empathy, motivation and contextual understanding remain essential components of effective counselling across all countries.

Key differences between countries

The most significant differences concern the level of systemic integration, institutional maturity and innovation dynamics.

Country-specific comparison

- Ukraine represents a case of rapid digital transformation under exceptional crisis conditions. AI is developing strongly in public employment services, digital government ecosystems and HR-related tools. At the same time, VR and AR remain mostly experimental, fragmented and concentrated in education or pilot initiatives rather than being fully integrated into everyday career guidance.

- Austria shows a strongly institutionalised and practice-oriented model. AI and VR tools are embedded in established guidance structures, especially through AMS and WKO. The Austrian approach is characterised by reliability, accessibility, validated data sources and clear positioning of digital tools as support for, not replacement of, counsellors.
- Sweden demonstrates a mature and governance-oriented approach. AI-supported matching and digital labour-market tools are comparatively advanced, while VR is used for structured workplace exploration. The Swedish model places strong emphasis on transparency, ethical use, inclusion and alignment with public-sector digitalisation.
- Ireland represents a community-based and inclusion-oriented model. AI and VR are used mainly to support employability, confidence-building, interview preparation, English-language practice and access for vulnerable groups. Implementation is promising but still relatively project-based and dependent on local organisations such as BJC, Foróige and education partners.
- Spain shows a regionally diverse and VET-driven innovation pattern. VR is especially visible in vocational education and training, for example through immersive workplace simulations. AI is increasingly used by practitioners, but national integration into career guidance remains limited. Development is shaped by regional initiatives, ethical frameworks and experimentation.
- Lithuania represents an emerging public-sector digitalisation model. AI tools such as Ema are already integrated into the Lithuanian Employment Service, while immersive guidance is developing through flagship spaces such as the Vilnius "Karjeras" centre. However, VR and AR are not yet systematically scaled across the whole country.

Results of expert interviews and focus groups

Across the six countries (Austria, Sweden, Spain, Lithuania, Ireland and Ukraine), expert interviews and focus groups were conducted to gain deeper insights into the role of AI, VR and AR in career guidance practice. While the scope and methodological approaches varied slightly between countries, all data collections aimed to capture practitioners' perspectives on technological developments, their implications, and the resulting competence needs.

In all partner countries 110 career counsellors were questioned within the scope of focus groups or in expert interviews. In Sweden 17 career counsellors were involved, in Spain 5, in Austria 26, in Ireland 19, in Lithuania 24 and in the Ukraine also 19.

Despite differences in scale, the findings show strong convergence across countries.

Awareness of Technological Developments in Guidance

Across all participating countries, employment counsellors and guidance professionals demonstrated a high awareness of the growing impact of digital technologies on labour markets and career guidance practices. Artificial Intelligence (AI) was consistently identified as the most influential and most rapidly expanding technology. Practitioners in all countries reported that AI is already affecting recruitment procedures, job matching, labour-market analysis, and the way clients prepare applications and search for employment opportunities.

A common finding was that counsellors increasingly observe the growing use of AI-driven recruitment systems such as Applicant Tracking Systems (ATS), automated CV screening, and algorithmic matching tools. Many professionals highlighted that clients are already using AI tools independently, often without fully understanding their limitations or risks. As a result, guidance professionals increasingly see their role as helping clients critically interpret and navigate digital systems.

At the same time, important differences emerged between countries regarding the maturity and visibility of technological developments.

In Ukraine, technological awareness was particularly high due to the rapid digital transformation of public services and labour-market systems. AI-based career guidance and recruitment tools are already integrated into national digital ecosystems such as Diia and the State Employment Service. Ukrainian experts also discussed advanced AI applications such as psycholinguistic profiling systems and AI-supported skills diagnostics. Austria and Sweden demonstrated a highly institutionalised understanding of technological developments. In both countries, counsellors were very familiar with AI-supported labour-market tools, public employment service platforms, and digital matching systems. Swedish respondents particularly emphasised transparency, governance, and responsible AI use, while Austrian experts strongly highlighted the importance of media literacy and critical evaluation of digital information.

In Spain and Ireland, awareness was strongly practice oriented. Counsellors focused on the immediate effects of AI in everyday guidance work, such as CV optimisation, interview preparation, and adapting applications to automated recruitment systems. Spanish practitioners in particular demonstrated a detailed understanding of how ATS systems influence hiring processes.

Lithuania was characterised by a rapidly developing awareness linked to ongoing digital modernisation efforts in public employment services and schools. Counsellors recognised the growing importance of AI and immersive technologies but also acknowledged that many initiatives remain at an early implementation stage.

Virtual Reality (VR) and Augmented Reality (AR) were recognised in all countries as promising but far less widespread than AI. VR was mainly associated with immersive career exploration, virtual workplace visits, and vocational simulations. AR remained largely

experimental and was often discussed only as part of broader XR or immersive learning initiatives.

Overall, the findings show that guidance professionals across Europe are highly aware of technological change, but the extent to which technologies are embedded in practice differs significantly depending on national policy priorities, infrastructure, and institutional support.

Understanding and Preparedness of Employment Counsellors

Across all countries, counsellors reported mixed levels of preparedness regarding AI, VR, and AR. While many practitioners are already experimenting with digital tools, most felt that their competences are developing through practice and self-learning rather than through systematic professional training.

A common finding was that counsellors generally feel more confident using AI than VR or AR. AI tools such as ChatGPT, Copilot, Gemini, and automated matching systems are already part of daily practice in many settings, whereas immersive technologies remain less accessible and less integrated into routine guidance services.

Important differences emerged regarding institutional support and training structures.

Sweden showed the highest level of perceived preparedness among practitioners.

Counsellors reported relatively high confidence in supporting clients with digital tools, reflecting Sweden's strong digital infrastructure and long-standing integration of digital services into employment systems. However, Swedish professionals also acknowledged the need for deeper competences related to AI ethics, algorithmic transparency, and human-centred counselling.

Austria also demonstrated comparatively strong institutional preparedness. Counsellors had access to structured workshops and professional development programmes on AI in guidance, often organised through AMS, ABIF, or related networks. Austrian experts emphasised that counsellors increasingly need competences in prompting, digital critical thinking, and evaluating AI-generated information.

In Spain and Ireland, preparedness varied considerably between organisations and individuals. Some practitioners had participated in internal AI training programmes, while others relied mainly on self-directed experimentation. Spanish counsellors described themselves as "learning while doing," often without enough time or institutional support to fully explore the implications of emerging technologies.

Lithuania was characterised by growing but still fragmented preparedness. While digital tools are increasingly available in public employment services and schools, counsellors noted that structured training specifically focused on AI, VR, and AR remains limited.

Ukraine presented a unique picture. On the one hand, digital transformation has accelerated rapidly, and practitioners are exposed to advanced AI-based systems. On the other hand, the speed of technological change creates constant pressure on counsellors to continuously

adapt. Ukrainian experts emphasised that many professionals still lack methodological guidance for using immersive technologies or advanced AI systems in counselling practice. Across all countries, counsellors stressed that technological competence alone is insufficient. Human communication, empathy, ethical judgement, and critical reflection remain essential elements of professional guidance work.

Observed Trends and Emerging Needs

Several common trends were identified across all countries. The strongest trend was the increasing integration of AI into recruitment, career planning, and labour-market services.

AI is increasingly used to:

- optimise CVs and cover letters,
- personalise career recommendations,
- support job matching,
- analyse labour-market trends,
- and automate administrative tasks.

Counsellors across countries also observed a growing need to prepare clients for increasingly automated recruitment processes. This includes helping clients understand how algorithms screen applications and how digital systems shape access to employment opportunities.

Another common trend was the growing importance of hybrid guidance models that combine digital tools with human counselling. Technology is increasingly viewed as a support instrument rather than a replacement for professional guidance.

However, countries differed in the maturity and direction of these developments.

Ukraine showed the strongest movement toward fully integrated digital ecosystems combining AI, career navigation, labour-market analytics, and future plans for immersive VR-based career exploration. Ukrainian experts described a vision of AI-supported lifelong career guidance systems integrated into national digital infrastructure.

Austria and Sweden demonstrated strong institutional integration of AI-based labour-market information systems and public employment platforms. Both countries showed a clear trend toward combining technological innovation with ethical governance and professional standards.

Spain highlighted the rapid spread of AI in practical guidance work, particularly around ATS optimisation and personalised employability pathways. Spanish practitioners also expressed concerns about the risk of overusing technology without clear pedagogical or counselling objectives.

Ireland focused strongly on technology as a tool for social inclusion and accessibility, especially for vulnerable client groups. Practitioners highlighted growing use of VR for interview preparation, anxiety reduction, and confidence-building exercises.

Lithuania showed strong momentum toward digitalisation but remained largely in a developmental phase, with many innovations still concentrated in pilot projects or flagship centres.

Across all countries, counsellors identified emerging needs for:

- better digital infrastructure,
- more systematic professional training,
- clearer ethical guidelines,
- practical methodologies for using AI and VR,
- and stronger support for digitally vulnerable client groups.

Implications for Clients and Service Users

The findings consistently showed that digital technologies affect client groups differently depending on age, education, digital literacy, socio-economic background, and language competences.

Across all countries, younger users were generally perceived as the group most likely to benefit from AI, VR, and digital guidance services. Younger people were seen as more comfortable using digital tools and more open to immersive and online career exploration formats.

At the same time, counsellors in all countries warned about the growing risk of digital exclusion. Older workers, people with low digital literacy, migrants, refugees, and socially disadvantaged groups were frequently identified as facing the greatest barriers.

Spain and Ireland particularly emphasised that many clients still struggle with very basic digital tasks such as using email, creating online applications, or navigating job portals. In these contexts, AI-supported guidance can only be effective if foundational digital competences are first developed.

Sweden highlighted the positive role of immersive technologies for migrants and people unfamiliar with local labour-market cultures. VR and 360° workplace simulations were seen as especially useful for reducing language barriers and improving understanding of workplace expectations.

In Ukraine, digital tools play an especially important role for populations affected by war, including internally displaced persons, veterans, and people undergoing forced career transitions. AI-supported career systems were viewed as important instruments for labour-market reintegration and psychological empowerment.

Austria and Lithuania highlighted the motivational value of immersive technologies. VR-based workplace simulations and virtual career exploration were described as effective ways to engage young people who are otherwise difficult to reach through traditional guidance methods.

Despite the growing role of technology, counsellors in all countries strongly emphasised that human mediation remains indispensable.

Clients continue to need:

- emotional support,
- confidence-building,
- interpretation of complex information,
- contextualisation of AI-generated results,
- and help making meaningful career decisions.

The consensus across countries was that technology can enhance access and efficiency, but it cannot replace the relational dimension of career guidance.

Competences and Professional Development Needs

All countries identified a growing need for new competences among career guidance professionals. Digital competence is no longer viewed as optional but as a core professional requirement.

The most frequently mentioned competences included:

- digital literacy,
- AI literacy,
- critical media competence,
- virtual communication skills,
- data interpretation,
- prompt engineering,
- and the ability to critically evaluate AI-generated outputs.

Counsellors also stressed the importance of soft skills such as:

- adaptability,
- openness to innovation,
- critical thinking,
- ethical awareness,
- and lifelong learning.

A major common finding was that professional development structures are still insufficient in most countries.

Austria stood out as having comparatively well-developed professional training opportunities specifically tailored to guidance professionals. Austria has organised AI workshops and practical upskilling initiatives involving hundreds of counsellors.

Sweden also showed relatively advanced professional development structures, particularly regarding ethical AI use, digital counselling methods, and governance issues.

In contrast, Spain, Ireland, Lithuania, and Ukraine reported that much professional learning still occurs informally or through self-directed experimentation. Practitioners frequently expressed the need for:

- more practice-oriented training,
- peer exchange,

- hands-on workshops,
- and opportunities to experiment with AI and immersive technologies in safe learning environments.

Ukraine additionally highlighted the urgent need to develop formal methodological frameworks for integrating VR and advanced AI systems into career guidance practice. Across all countries, counsellors stressed that technological competences must be integrated with human-centred counselling skills rather than treated as purely technical abilities.

Inclusion, Diversity, and Ethical Considerations

Ethical and inclusion-related concerns were central themes across all interviews and focus groups. Counsellors consistently recognised both the opportunities and risks associated with AI, VR, and AR in guidance.

Common ethical concerns included:

- algorithmic bias,
- lack of transparency,
- misinformation,
- data protection risks,
- over-reliance on automation,
- and unequal access to technology.

Across all countries, practitioners emphasised that AI systems may reproduce existing inequalities if they are trained on biased data or implemented without sufficient human oversight.

Sweden demonstrated the strongest focus on governance, transparency, and ethical AI regulation. Ethical oversight and GDPR compliance were deeply embedded in discussions about technological innovation.

Austria also strongly emphasised critical media literacy and ethical reflection. Austrian experts highlighted the growing need for counsellors to act as critical interpreters of digital information environments.

Spain and Ireland focused heavily on social inequality and digital exclusion. Practitioners warned that vulnerable groups could become increasingly marginalised if career services become too technology-driven without sufficient human support.

Ukraine presented unique concerns related to trust, data security, and psychological profiling. While advanced AI systems such as LITI offer innovative possibilities, experts acknowledged concerns about how automated systems interpret human personality and behaviour.

Lithuania highlighted regional inequalities and differences in access between urban innovation centres and smaller regional areas.

Despite these concerns, counsellors across all countries generally viewed technology positively when implemented responsibly and inclusively. The overall consensus was that ethical, human-centred, and critically reflective use of AI and immersive technologies is essential for the future of career guidance.

Overall Conclusion

The combined analysis of desk research and expert interviews shows a high degree of convergence across countries in terms of direction, but significant divergence in implementation.

All countries recognise the transformative potential of AI, VR and AR, but they differ in how these technologies are integrated into systems and practices. AI is already reshaping career guidance, while VR and AR are still emerging.

The most important finding, however, is that the transformation of career guidance is not primarily technological, but professional and organisational. The increasing complexity of digital environments requires new competences, new roles, and new forms of practice. Career counsellors are becoming key actors in mediating between technology and users. Their ability to critically assess, interpret, and contextualise digital information is essential for ensuring that technological innovation leads to better and more inclusive guidance services.

At the same time, the findings highlight the urgent need for systematic competence development. Without adequate training and support, the potential of new technologies cannot be fully realised.

In conclusion, the future of career guidance lies in the successful integration of human expertise and digital tools. Achieving this requires not only technological innovation, but also investment in people, competences, and inclusive systems.