



International
Labour
Organization

REPORT BRIEF

Assessment of 21st Century Skills Across Emerging Sectors **Tourism Sector**

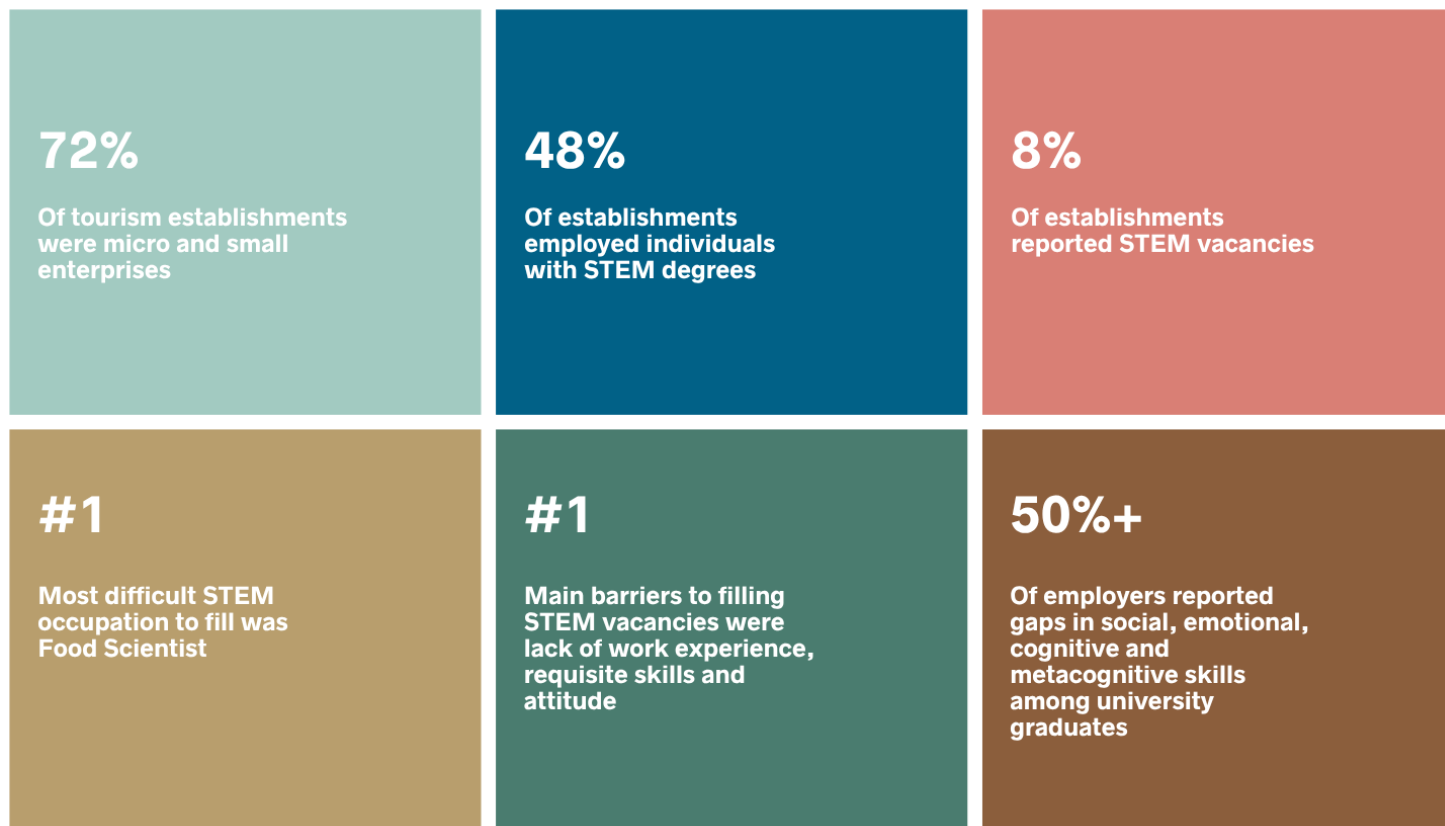
Volume 2

Key points

- Technological change, including the adoption of artificial intelligence (AI), virtual and augmented reality (VR/AR), data analytics and digital platforms, is driving increased demand for digitally literate and adaptable, multi-skilled workers in the tourism sector. However, uptake remains constrained among small and micro-enterprises, primarily due to cost barriers and limited skills capacity.
- Demand for STEM occupations remains modest but is rising in areas linked to digitalisation and sustainability, including environmental scientists, food scientists and software developers. Employers report persistent difficulties in sourcing candidates with strong STEM backgrounds, particularly in computer science/IT and engineering.
- Recruitment is constrained by a shortage of job-ready candidates, with employers reporting insufficient work experience, skills mismatches and weak work attitudes as key barriers to filling vacancies. Skills mismatches are evident across cognitive and socio-emotional domains, with gaps in strategic thinking, self-reflection and learning to learn, emotional intelligence, and collaboration and teamwork.
- Strengthening technical and vocational education and training (TVET) and school-to-work transition pathways through expanded work-based learning opportunities, industry partnerships and improved curriculum alignment, is critical to enhancing job readiness and responding to the evolving needs of the sector.



HEADLINE STATISTICS



INTRODUCTION

At the global level, tourism is rapidly evolving, driven by technological disruption, climate change, and changing traveler expectations. The sector remains a principal driver of income generation and employment across the Caribbean and a key component of national development agendas. In Trinidad and Tobago, while not the primary economic driver, tourism plays an important role, particularly in Tobago's hospitality industry. Data from the World Travel and Tourism Council indicate that the sector contributed 7.3% to GDP in 2023. It also serves as a significant source of employment across the country. These trends highlight an opportunity to position tourism as a driver of innovation and sustainable development, supported by a future-ready workforce aligned with national economic diversification goals.

The Assessment of 21st Century Skills Across Emerging Sectors: Tourism Sector, conducted by NIHERST in collaboration with the ILO (2023–2025), gathered data from tourism establishments in Trinidad and Tobago using an establishment skills survey aligned with standards of the International Labour Office Geneva, the European Training Foundation, and the European Centre for the Development of Vocational Training. The survey frame was developed using business listings from the Central Statistics Office, the National Agricultural Marketing and Development Corporation, and the National Training Agency, with the sample selected through systematic random sampling. Data collection was conducted through structured, face-to-face interviews with employers and senior managers, examining firm characteristics, workforce composition, job vacan-

cies, recruitment challenges, core skills needs, skills mismatches, and current and projected demand for Science, Technology, Engineering and Mathematics (STEM) occupations.

The findings highlight persistent recruitment challenges driven by shortages of experienced workers and job-ready entrants, alongside notable skills mismatches in areas such as customer service excellence, digital competencies, and problem-solving. Employers report that evolving technologies and shifting visitor expectations are increasing demand for adaptable, multi-skilled workers, while gaps in practical training and industry alignment with the education and TVET systems continue to constrain the sector's ability to meet labour demand effectively. Addressing skills mismatches and labour shortages requires coordinated action across education systems, industry, and policymakers.



FIRM CHARACTERISTICS AND WORKFORCE COMPOSITION

Participants of the study are predominantly micro and small enterprises, with over half employing fewer than 10 workers and a further share employing between 10 and 24 employees. The length of time in operation reveals a mix of businesses established

for more than 10 years and emerging businesses, suggesting both stability in the industry with ongoing opportunities for expansion and development. The main activities are accommodation (48%), food and beverage (23%), and tour operations (15%), highlighting a service-oriented nature.

Employment structures are heavily weighted toward managers, clerical support, and service and sales workers, with relatively low representation in professional and technical roles, indicating limited internal capacity for innovation and technological adoption. Women are most represented in managerial, clerical, and service roles while men are more represented in professional and technical roles. As the sector becomes more technology-driven, this indicates a need to upskill workers, especially women, to meet the growing demand for ICT-related skills.

JOB VACANCIES AND RECRUITMENT CHALLENGES

VACANCY PROFILE

Employers reported relatively low overall vacancy levels (27% of establishments) at the time of the survey. Moreover, vacancies were concentrated on operational and service roles. Professional roles, followed by technician and associate professional positions, although less demanded, were considered difficult to fill. These positions require a combination of formal qualifications and practical experience, which many job candidates lack. This indicates that although demand for highly specialised roles remains limited, the available supply is insufficient when such needs arise, reflecting underlying structural gaps in education and training.

MAIN RECRUITMENT BARRIERS

A shortage of qualified candidates, lack of relevant work experience, and insufficient applicants with the required attitude, motivation or personality were

identified by employers as the main barriers for successful recruitment. Difficulties in hiring by occupational group were reported as most pronounced among professionals, followed by technicians and associate professionals. Furthermore, poor terms and conditions (e.g. salary) offered for these positions were also identified as significant barriers to recruitment, especially for STEM related occupations. These findings suggest that recruitment challenges are not only driven by limited labour supply, but also by gaps in job readiness and core employability skills among applicants.

CORE SKILLS NEEDS AND MISMATCHES

KEY SKILLS

Employers placed strong importance on communication, marketing and IT skills, as these enable workers to effectively respond to key internal drivers of change, including people management, profitability, and the use of technology. Employers also highlighted critical thinking, environmental awareness, and organisational skills as essential for enabling workers to respond effectively to the main external drivers of change: competition, climate change, and the economic environment. These findings underscore the growing importance of a combination of technical, cognitive, and interpersonal skills to support business resilience and adaptation in a dynamic operating environment.

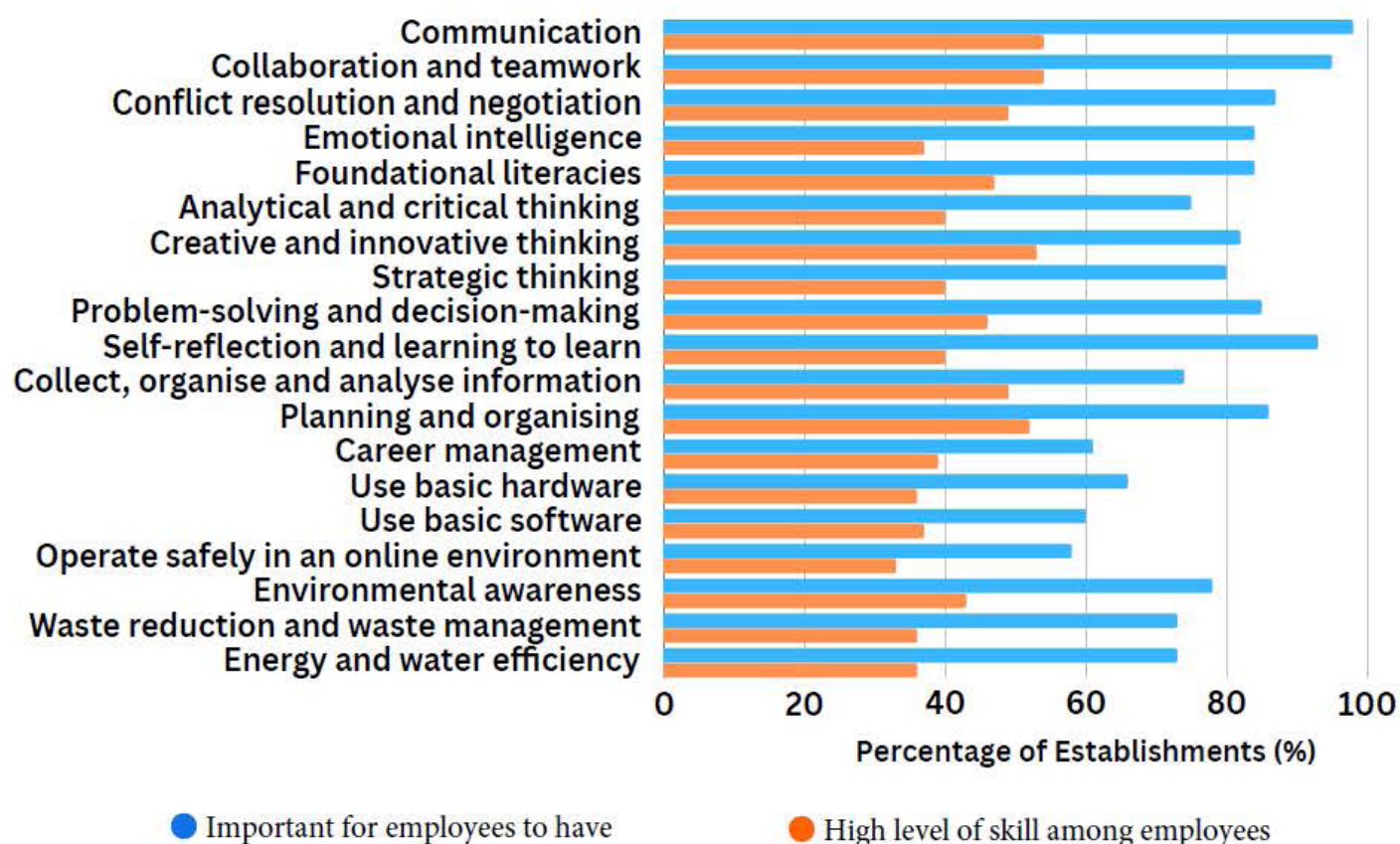
LARGEST SKILLS GAPS (IMPORTANCE X PROFICIENCY)

Survey respondents were asked to assess the extent to which core skills are present among recent graduates (2021–2023) applying to vacancies in their establishments. While basic digital and green skills were generally more available, the results indicate moderate to high levels of difficulty in sourcing analytical and critical thinking, conflict resolution and negotiation, emotional intelligence and strategic thinking skills among recent graduates. In addition,

skills such as problem-solving and decision-making, as well as planning and organising, were frequently reported as somewhat difficult to obtain. These findings suggest that graduates often lack key cognitive and social-emotional skills required to perform effectively in dynamic service-oriented environments. Survey respondents were also asked to assess the proficiency of their staff in a set of core skills. The largest gaps were observed in self-reflection and learning to learn, emotional intelligence, communication, collaboration and teamwork and strategic thinking, where the differences between employer expectations and the perceived workforce proficiency are more pronounced. These findings indicate that while employers place high importance on a broad range of competencies, including cognitive, interpersonal, and adaptive skills, current workforce capability remains insufficient to meet evolving current and future business demands, especially driven by technological advancements.



ESTIMATED SKILLS GAPS (IMPORTANCE OF SKILLS TO MEET BUSINESS GOALS X PROFICIENCY LEVEL AMONG EMPLOYEES)



TECHNOLOGICAL ADVANCEMENTS IN THE SECTOR

Emerging technologies such as automation, digital platforms, and data-driven systems are transforming production processes and job roles across the tourism sector. The study highlights the growing influence of technologies including Artificial Intelligence (AI), Virtual and Augmented Reality (VR/AR), the Internet of Things (IoT), blockchain, big data analytics, mobile applications, and renewable energy solutions, which are enhancing operational efficiency, customer experience, and sustainability. As businesses begin to adopt these tools, such as AI-enabled customer service, data-driven marketing, and digital booking platforms, there is an increasing demand for workers with digital literacy, data analysis,

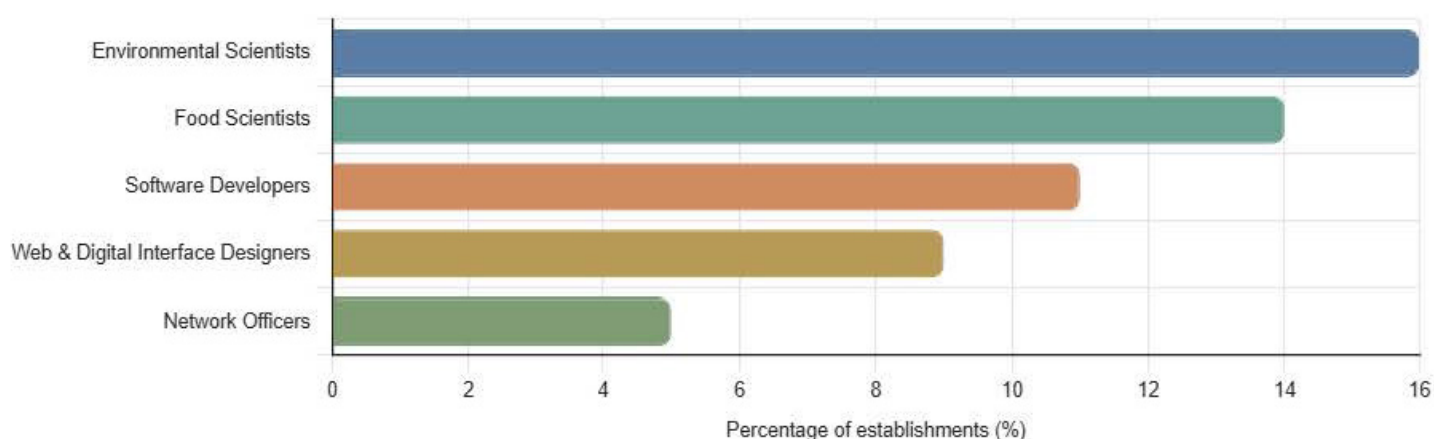
and technology management skills. However, the findings also point to constraints in adoption, particularly among micro and small enterprises, due to cost, limited digital infrastructure, and skills shortages. This underscores the need for targeted investment in workforce upskilling and reskilling, to support the sector's technological transition.

DEMAND FOR STEM LABOUR

Demand for STEM related occupations in the tourism sector is estimated to increase, reflecting a growing emphasis on sustainability and digital transformation. The study finds that current demand for STEM

skills is concentrated primarily in food and agriculture-related occupations and the natural sciences. Looking ahead to the next five years, employers identified environmental scientists, food scientists and software developers as priority occupations.

MOST IMPORTANT STEM OCCUPATIONS FOR ESTABLISHMENTS IN THE NEXT 5 YEARS



Employers also report persistent challenges in recruiting candidates with strong STEM qualifications, particularly in IT and engineering. While many firms indicate that they employ individuals with STEM credentials, the overall number of workers engaged in STEM related occupations remains limited. This points to a low absorption capacity for STEM talent within establishments. The resulting gap reflects both a constrained demand structure in the short term and weaknesses in the availability of a skilled workforce, which may undermine the sector's capacity to support future technological advancement and the transition towards more sustainable practices.

TVET FINDINGS

Technical and Vocational Education and Training (TVET) systems play a key role in workforce preparation. However, the study indicates important limitations in the availability and alignment of TVET provision for the tourism sector. Response rates to the

TVET module were low, suggesting limited engagement and visibility of TVET pathways among employers. Among those who responded, only a minority considered TVET graduates to be well prepared for work, while many indicated only partial readiness. Employers reported some difficulty in obtaining key competencies from TVET graduates, particularly in areas such as transdisciplinary thinking, leadership, service orientation, project management, and adaptability to global standards. Gaps were also observed in practical, work-based skills, reflecting insufficient exposure to real workplace environments during training. These findings point to weaknesses in the alignment of curricula with industry needs, limited hands-on training opportunities, and loose institutional linkages between training providers and employers.

RECOMMENDATIONS

Employers identified a range of measures to support the development of a future-ready workforce for the tourism sector. They emphasise, among others, the need for more practical and industry relevant training, including apprenticeships and internships, as well as stronger partnerships between education and training institutions and the private sector to ensure that training programmes respond effectively to evolving labour market demands. In addition, the study outlines broader actions based on the findings. The following priority actions are proposed for consideration by policymakers, education and training institutions, industry stakeholders and social partners.

INVEST IN UPSKILLING AND RESKILLING PROGRAMMES FOCUSED ON DIGITAL AND TECHNICAL COMPETENCIES

This includes strengthening competencies in ICT, data analytics, digital marketing, and emerging technologies such as artificial intelligence and virtual reality, which are increasingly relevant to tourism operations. Training provision should be practical, demand-driven, and accessible, targeting both new labour market entrants and the existing workforce to enhance digital literacy, problem-solving, and the effective use of technology in the workplace. In light of reported skills shortages, training interventions should be aligned with industry requirements and delivered through flexible modalities, including short courses, work-based learning, and partnerships with employers. Targeted support measures are also required for micro and small enterprises, which may face capacity constraints in workforce development, alongside efforts to promote inclusive access to training opportunities for women and youth.

Improve labour market information systems to better anticipate and respond to skills demand

Strengthen collection, analysis and dissemination of timely tourism specific labour market data, including vacancies, skills requirements, recruitment difficulties and emerging occupations. The study identifies data gaps and low response rates, particularly in TVET, which constrain effective skills planning. Regular employer surveys and sectoral skills assessments, alongside improved coordination among statistical offices, education and training institutions, ministries and industry associations, are needed to support an integrated labour market information system. Ensuring that labour market intelligence is accessible to training providers, employers and job-seekers is essential to inform curriculum development, career guidance and skills investment aligned with the evolving needs of the tourism sector.

PROMOTE STEM EDUCATION FROM PRIMARY SCHOOL AND STRENGTHEN CAREER GUIDANCE TO INCREASE THE SUPPLY OF QUALIFIED CANDIDATES

The study highlights persistent gaps in advanced cognitive skills among graduates, indicating the need to embed these competencies more systematically across all levels of education. Early integration of STEM at primary and secondary levels is key to strengthening foundational problem-solving, digital literacy and critical thinking. Enhanced career guidance is also required to raise awareness of emerging STEM-related occupations in tourism, including environmental science, digital design and software development. Improving pathways between secondary, TVET and tertiary education and the labour market through internships, mentorship and work-based learning can help address the lack of practical experience reported by employers. Targeted measures are further needed to increase the participation of women and youth in STEM fields, supporting a more inclusive skills base aligned with the sector's technological and environmental transition.

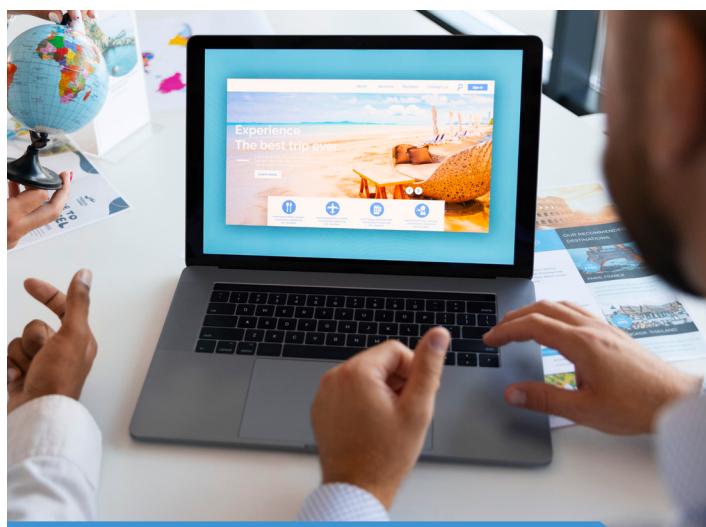
SUPPORT FIRMS IN ADOPTING NEW TECHNOLOGIES THROUGH TARGETED WORKFORCE DEVELOPMENT INITIATIVES

Drawing on the findings of the study, which highlight low levels of STEM employment, emerging demand for digital and environmental skills, and persistent difficulties in sourcing candidates with relevant experience, these initiatives should prioritise the development of practical competencies in digital tools, customer service technologies, data-driven marketing, and sustainable tourism practices. Training should be designed in close collaboration with industry and delivered through work-based learning modalities, including internships and apprenticeships, to strengthen job readiness and address the lack of practical experience identified by employers. Given the predominance of micro and small enterprises in the sector, targeted support is required to build their capacity to train and upskill workers, including through partnerships with training institutions and flexible training delivery. Strengthening pathways for continuous learning and certification in areas such as digital skills, environmental management, and service excellence will be critical to enhancing productivity, resilience, and competitiveness in the tourism sector.

STRENGTHEN INDUSTRY-TVET COLLABORATION TO ENSURE CURRICULA ALIGN WITH LABOUR MARKET NEEDS

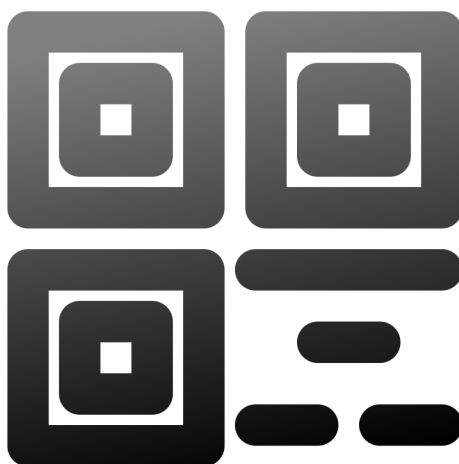
Strengthen structured collaboration between tourism employers, TVET institutions and training and certification bodies to ensure curricula reflect current and emerging industry needs, including digital systems, customer service technologies, data-driven marketing and sustainable tourism practices. The study identifies persistent gaps in practical skills, limited work experience and challenges in recruiting job-ready candidates, particularly for technical and

specialised roles. Establishing sectoral skills partnerships can support joint curriculum design, the definition of occupational standards and regular updates aligned with technological and sustainability priorities. Expanding work-based learning through internships, apprenticeships and on-the-job training is essential to improve job readiness and service quality. Joint investment in training infrastructure, instructor upskilling and recognition of prior learning should be promoted, with particular attention to micro and small enterprises and equal access, to support a skilled and competitive tourism workforce.



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