HUMAN CAPITAL
RESEARCH PROJECT

In collaboration with the
HSBC Malta Foundation

RECOMMENDATIONS

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LIST OF ABBREVIATIONS

AI	Artificial Intelligence
AR	Augmented Reality
ATM	Automated Teller Machine
BCIs	Brain–Computer Interfaces
CEDEFOP	European Centre for the Development of Vocational Training
CPD	Continuous Professional Development
COVID-19	Coronavirus Disease 2019
ECB	European Central Bank
EEA	European Education Area
EQF	European Qualifications Framework
ESCO	European Skills, Competences, Qualifications and Occupations
ESF+	European Social Fund Plus
ESG	Environmental, Social, and Governance
ESD	Education for Sustainable Development
EU	European Union
EVP	Employee Value Proposition
EY	Ernst & Young
EdTech	Educational Technology
EPSEN	Education for Persons with Special Educational Needs
Gen X	Generation X
Gen Z	Generation Z
HR	Human Resources
HSBC	Hongkong and Shanghai Banking Corporation
IEA	International Association for the Evaluation of Educational Achievement
ICT	Information and Communication Technology
ILO	International Labour Organisation
IMF	International Monetary Fund
ISCED	International Standard Classification of Education

ISCO	International Standard Classification of Occupations
IT	Information Technology
ITS	Institute of Tourism Studies
JSA	Jobs and Skills Australia
LFS	Labour Force Survey
MBO	*Middelbaar Beroepsonderwijs* (Dutch upper-secondary vocational education)
MCAST	Malta College of Arts, Science and Technology
MDIA	Malta Digital Innovation Authority
MEA	Malta Employers Association
MQF	Malta Qualifications Framework
MTL	Master's in Teaching and Learning
NGO	Non-Governmental Organisation
NSO	National Statistics Office (Malta)
OECD	Organisation for Economic Co-operation and Development
OER	Open Educational Resources
OJA	Online Job Adverts
ONS	Office for National Statistics (United Kingdom)
OVATE	Online Vacancy Analysis Tool for Europe
PhD	Doctor of Philosophy
PISA	Programme for International Student Assessment
PLCs	Professional Learning Communities
PQ	Parliamentary Question
R&D	Research and Development
SBA	School-Based Assessment
SEC	Secondary Education Certificate
SLS	Student Learning Space
SMEs	Small and Medium-sized Enterprises
SOC	Standard Occupational Classifications
STEM	Science, Technology, Engineering, and Mathematics
STEEP	Social, Technological, Economic, Environmental, and Political
TIMSS	Trends in International Mathematics and Science Study

TCNs	Third-Country Nationals
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
US	United States
VR	Virtual Reality
VET	Vocational Education and Training
VUEF	Victoria University Employment Forecasting
WEF	World Economic Forum
WHO	World Health Organization
WWII	World War II
XR	Extended Reality (VR, AR, and Mixed Reality)

INTRODUCTION

Malta's human capital challenge requires urgent attention. Although our education spending is among the highest in Europe, learning outcomes lag behind. An absolute minority of workers hold jobs corresponding to their educational level and field of study. Our brightest graduates are leaving for opportunities abroad. These disconnects between learning and working, between investment and results, threaten Malta's economic future.

Because of this, in 2021, we began investigating a pressing question: whether Malta's labour market could sustain its growth trajectory without fundamental changes in how we develop and deploy human talent. The labour market changes constantly due to the flux of new technologies, goods, services and consumer demands. These all require changes in the way businesses operate, and the updating of skills needed by workers to deliver efficiency within a changing working environment.

The Maltese labour market has changed in the past decades for different reasons. EU membership in 2004 compelled Malta to compete on a larger platform, stimulating operational reforms and drawing in new enterprises that required varied skill sets. The focus at the time was to entice more people, particularly women to the labour market. At the same time, Malta lost skilled professionals as they pursued opportunities abroad that our market could not match. In the last decade, a buoyant economy continued to encourage women and other inactive persons to enter the labour market, but due to an ageing population, a brain drain, and an ever-decreasing fertility rate, the rate of economic growth demanded an increase in the number of workers, and these came through immigration. These significant shifts in workforce composition prompted the HSBC Foundation to sponsor this Human Capital Research Project, assigning us the task of mapping pathways from Malta's quantity-driven growth model to a quality-focused economy founded on advanced skills and high-value services.

The project ignited crucial national discussions, introducing formerly academic concepts—transversal competencies, continuous reskilling, lifelong learning—into boardrooms, classrooms, and policy debates throughout Malta. Therefore, as researchers, we are pleased to see that this project has started a discussion, within every sphere of the economy, on what we need to do to see a better Malta for future generations.

The first presentation to the oversight committee was a preliminary analysis of the educational system and the labour market. The former examined the educational system: learning outcomes, early school-leaving rates, curriculum misalignments, and the persistent gap between qualifications earned and skills employers needed. The

latter looked at data featuring labour productivity, educational levels of the labour market participants, migrants and their contribution by sector and occupation, and forecasts about the labour market. These showed the current situation of the education sector and the labour market of Malta in 2021.

It has been a fruitful journey of discovery, commitment and hope.

THE FIRST REPORT

During the first year of the project, our focus was on the local environment and what the literature coming out of other countries and international institutions was saying about the future of work and skills. The report was divided into two sections, the first analysing the educational landscape and the second evaluating the labour market. The first report which was presented to the oversight committee of the HSBC Foundation in February 2022 and later presented at a Chamber of Commerce event titled Skills Rush, on 20 June 2022, provided the literature review of the national, EU, and global situation in terms of how technology was expected to impact jobs and skills and the role of education in the transformation process. The feedback from the oversight committee and the Chamber of Commerce event was very encouraging.

We will summarise some results to recall the opening up of the discussion on skills in Malta. It is worth remembering that the current National Skills Council was set up on 1 March 2023, the preliminary National Skills Survey 2022 report was published on 15 June 2023, and our first report was presented a year before. Our presentation brought to the fore the dire need not only to engage in this discussion but also to widen it to all the stakeholders involved.

The educational aspect provided the existing policies, data, objectives, and targets regarding the situation at the national, EU, and global levels, with the latter part also focusing on the role of large companies and how they perceive qualifications for a rapidly changing labour market. In recent years, we have seen an increase in online courses, digital certifications, and in-house institutionalised training, particularly with tech giants such as Google, Amazon and Microsoft. There are also trends for increased Open Educational Resources, as sustained by UNESCO to ensure more people have access to educational experiences.

From the labour market perspective, the work presented trends, policies, strategies and significant changes, again on the three levels, with powerful changes occurring due to technological advances, digitalisation, artificial intelligence, robotics, etc. The key takeaways from this analysis relate to global trends and initiatives, building on a digital transformation, hybrid working, changes in individuals' skill sets, upskilling and

reskilling, and aided through various forms of funding to strengthen the capabilities of workers.

In the interim period between the first and second report, we conducted a questionnaire with students and workers on what they felt they were lacking regarding skills and whether education was preparing them for the labour market. We had 484 respondents, with most of them in the 18-24 age group. It also showed that 90% of students work part-time. The results show that while they believe that from the educational perspective this prepares them for the acquisition of technical skills and what is missing they learn on the job, however, they feel they lack other skills such as time management, working in a team, communication, negotiation, creativity, problem solving: skills at the time referred to as soft skills, which we prefer to call transversal skills. These are the skills one carries from one job to another; in reality, we can also call them life skills. These results were presented and discussed with the oversight committee.

THE SECOND REPORT

The second report provided an extensive qualitative analysis of interviews held with different stakeholders, representing education, employers, and unions. One chapter presented the results of the three sectors individually, while another evaluated their responses to find similarities, commonalities, and differences.

The challenges of the current labour market derive from different spheres. First, the issue of inward migration was very sudden within the context of an already densely populated country and with an infrastructure unprepared for such a sudden increase in population. The other issue was outward migration, particularly of the brightest, leading to a brain drain. Unfortunately, only anecdotal evidence is available since no data actually exists on the level of educational loss incurred. The second challenge is due to a low fertility rate (at 1.06 in 2023, it was the lowest in the EU) and an ageing population, which meant a lower number of workers able to sustain the growing needs of the elderly. Family changes, such as single parents, more females in the labour market, developed without adequate family support in the form of family leave. However, childcare and other services were provided over time. Nonetheless, these did not take into consideration other needs when children are sick, or have days off from school, etc. There are many gaps in the overall structure of the family support system. Not all companies maintained remote working after the pandemic, and this would facilitate life-work balance if it were available where possible.

Another issue with the current labour market relates to the gig economy, where legal coverage may not be fully present, including problems with health and safety,

adequate working conditions for all types of workers, and the informal economy. The main problem with the market is related to skills, whether we are discussing skills gaps, level of skills needed, the importation of skills which may be unutilised, the loss of skills who emigrate, the skills mismatches in the economy, and the type of skills we are encouraging through the educational system, which all impact the level of productivity present in the various sectors of the economy.

The codes for employers indicated that they focused on labour challenges, migration issues, skills needs, discussion regarding the preparation process, education, and the local economy. The unions' concerns were related to their changing role, the employers' challenges, the future labour market, the lasting effect of Covid (at that point in time), education, future skills, reskilling and upskilling, and labour forecasts. The education representatives spoke of the positive and negative elements of education, the focus on primary education, effective learning and assessment methods, the examination structure, educational challenges, future skills, early school leavers, and how educational success is defined.

The thematic analysis then focused on four different areas: the challenges of the current labour market; issues related to future employment; the current educational setting; and an educational vision. The key insights derived from the findings include the challenges of skills mismatches, skills shortages and the unsustainability of immigration in the long term. In terms of skills development, one needs to take into account the complacency of both employers and employees, the costly perception of upskilling and reskilling, and employee reluctance when they feel secure in their jobs. Education does not adequately prepare individuals for the labour market, learning by rote and old-school curricula are not cutting it, and there is a lack of collaboration with employers. There is a need for more multi-stakeholder collaboration, requiring a concerted effort, to prepare people to be agile and adaptable. Finally, three specific areas for development were identified: identifying and addressing skills gaps; promoting lifelong learning; and reforming the educational system to include the acquisition of transversal skills.

Another presentation under the Skills Rush framework was made at the Chamber of Commerce in July 2023. The second report was presented to the oversight committee in late 2023.

THE FINAL REPORT

This final report, similar to the first one, splits up the discussion on education and the labour market, providing two extensive sections. International experiences are provided under the education chapter, focusing on changes that are happening

there, what reforms are occurring in education, and how Malta can benefit from a refocusing of the content, methodology and skills realignment of the educational system. For the labour market, several interviews were held with international institutions such as the International Labour Organisation, CEDEFOP, and skills councils in different parts of the world.

At the end of the day, there is a need to get away from the silo mentality which often different sectors engage in and to favour more coordination and linkages between learning and working. We are living in a fast-paced world, and we cannot afford to wait, see what happens and adapt. This is not a time for catching up, but to be proactive. According to the annual EY survey held with foreign investors, the skills of Maltese employees were one of the top attractions for foreign direct investment; however, over the years, this continued to lose its high rank and now stands at ninth position, with only 32% of companies seeing its attractiveness. This should be a wake-up call, which indicates we need to upgrade our skills to reassert our potential and again become attractive for investors.

No more talk, we need real action. The data speaks clearly: Malta cannot afford further delays in addressing skills gaps that constrain our competitiveness.
Apart from this introduction, which summarises the project thus far, there are two extensive sections: the first on education and the second on the labour market. Each of these two sections provides several recommendations for the respective areas. The final section concludes.

THE FUTURE OF EDUCATION

STRATEGIC CONTEXT

Global Foresight in Education

Understanding the trajectory of global education is essential for crafting effective national strategies, particularly for a nation as interconnected and influenced by international currents as Malta. Worldwide trends and the visions of major international organisations will inevitably shape the future of education in Malta.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) has launched a significant global initiative, "Reimagining our futures together: A new social contract for education" aiming to reimagine the role of knowledge and learning in shaping the destiny of both humanity and the planet, with a focus extending to the coming decades and beyond(UNESCO, 2021a). This initiative is critically important as it establishes a globally recognised framework for fundamentally rethinking education in response to complex and pressing challenges. These include the escalating climate crisis, the rapid advancement and increasing pervasiveness of artificial intelligence, and the widening disparities and divisions within societies[1]. At the heart of UNESCO's vision is the urgent call for a "new social contract for education," rooted in human rights and fundamental freedoms and ultimately provides a fresh framework for informed and transparent action. The word "together" in UNESCO's reports emphasises a significant shift towards more collaborative and inclusive approaches to education at all levels. This recommends that Malta's future education system actively cultivate collaboration and foster a sense of shared responsibility among all stakeholders, including students, educators, policymakers, families, and the wider community. This collective approach is essential for effectively addressing the multifaceted challenges and opportunities ahead.

UNESCO's reports compellingly highlight the urgent need for a fundamental transformation of education systems worldwide to confront global challenges effectively. These challenges, while daunting, also present unique opportunities for Malta's education system to evolve and adapt. Equipping students with the necessary skills, knowledge, and competencies to navigate these complexities will be crucial for their future success and the nation's overall well-being. Furthermore,

[1] https://www.unesco.org/en/renewing-education-transform-future

as articulated by UNESCO, the call to rebalance our relationships with technology carries significant implications for Malta's educational future. It suggests a need to move beyond simply integrating digital tools into the classroom. Instead, Malta's education system should prioritise fostering responsible and ethical engagement with technology, ensuring that learners understand its potential benefits and risks critically. This includes proactively addressing the moral and governance concerns that arise from the increasing use of Artificial Intelligence (AI) and other digital innovations. UNESCO also accentuates the fundamental principle that knowledge and learning are global common goods, representing inexhaustible resources that become more valuable when shared. Moreover, education is a basic human right and the foundation for building peace and fostering sustainable development. This reinforces the critical importance of ensuring equitable access to quality education for all individuals within Malta, regardless of their background or circumstances, and highlights the key role of education in cultivating a peaceful, just, and sustainable society.

The Organisation for Economic Co-operation and Development (OECD) offers another crucial perspective on the future of education and skills. Their "Future of Education and Skills 2030/2040" project[2] is designed to nurture a shared understanding of the essential knowledge, skills, attitudes, and values students will require to thrive in the 21st century. The OECD's work holds significant relevance for Malta as it provides valuable insights into the competencies that will be in demand for future jobs and for effectively addressing complex societal challenges in an increasingly interconnected world. The project's emphasis on "21st-century competencies," such as critical thinking, creativity, collaboration, and communication, builds further on Malta's already established curriculum to evolve beyond traditional knowledge acquisition. It cultivates these transversal skills for adaptability and problem-solving in a rapidly changing global landscape. The OECD Learning Compass 2030 provides a comprehensive framework for these competencies, emphasising the development of student agency and overall well-being. This framework can serve as a valuable guide for Malta in developing a future-oriented curriculum that empowers students to take ownership of their learning journeys and prioritises their holistic development and well-being.

The OECD's "Trends Shaping Education" report further highlights the global megatrends currently transforming societies worldwide, including geopolitical tensions, escalating ecological crises, and the relentless pace of technological advancements (OECD, 2025). The report raises pertinent questions about the crucial role of education in fostering resilience among learners and promoting social cohesion and respect for diversity in an increasingly uncertain and unstable world.

[2] https://www.oecd.org/en/about/projects/future-of-education-and-skills-2030.html

These trends are particularly relevant for Malta, given its strategic geopolitical location in the Mediterranean and its inherent vulnerability to the impacts of climate change[3]. The Maltese education system, therefore, needs to equip students with the knowledge, skills, and attitudes necessary to navigate these complexities and contribute to building a more secure and sustainable future. Moreover, the report highlights the increasing fragmentation of the media landscape and the pervasive rise of social media platforms. This stresses the importance of developing strong critical thinking and media literacy skills within Malta's education system. Such skills are essential for empowering students to discern reliable information from misinformation effectively, navigate the digital world responsibly, and engage with diverse perspectives thoughtfully.

The World Bank also contributes significantly to the global discourse on the future of education, with a particular focus on learning outcomes and financing. Their "Education Finance Watch" reports meticulously track global trends in education spending, consistently highlighting the critical need for more adequate, efficient, and equitable investment in education, especially in low-income countries (World Bank, 2024). While Malta's economic context differs from that of low-income nations, the World Bank's emphasis on efficiency and equity of spending remains highly relevant to ensure its education system's long-term sustainability and fairness. The World Bank's vision, articulated in "Realizing the Future of Learning," paints a picture of education where learning is a joyful, purposeful, and rigorous experience accessible to everyone, everywhere (World Bank, 2021). This vision is underpinned by five interconnected pillars of a well-functioning education system: learners, teachers, learning resources, schools, and system management. This aligns closely with Malta's goals of providing quality and inclusive education for all its citizens.

Furthermore, the World Bank's dedicated report on "Education for Climate Action" powerfully highlights education's crucial role in empowering young people to participate actively in climate change mitigation and adaptation (Shwetlena Sabarwal Sergio Venegas Marin & Ambasz, 2024). Given Malta's acknowledged vulnerability to the adverse effects of climate change, integrating comprehensive climate education into the curriculum is not merely desirable but essential for building a sustainable future. The World Bank's strong emphasis on addressing learning poverty carries significant implications for Malta. While Malta boasts a relatively high rate of access to education across all levels, ensuring equitable learning outcomes for all students, regardless of their socio-economic backgrounds, necessitates focused attention on identifying and addressing potential barriers to learning while fostering a strong motivation to learn from an early age.

[3] https://www.eib.org/en/press/all/2024-423-over-three-quarters-of-maltese-respondents-view-climate-adaptation-as-a-national-priority-eib-survey-shows

European Union and Regional Outlook on Education

As a member of the European Union, Malta's education system operates within the broader framework of EU policies and initiatives to foster collaboration and improve education and training across the region. The European Education Area (EEA) is a key strategic framework (European Commission, 2021). The EEA's overarching goal is to promote enhanced cooperation among EU Member States to build more resilient and inclusive national education and training systems, with a target date for achieving this vision set for 2025[4]. Being an integral part of the EU, Malta is expected to align its national education policies and strategies with the strategic priorities and targets outlined within the EEA framework to foster a cohesive and high-quality educational landscape across Europe. The EEA's strategic focus on several key areas provides a clear direction for Malta's educational development in the coming years[5]. These priorities strongly emphasise improving the overall quality and equity of education and training systems, providing comprehensive support for teachers, trainers, and school leaders, enhancing the integration of digital education, and promoting education for environmental sustainability and the green transition. Hence why Malta's national education strategies (Ministry for Education Sport Youth Research & Innovation, 2024b) actively consider and integrate these EU-level priorities to leverage the benefits of regional collaboration and access potential EU funding opportunities.

The EEA has established specific targets for Member States to achieve by 2025 and 2030 in critical areas, such as reducing the rate of early school leavers, increasing tertiary education qualifications, and enhancing digital skills among the population. Malta's progress towards meeting these key benchmarks is continuously monitored, and these assessments should inform the ongoing development and refinement of future national education strategies (Central Bank of Malta, 2022a) . The EU's Digital Education Action Plan (2021-2027) represents another significant policy initiative that supports the adaptation of Member States' education and training systems to embrace the digital age effectively (European Commission, 2021). The plan focuses on two primary strategic priorities: fostering the development of a high-performing digital education ecosystem and significantly enhancing digital skills and competencies for the ongoing digital transformation. This action plan is particularly relevant to Malta's national digital education strategy and its ongoing efforts to further integrate technology into all levels of education (Ministry for Education Sport & Innovation, 2024a). A crucial aspect of the EU's Digital Education Action Plan is its emphasis on developing and implementing ethical guidelines for using AI and data in teaching and learning environments. This consideration is paramount for Malta as it

[4] https://epthinktank.eu/2023/01/12/taking-stock-of-progress-towards-the-european-education-area/

[5] https://education.ec.europa.eu/about-eea/strategic-framework

increasingly explores and integrates AI into its digital education initiatives to enhance learning experiences and administrative efficiency.

The European Union provides substantial financial support for education and skills development across its member states through various funding programmes, notably Erasmus+[6] and the European Social Fund Plus (ESF+)[7]. Malta has significantly benefited from these EU funding streams over the years, which have played a crucial role in developing and modernising its educational infrastructure, investing in new learning technologies, and expanding opportunities for vocational education and training. Continued access to and the effective management of these EU funds will be vital for supporting the future development and sustainability of Malta's education system in the coming decades.

Beyond the European Union, the Council of Europe also plays a significant role in shaping the regional outlook on education. Their Education Strategy 2024-2030, aptly titled "Learners First," aims to cultivate a strong culture of democratic participation among all learners across its member states to safeguard and strengthen democratic values (Council of Europe, 2024). The strategy focuses on three key pillars: renewing the democratic and civic mission of education, enhancing the social responsibility and responsiveness of education systems, and advancing education through a human rights-based digital transformation. This strategy aligns closely with the EU's emphasis on promoting inclusion, developing digital skills, and fostering active citizenship among learners, providing another critical regional framework that can inform and guide Malta's national education policies and priorities. A central focus of the Council of Europe's "Learners First" strategy is the development of three key dimensions in every learner: the "civic" learner, equipped with the knowledge and skills for democratic participation; the "intercultural global" learner, fostering understanding and respect for diversity; and the "digital" learner, capable of navigating the digital world responsibly and ethically. This highlights the need for Malta's education system to actively cultivate these essential dimensions in its students to effectively prepare them for the complexities of an increasingly diverse, interconnected, and digital world. Malta's educational goals should reflect these priorities to ensure graduates are well-rounded individuals equipped for personal and societal success.

[6] https://erasmus-plus.ec.europa.eu/

[7] https://european-social-fund-plus.ec.europa.eu/en

Malta's Current Education Landscape

Malta's "National Curriculum For All"[8] is structured across four educational cycles, catering to learners of all ages. These cycles include the Early Years Cycle (Kindergarten I & II), the Junior Years (Year 1 to 6), the Middle School (Year 7 to 8) and the Secondary School Cycle (Year 9 to 11). In Malta, school attendance is legally mandated for all children until age 16, ensuring universal access to basic education (Ministry for Education, Sport, Youth Research & Innovation, 2024b). The educational landscape in Malta comprises a diverse range of schooling options, including state-run schools, church-affiliated schools, and independent private institutions. A significant feature of the Maltese education system is free state education from the pre-primary to the tertiary level, making education accessible to all citizens regardless of socio-economic background. Historically, Malta's education system has been significantly influenced by the British Curriculum, which is still broadly followed in many schools. This influence is evident in the wide range of subjects taught and the traditional reliance on examinations to assess student progress.

Malta's National Education Strategy for the period 2024-2030 represents the nation's current vision and roadmap for the future of its education system. This comprehensive strategy is built upon three fundamental pillars: Wellbeing, Growth & Empowerment, and Equity & Inclusion, with a long-term perspective extending to the year 2050. The strategy is designed to address the evolving demands placed on the education system and to adequately prepare students for the rapid economic, environmental, and social changes that lie ahead. A key focus of the strategy is the emphasis on well-being, recognising the crucial importance of both students' and educators' mental and emotional health for fostering effective learning and teaching environments. This signals a future direction for Maltese education that prioritises a holistic approach to individual development, acknowledging that well-being is integral to academic success and personal growth. The strategy also aims to move away from isolated educational initiatives towards establishing accredited programmes that are precisely aligned with the attitudes, knowledge, skills, and values essential for individuals to flourish in the world of 2030 and beyond. This shift indicates a commitment to a more structured and future-oriented curriculum design and delivery approach. Furthermore, equity and inclusion are at the heart of the National Education Strategy. It reflects a strong commitment to addressing existing social fragmentation and inequalities within the education system and ensuring all learners have the opportunities and support they need to reach their full potential.
In terms of baseline data, during the scholastic year 2021/22, 87,022 students were enrolled in non-compulsory and compulsory education across Malta[9]. This figure

[8] https://curriculum.gov.mt/wp-content/uploads/2024/07/NCF.pdf

[9] https://storymaps.arcgis.com/stories/6775b033a0f44ff6868abad1a5a708ab

highlights the significant scale and reach of the nation's education system. Over the past decade, Malta has witnessed a notable improvement in the overall educational attainment of its population. There has been a significant decrease in the proportion of individuals with only a basic level of education, coupled with a substantial increase in the number of people attaining tertiary education qualifications(Central Bank of Malta, 2022a). While this positive trend indicates considerable progress in raising educational standards, it is essential to note that Malta still lags behind some of the key educational benchmarks set by the European Union. One persistent challenge for Malta has been the rate of early school leavers, which finally reached the EU[10] average of 9.5% (down from 33% two decades ago). Addressing this issue remains a key priority for the Maltese education authorities. Interestingly, Malta's expenditure on education as a percentage of its total public spending is among the highest within the European Union (European Commission, 2023). However, despite this significant investment, the overall educational outcomes achieved in Malta are still reported to be below the EU average. This suggests a potential need to re-evaluate the efficiency and effectiveness of educational spending and pedagogical practices to ensure that the substantial financial commitment translates into improved student learning outcomes.

Performance data from the Programme for International Student Assessment (PISA) (OECD, 2024) indicates that a considerable proportion of Malta attain at least Level 2 proficiency in mathematics, demonstrating a basic level of understanding. However, the percentage of students who reach the highest levels of performance in mathematics remains lower than the average across OECD countries. Furthermore, PISA results reveal that a student's socio-economic background can still significantly influence their academic performance, highlighting existing equity gaps within the system. On a positive note, most students in Malta have benefited from at least one year of pre-primary education, which provides a crucial early foundation for their subsequent learning journey.

Malta within Global and Regional Macro-trends

Malta is operating within a rapidly evolving global and regional context, shaped by significant macro-trends that will profoundly influence the future of its education system. These trends include technological advancements, demographic shifts, the escalating impacts of climate change, and the ever-changing economic landscape.
Malta's economy increasingly embraces digital technologies, positioning itself as a growing hub for innovation and technological development. This economic transformation necessitates a workforce that is not only digitally literate but also

[10] https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20240523-1

possesses advanced digital skills to drive future growth and competitiveness. Consequently, integrating digital literacy and skills development has become a crucial priority within Malta's education system. Recognising this imperative, Malta has launched a comprehensive Digital Education Strategy (Ministry for Education Sport Youth Research & Innovation, 2024a) focusing on four key pillars: nurturing digital global citizens, empowering educators for the 21st Century, community engagement and collaboration and enriching digital resources. This strategic framework aims to equip students with the essential technological fluency to navigate and thrive in an increasingly digital world. Integrating technology into Maltese classrooms is already well underway, with various initiatives such as the "One Device Per Child" programme ensuring that students can access digital learning tools from a young age.

Furthermore, the growing use of e-learning platforms provides students with flexible access to educational resources and opportunities for online collaboration. This increasing reliance on technology in education presents significant opportunities for fostering more personalised and inclusive learning experiences for all students. However, it also underscores the critical need to address the existing digital divide and ensure equitable access to technology and reliable internet connectivity for all students, regardless of their socio-economic background. Moreover, successful technology integration requires ongoing professional development and support for educators to effectively leverage digital tools in their teaching practices, alongside robust measures to ensure cybersecurity and promote digital safety for all users within the education system.

Malta has experienced significant demographic shifts in recent years, marked by a consistent increase in migration (National Statistics Office Malta, 2023). This has led to a more diverse society characterised by a growing number of languages and cultures. Today, foreign nationals constitute a notable proportion of the overall school population. This increasing demographic diversity has profound implications for the education system, requiring a conscious and proactive adaptation to effectively cater to students' diverse linguistic and cultural backgrounds. While the Maltese education system has historically emphasised bilingualism, with both Maltese and English serving as official languages of instruction, the growing presence of multilingual learners necessitates re-evaluating pedagogical approaches and resource allocation. However, the rapid influx of multilingual learners has intensified concerns about the gradual erosion of the Maltese language. Informal codeswitching—where pupils seamlessly alternate between Maltese, English and other tongues within a single exchange—has become increasingly commonplace in schools, risking the relegation of Maltese to a secondary register. Without targeted preservation strategies, this trend may undermine linguistic proficiency and the cultural heritage that Maltese embodies. The transition from a predominantly

bilingual to a multilingual society in Malta demands that the education system develops effective strategies to support language induction for newly arrived students, provide adequate resources for multilingual learners to succeed academically, actively foster intercultural understanding and promote social cohesion among students from diverse backgrounds.

Climate change is another significant macro-trend shaping the future of education in Malta. There is a strong recognition within the Maltese population that climate change poses a serious threat, with a high percentage of individuals viewing climate adaptation as a national priority[11]. Malta has already experienced the impacts of extreme weather events, further highlighting the urgency of addressing this global challenge. In this context, education is crucial in raising awareness about climate change, developing the necessary skills for adaptation and mitigation, and fostering climate-friendly behaviours among future generations. The World Bank has emphasised the pivotal role of education in driving climate action worldwide[12]. While the *National Curriculum Framework for All* already identifies "Education for Sustainable Development" as one of its cross-curricular themes, it is evident that more needs to be done to ensure its effective and consistent implementation across all educational levels. The education system must take on a more proactive role in cultivating a climate-resilient society—one that is equipped with the knowledge, competencies, and values necessary to understand, confront, and mitigate this existential challenge. To this end, climate education must move beyond theoretical discussions and be embedded more robustly in teaching and learning practices. This involves developing green skills aligned with the demands of a sustainable economy and nurturing a strong culture of environmental stewardship among learners of all ages. Fostering such awareness and responsibility within the educational experience is essential to adequately prepare future generations for complex environmental realities.

Finally, the evolving economic landscape and the changing requirements for future skills will significantly impact the direction of education in Malta. The Maltese economy is transforming, with notable technological, tourism, and gaming growth. To ensure future economic prosperity, the education system must effectively align its outputs with the dynamic needs of these critical economic sectors, providing graduates with the skills and competencies that are in high demand (The Malta Chamber, 2024). There is a growing emphasis on the importance of vocational education and training (VET) in providing students with practical and relevant skills that prepare them for the labour market. Strengthening VET pathways, ensuring their

[11] https://www.eib.org/en/press/all/2024-423-over-three-quarters-of-maltese-respondents-view-climate-adaptation-as-a-national-priority-eib-survey-shows

[12] https://www.worldbank.org/en/topic/education/publication/education-for-climate-action

quality and relevance to industry needs, and fostering closer collaboration between educational institutions and employers are crucial steps in this direction. It has been observed that the occupational expectations of young people in Malta do not always align well with the actual demands of the labour market (Ministry of Education & Research, 2022). This highlights the need to enhance career guidance and exploration opportunities within the education system, starting from secondary school, to better inform students about future career pathways and the skills required for success in Malta's evolving economy.

Conclusions

The future of education in Malta over the next 25 years will be shaped by a complex interplay of global trends, regional policies, and national priorities. International frameworks from UNESCO, the OECD, and the World Bank provide valuable guidance on the need for transformative educational changes to address global challenges such as inequality, technological disruption, and climate change. Malta operates within the European Education Area as an EU member state, aligning its strategies with EU targets benefiting from collaborative initiatives and funding opportunities. The Council of Europe's focus on democratic participation, social responsibility, and digital citizenship further enriches the regional context. Furthermore, Malta's National Education Strategy 2024-2030 reflects a commitment to addressing these forces by focusing on wellbeing, growth & empowerment, and equity & inclusion. However, the discrepancy between high education spending and below-average outcomes suggests a need for greater focus on pedagogical innovation, teacher development, and efficient resource allocation. Macro trends such as technological advancements, increasing demographic diversity, the impact of climate change, and the evolving economic landscape present both opportunities and challenges. Malta's education system must adapt to embrace digital learning while ensuring equity, cater to a multilingual student population, integrate climate education to build resilience and align its curricula with the demands of a changing economy. Strategic foresight and continuous adaptation will be essential to ensure that education in Malta effectively prepares its citizens for the future.

GLOBAL BEST PRACTICES IN EDUCATION

The global education landscape is undergoing a significant transformation, driven by the rapid pace of technological advancements, the evolving demands of the modern workforce, and an increasing recognition of the importance of holistic individual development. As Malta looks towards the coming 25 years, a period anticipated to bring massive changes, a comprehensive understanding of international best practices in education will be indispensable. This section analyses successful strategies and key lessons derived from education systems that have demonstrated high levels of performance and rapid improvement on a global scale. The aim is to provide a robust foundation of evidence-based insights to inform strategic policy decisions for the future of education in Malta.

Identifying High-Performing Education Systems

To effectively learn from global experiences, it is essential first to identify education systems that have achieved notable success. International large-scale assessments, such as the Programme for International Student Assessment (PISA), coordinated by the Organisation for Economic Co-operation and Development (OECD), and the Trends in International Mathematics and Science Study (TIMSS), conducted by the International Association for the Evaluation of Educational Achievement (IEA), offer valuable metrics for evaluating educational quality and identifying these high-performing systems. Several countries and regions, including Singapore, various jurisdictions within China (such as Macao, Hong Kong, and Chinese Taipei), Japan, South Korea, Estonia, Switzerland, Canada, and the Netherlands are consistently ranked at the top of these global assessments.

Curriculum Design and Philosophy

The foundation of any successful education system lies in its curriculum, which articulates the knowledge, skills, and competencies that students are expected to acquire. Examining high-performing nations' curriculum design and philosophy can offer valuable insights for Malta.

Holistic and Future-Oriented Approaches

Singapore's curriculum provides a holistic education that nurtures academic excellence, character, mind, and body[13]. It emphasises core values, social and emotional well-being, and 21st-century competencies, adopting a student-centred perspective and fostering independent and collaborative learning. Estonia's Education Strategy focuses on individual and social development, essential learning skills, creativity, and entrepreneurship, strongly emphasising a digitally focused learning environment (Lavonen, 2020) (Ministry of Education & Research, 2020). Curriculum reform in Estonia highlights a commitment to learner-centred and future-oriented education, providing effective feedback and developing crucial 21st-century skills. Finland's National Core Curriculum for Basic Education aims to equip students with the necessary knowledge and skills while fostering enthusiasm for learning. It integrates transversal competencies like critical thinking and ICT skills across disciplines, reflecting a commitment to well-rounded individuals[14].

Emphasis on 21st-Century Skills: Singapore strongly emphasises 21st-century skills integrated across its curriculum[15]. Estonia's strategy and curriculum reform explicitly focus on developing these skills[16]. Finland also prioritises the integration of transversal competencies (Le Donné & Jacobs-Colas, 2014), including critical thinking and ICT skills, across all subjects[17].

Technology Integration in Curriculum: Singapore strategically integrates technology into learning and leverages community resources[18]. Estonia aims to develop a digitally focused learning environment and enhance digital skills across its population[19]. Finland emphasises digital literacy from early primary school[20].

Teacher Training and Professional Development: Successful education systems worldwide highly value teacher training and continuous professional development. Finland requires teachers to hold Master's degrees and emphasises ongoing

[13] https://www.moe.gov.sg/education-in-sg/our-teachers/singapore-curriculum-philosophy

[14] https://www.oph.fi/en/education-and-qualifications/national-core-curriculum-primary-and-lower-secondary-basic-education

[15] https://www.moe.gov.sg/education-in-sg/21st-century-competencies

[16] https://e-estonia.com/how-estonia-put-e-in-education/

[17] https://finlandeducationhub.com/digital-literacy-in-finnish-education-a-model-for-the-world/

[18] https://www.moe.gov.sg/education-in-sg/educational-technology-journey/edtech-masterplan

[19] https://www.educationestonia.org/digital-learning-study/

[20] https://finlandeducationhub.com/digital-literacy-in-finnish-education-a-model-for-the-world/

professional development[21]. Singapore has a comprehensive teacher selection, training, compensation, and ongoing development system, including mentorship and clear career pathways[22]. Estonia prioritises continuous professional development, focusing on technology integration and innovative practices, and employs scholarship programmes to attract talent[23].

Leveraging Technology in Education: Strategic technology integration is crucial in today's digital world. Singapore's EdTech Masterplan 2030 includes the Student Learning Space (SLS)[24] and AI-enabled tools for personalised learning[25]. Estonia's Tiger Leap programme aimed to equip all schools with computers and internet access, with ongoing initiatives like AI Leap[26]. Finland emphasises digital technology's transformative potential from early primary school and focuses on digital literacy[27].

Vocational Education and Training (VET): A strong VET system equips individuals with practical skills for the economy. Switzerland's dual VET system[28] combines workplace learning with vocational school instruction, contributing to low youth unemployment and offering permeability between pathways. The Netherlands has a comprehensive secondary vocational education system, Middelbaar Beroepsonderwijs (MBO)[29], with various levels and pathways.

Promoting Inclusive Education: Creating an equitable and inclusive education system is fundamental. Finland's Basic Education Act mandates inclusive education with individualised learning plans and flexible curricula[30]. Estonia's inclusive education policy guarantees every child the right to attend a local school and receive

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[21] https://www.educationfinland.fi/edudev/teacher-training

[22] https://asiasociety.org/global-cities-education-network/how-singapore-developed-high-quality-teacher-workforce

[23] https://www.hm.ee/sites/default/files/documents/2022-10/jarelkasvu_arnengusuunad_aastani_2026_mai_2021.pdf

[24] https://www.tech.gov.sg/media/technews/ai-in-education-transforming-singapore-education-system-with-student-learning-space/

[25] https://www.moe.gov.sg/education-in-sg/educational-technology-journey/edtech-masterplan/artificial-intelligence-in-education

[26] https://e-estonia.com/estonia-announces-a-groundbreaking-national-initiative-ai-leap-programme-to-bring-ai-tools-to-all-schools/

[27] https://www.oph.fi/en/exploring-finnish-digital-education

[28] https://www.edk.ch/en/education-system-ch/post-compulsory/upper-secondary/vet

[29] https://www.government.nl/topics/secondary-vocational-education-mbo-and-tertiary-higher-education/secondary-vocational-education-mbo

[30] https://finlandeducationhub.com/exploring-the-finnish-approach-to-inclusive-education/

the necessary support[31]. Ireland's EPSEN Act aims to educate children with special needs in mainstream settings when in their best interest[32].

Lessons Learned from Educational Reforms

Examining other countries' reform experiences offers valuable lessons. Poland's reforms in the early 2000s, including extending general education and reforming curriculum and assessment, led to PISA score improvements (Boyd, 2021). Ontario, Canada's reforms in the early 2000s prioritised educator involvement and focused goals, resulting in student achievement gains (Fullan & Rincon-Gallardo, 2016). The UK has implemented numerous reforms, but challenges remain in addressing inequalities and teacher workload[33].

Proposed Initiatives for the Maltese Context

Considering Malta's economic future skills needs, several global best practices could be particularly relevant. The country must strike a careful balance between embracing international best practices and respecting the country's unique social and cultural fabric. While progress has been made, particularly in digital literacy and student well-being, there is still ample opportunity to refine and future-proof the national education system. Learning from countries with strong educational track records—such as Finland, Singapore, and Switzerland—Malta can tailor its strategy to meet both current demands and long-term ambitions. A more structured integration of 21st-century skills into the curriculum is a natural starting point. While transversal skills have been in the curriculum for over a decade, these should be woven more consistently into lessons across all subjects. Drawing from Singapore's emphasis on holistic development, Maltese schools can benefit from embedding core values and social-emotional learning into daily teaching. This would support academic achievement and promote resilience, empathy, and a positive mindset. Furthermore, encouraging a blend of independent and team-based learning would help students prepare for the flexible, collaborative work environments they will likely encounter in adulthood.

Central to these goals is the quality of teaching. The strength of an education system is inseparable from the calibre of its educators. Malta should continue building on the

[31] https://national-policies.eacea.ec.europa.eu/youthwiki/chapters/estonia/66-social-inclusion-through-education-and-training

[32] https://www.oco.ie/app/uploads/2023/03/OCO_Submission_Review-EPSEN-Act-2004_March-2023.pdf

[33] https://teachingtalk.co.uk/the-impact-of-educational-policy-changes-on-uk-outcomes/

priorities outlined in the new Education Strategy for 2024–2030, which rightly places teacher development at the heart of reform. A positive step forward has been the recent collective agreement, including financial incentives for educators with higher academic qualifications. This move acknowledges the value of advanced study, helps raise the profession's profile, and attracts motivated individuals into teaching. However, to maximise its impact, these incentives should be part of a broader vision that includes raising baseline qualification standards across the board—similar to Finland, where all teachers must hold at least a Master's degree. At the same time, Malta must establish a robust, continuous professional development framework that goes beyond periodic training sessions. Opportunities should be embedded throughout a teacher's career, focusing on evolving methodologies, digital tools, and emerging subject trends. Most importantly, this training must be practical, flexible, and linked to everyday classroom realities. Only then can teachers feel genuinely supported, confident, and empowered to meet the changing needs of their students. Another priority is the strategic use of technology in education. To prepare students for a digitally dominated world, Malta must implement a clear and forward-thinking national strategy for educational technology—building on the recently launched Digital Education Strategy for 2022–2027. This strategy marks a significant step towards modernising learning environments, promoting digital skills, and integrating technology across the curriculum. However, for it to truly deliver on its promises, further emphasis is needed on practical implementation and equitable access. The strategy should go beyond broad objectives and provide detailed guidelines on how digital tools will actively enhance learning outcomes. Teacher training in digital pedagogy must be scaled up, and schools should be supported in tailoring technology use to different subjects and student needs. Consistent investment in infrastructure remains essential—classrooms require up-to-date hardware, stable internet connectivity, and user-friendly platforms for teachers and students. Most importantly, the digital divide must be addressed directly. Without targeted support for disadvantaged students and schools, the strategy risks widening existing inequalities rather than closing them. A more inclusive, responsive approach will ensure digital innovation benefits every learner, regardless of background.

Malta also has a chance to strengthen its vocational education and training (VET) pathways, which remain underutilised despite their clear potential to address skill shortages and reduce youth unemployment. Institutions such as the Malta College of Arts, Science and Technology (MCAST) and the Institute of Tourism Studies (ITS) already offer programmes designed to equip students with practical, industry-ready skills. These institutions play a vital role in bridging the gap between education and employment, offering courses in engineering, hospitality, information technology, and applied sciences. However, there is room for further improvement to raise the appeal and effectiveness of vocational education. One avenue is to strengthen further collaborations with industry partners, ensuring that course content remains

current and that students gain meaningful work experience through structured placements. Drawing inspiration from Switzerland's dual-training system, Malta could place greater emphasis on integrating on-the-job training with classroom learning, allowing students to apply their knowledge in real-world settings from an earlier stage. It is equally essential to ensure mobility within the education system—students should be able to transition smoothly between vocational and academic tracks, with no path viewed as limiting or second-rate. Enhancing recognition of vocational qualifications and expanding progression routes to higher education would signal that vocational training is a valued and respected choice. Education must reflect the diversity of student talents and aspirations, offering multiple, flexible routes to success that meet individual goals and national economic needs.

Inclusivity must remain at the heart of all educational reforms. Every student deserves the chance to thrive regardless of ability or background. Malta should adopt a more personalised approach by implementing individualised learning plans, particularly for those with special educational needs. This would allow teachers to tailor support while maintaining integration within mainstream classrooms. At the same time, cultivating a broader culture of inclusion is essential. This can be achieved through staff training, anti-bias education, and school-wide initiatives that celebrate diversity, foster empathy, and reduce stigma. Strong quality assurance mechanisms must be in place to ensure the effectiveness of all these changes.

In this respect, Malta has taken an essential step towards enhancing educational quality by publishing the *National Quality Assurance Framework for Schools* (2024)[34], which establishes a structured approach combining internal school evaluations with independent external reviews. This framework is a foundational mechanism for promoting accountability, professional reflection, and continuous improvement within schools. By involving a diverse range of stakeholders—including teachers, school leaders, parents, students, and policymakers—it ensures that evaluation processes are grounded in the lived experiences of the school community. However, while the framework provides a robust starting point, there is scope for further strengthening its implementation and impact. To achieve this, greater emphasis should be placed on building capacity within schools to carry out meaningful self-evaluation processes, supported by sustained professional development and practical guidance. Additionally, integrating more qualitative measures, such as narrative feedback from students and parents, could complement quantitative indicators and offer a more holistic view of school performance. Ensuring that findings from external reviews lead to actionable, context-sensitive improvement plans is also essential to foster genuine transformation rather than compliance-driven exercises. Ultimately, quality assurance in education must be seen as an ongoing,

[34] https://dqse.gov.mt/wp-content/uploads/2024/04/Framework-EN-2.pdf

collaborative journey that continually adapts to the evolving needs of learners and the wider community it serves.

Lastly, in a more interconnected world than ever, fostering global competence and cultural awareness should become a core part of the curriculum. Students must discover their identity and understand how it fits within the broader international landscape. This can be achieved by integrating global case studies, foreign languages, and intercultural learning into classroom content. Moreover, forging partnerships with schools abroad would allow student and teacher exchanges, enabling shared learning and enriching the educational experience through real-life exposure to different cultures and perspectives. By taking these steps, Malta has the opportunity to build an education system that is not only academically strong but also inclusive, forward-looking, and deeply rooted in values. These proposals are not about imitating other systems blindly but learning what works and adapting it to our context. With thoughtful implementation and widespread engagement, Malta can lay the groundwork for an educational future that prepares all learners to thrive—locally and globally.

THE FUTURE OF EDUCATION: SCENARIOS FOR 2050

Setting the Stage for Educational Transformation

In the coming years, education is set for a significant transformation. The rapid advancement of technology, evolving societal demands, and growing global interconnections indicate that traditional educational systems may struggle to stay relevant (UNESCO, 2021a). These forces are not isolated; they interact and amplify one another, creating a compelling need to reimagine how learning is delivered and experienced. Technological progress offers unprecedented tools and platforms for education, while societal shifts necessitate different skills and competencies for individuals to thrive. Furthermore, the world's increasing interconnectedness demands greater adaptability and intercultural understanding from learners. To explore these potential futures, this report adopts the Social, Technological, Economic, Environmental, and Political (STEEP) framework, enabling a systematic examination of the key drivers that will shape education in the decades ahead. Such an approach ensures a holistic analysis, moving beyond a singular focus on technology or pedagogy to consider the broader context in which education operates.

Emerging Signals and Plausible Futures in Education

Several emerging trends within the STEEP categories offer glimpses into the potential future of education.

Social Drivers: A notable shift is the growing recognition of the importance of soft skills, such as critical thinking, collaboration, communication, and creativity, for preparing students for the future workforce (McKinsey & Company, 2021) (World Economic Forum, 2025). This suggests a potential evolution in assessment methods, moving beyond traditional knowledge-based tests to evaluate these crucial competencies. Artificial intelligence's increasing automation of routine tasks makes uniquely human skills more valuable in the job market, necessitating that education systems adapt to cultivate these abilities effectively. Furthermore, there is a rising awareness of student mental health and well-being, prompting a need for educational environments that support emotional and social development (UNICEF, 2021) (World Health Organization, 2021). Future education models may integrate more comprehensive support systems and curricula focused on emotional literacy and resilience, particularly given the stresses of modern life highlighted by events like the pandemic. Finally, education systems must adapt to increasingly diverse student populations, including non-traditional learners and international students

seeking flexible pathways (Organisation for Economic Co-operation & Development, 2024). This necessitates the development of more personalised learning pathways and tailored support services to meet the varied needs of all learners in a globalised world.

Technological Drivers: Artificial Intelligence (AI) is transforming education (World Economic Forum, 2023) through personalised learning paths, AI tutors, automated administrative tasks, and innovative assessment methods. While offering significant opportunities to tailor education to individual needs, the ethical implications surrounding data privacy and the critical need for teacher training in effectively using AI tools will require careful consideration. The increasing sophistication of AI allows for a deeper analysis of individual learning processes, enabling the creation of genuinely personalised educational pathways. Extended Reality (XR) (Virtual Reality, Augmented Reality, and Mixed Reality), is also gaining traction in education, offering immersive and highly engaging learning experiences. As the cost of XR technology decreases, its adoption across various educational levels is anticipated to increase. Such technology provides realistic simulations and interactive environments that significantly enhance understanding and skill development, especially in practical subjects. The trend towards online and hybrid learning models is expected to persist, offering greater flexibility and accessibility to education (EDUCAUSE, 2025). This necessitates the development of robust digital infrastructure, effective online teaching methods, and strategies to address issues of digital equity to ensure that all learners can benefit from these modalities. Finally, micro-learning and nanolearning, which involve breaking down learning content into short, focused modules, are becoming increasingly popular, aligning with contemporary attention spans and the need for readily accessible, just-in-time learning (Taylor & Hung, 2024). This approach can improve knowledge retention and better accommodate the busy schedules of modern learners by delivering information in easily digestible segments.

Economic Drivers: The emphasis on career readiness and the acquisition of practical skills is growing among learners, leading to an increased demand for education programmes that are directly aligned with industry needs and career outcomes (EducationDynamics, 2024). This trend could foster a closer integration between education and industry, with a potential rise in apprenticeships, vocational training programmes, and stackable credentials that offer more direct pathways to employment. The increasing cost of traditional degrees and concerns about graduate employability contribute to this demand for more practical and efficient educational routes. Furthermore, there is a notable increase in the demand for alternative credentials, such as certificates and micro-credentials, which offer more flexible and affordable pathways for individuals to upskill and reskill throughout their careers. This development can disrupt traditional higher education models and create a more diverse and agile learning ecosystem. Finally, many countries are experiencing

teacher shortages and increasing levels of teacher burnout, highlighting the necessity for effective strategies focused on teacher retention and comprehensive support systems (Howarth, 2025). Future education models may need to explore alternative staffing approaches and implement enhanced support mechanisms for educators to address these challenges.

Environmental Drivers: There is a growing global urgency to integrate sustainability and climate change education into curricula at all levels, cultivating responsible global citizens (UNESCO, 2025). Environmental literacy may become a fundamental component of future education, reflecting the critical need to address planetary challenges. In densely populated coastal jurisdictions with limited natural resources, curricula are also expected to emphasise sustainable water management, marine ecosystem conservation, and climate-resilient urban planning. Rising sea levels, heightened heat stress and pressure on waste-management infrastructure provide authentic local case studies through which learners can apply global environmental principles. Educators may further highlight the transition to renewable energy, circular economy practices, and sustainable tourism, equipping students with the knowledge and skills required to steward both land and sea while supporting key economic sectors.

Political Drivers: Governments are increasingly recognising the importance of vocational education in addressing skills gaps and investing in its expansion (HolonIQ, 2025). This trend will likely continue as the demand for skilled workers in various sectors grows. Additionally, governments and educational organisations are beginning to develop policies and guidelines for the ethical use of AI in education, focusing on promoting digital literacy and addressing ethical considerations (Commission, 2022; OECD, 2022; UNESCO, 2023) . Clear frameworks and regulations will be essential for the responsible and equitable integration of AI into learning environments. Finally, there is a growing global recognition of the imperative for lifelong learning opportunities to enable individuals to adapt to a rapidly changing world and workforce. Future education systems may need to become more flexible and accessible to cater to learners across all age groups and stages of life, reflecting the continuous need for upskilling and reskilling in the modern economy.

The Three Scenarios

Building on our STEEP framework, we can now see precisely how each cluster of trends gives rise to one of our three futures:

The growing emphasis on individual learning needs and rapid breakthroughs in AI have prompted investors and educational institutions to prioritise adaptive-learning

platforms. At the same time, governments worldwide are introducing robust data protection and AI ethics regulations to safeguard personal learning information. These forces converge to make Scenario 1: The Age of Hyper-Personalised Learning inevitable.

Meanwhile, the rise of XR simulations and micro-learning modules that deliver just-in-time, hands-on training matches a societal shift towards teamwork, creativity and real-world problem-solving. Employers invest heavily in micro-credentials and embedded apprenticeships to ensure graduates are instantly work-ready, and policymakers introduce accreditation standards that recognise these alternative pathways. These influences combine to form Scenario 2: The Skills-Centric, Experiential Education Ecosystem.

At the same time, increasing cultural diversity and the normalisation of remote cohorts have driven demand for intercultural competence and comprehensive well-being support. Advances in high-speed broadband, virtual-exchange platforms and blockchain-based credentialing dissolve geographical barriers, while the cost-effective scaling of online programmes and an expanding lifelong-learning market encourage providers to broaden their reach. Complemented by international agreements on digital-education standards and targeted infrastructure funding, these trends come together to realise Scenario 3: The Globally Networked, Resilient Learning Landscape.

With this logical mapping complete, we can now turn to a detailed exploration of each scenario, examining its defining features, potential challenges, and strategic implications for policymakers and practitioners alike.

Scenario 1: The Age of Hyper-Personalised Learning

This scenario envisions a future where technological advancements have ushered in an era of highly individualised learning experiences. Ubiquitous AI, coupled with advanced insights from neuroeducation and sophisticated data analytics, forms the foundation of this transformation. AI algorithms can analyse individual learning styles, paces, and knowledge gaps in real-time, enabling the dynamic tailoring of learning content and assessments. Breakthroughs in neuroeducation provide a deeper understanding of brain function, informing pedagogical approaches, optimising learning for individual cognitive profiles. Learning environments and methods are meticulously designed based on neuroscientific principles to maximise attention, retention, and overall understanding.

In this future, each learner is equipped with an AI-powered personal learning assistant that acts as a dedicated tutor, guiding them through their unique learning journey and providing personalised feedback and support. Curricula are no longer static but are adaptive and dynamic, evolving in real-time based on the learner's progress, interests, and identified needs. In more advanced contexts, brain-computer interfaces (BCIs)[35] might optimise further learning by directly interacting with the brain's cognitive processes. Learning progress is continuously monitored and assessed using sophisticated data analytics, providing detailed insights for learners and educators to facilitate targeted interventions and adjustments.

This future signifies a fundamental shift from standardised education to highly individualised learning experiences, potentially leading to more effective learning outcomes and greater learner engagement. The focus on personalisation addresses the diverse needs of learners, allowing them to learn at their own pace and in ways that resonate with their strengths and preferences, potentially overcoming the inherent limitations of a one-size-fits-all approach. However, this increased emphasis on data collection and analysis in education raises significant ethical considerations regarding privacy and data security. While data can significantly improve learning, it is crucial to ensure that learner data is handled responsibly and ethically, with robust safeguards in place to protect individual rights. Advancements in AI and neuroeducation directly enable the creation of these hyper-personalised learning environments. Without the analytical power of AI and a deeper understanding of the brain's learning mechanisms, the level of personalisation envisioned in this scenario would not be feasible. Consequently, the role of human educators may evolve towards becoming learning facilitators and mentors, guiding students through their personalised learning journeys and fostering critical thinking, rather than primarily

[35] A Brain-Computer Interface (BCI) is a system that allows the brain to communicate directly with a computer or machine — without using muscles or speech. It works by picking up brain signals, translating them into commands, and using those commands to control devices like computers, robots, or even wheelchairs.

delivering standardised instruction. As AI takes on some aspects of teaching and assessment, human educators can dedicate more time to providing social-emotional support and nurturing the holistic development of their students.

Scenario 2: The Skills-Centric and Experiential Education Ecosystem

This scenario paints a future where economic pressures and the evolving nature of work have strongly emphasised acquiring practical skills and developing adaptability for the future workforce. Employers increasingly prioritise demonstrable skills and competencies over traditional academic qualifications, recognising the rapid pace of technological change and automation. The demand for flexible and career-focused learning pathways has led to the proliferation of alternative credentials, such as micro-credentials[36], digital badges, and industry-recognised certifications. These alternative qualifications offer quicker and more targeted routes to acquiring the specific skills needed for employment, potentially making education more accessible and relevant to immediate career goals. Hands-on experience and real-world projects have become central to learning, fostering practical skills and robust problem-solving abilities. Learning by doing is widely regarded as a more effective method for developing the competencies required in the modern workplace.

Education is closely integrated with industry needs in the future, with learning platforms offering accredited micro-credentials developed in close partnership with employers. There is a widespread adoption of apprenticeships and internships, with experiential learning becoming the norm and students spending significant periods in real-world work environments to gain practical experience. VR and AR simulations are used extensively for vocational training, allowing students to practice complex skills in safe, realistic, cost-effective virtual environments. Learning outcomes are primarily assessed through portfolios of work that showcase practical skills and competency-based assessments that directly evaluate the mastery of specific abilities.

This future signifies a direct link between education and the labour market, with the primary aim of equipping individuals with the specific skills needed for available jobs. The focus on skills and employability reflects a pragmatic approach to education in a rapidly evolving economic landscape. However, the rise of alternative credentials may lead to a fragmentation of the traditional education system, with multiple pathways to acquiring skills and knowledge, potentially requiring learners to navigate a more complex educational landscape. The economic demand for specific skills directly drives the growth of these skills-centric education models and the

[36] Recommendation on a European approach to micro-credentials for lifelong learning and employability - https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022H0627(02)

widespread adoption of experiential learning approaches. The need for a highly skilled workforce in a competitive global economy is a key catalyst for this educational transformation. Consequently, the role of traditional universities might shift towards focusing on more theoretical and research-oriented fields. At the same time, vocational institutions and strong industry partnerships play a more prominent role in practical skills development. This emphasis on practical skills could lead to a more significant differentiation within the higher education sector, with different institutions catering to diverse learning needs and specific career paths.

Scenario 3: The Globally Networked and Resilient Learning Landscape

This scenario envisions a future characterised by advanced online learning capabilities and seamless global connectivity, fostering a resilient and adaptable education system. High-speed internet access and sophisticated online learning platforms enable seamless global collaboration and remote learning opportunities. Geographical barriers to accessing education become increasingly irrelevant, as improved technology infrastructure and pedagogical practices have made online learning a viable and effective alternative to traditional in-person education. The increasing global interconnectedness and the pressing need for intercultural understanding position education as a crucial tool for fostering global citizenship and addressing shared global challenges. Collaborative learning across international borders becomes a more common and valued educational experience. Furthermore, the potential for future disruptions, such as pandemics and the impacts of climate change, necessitates that education systems are inherently resilient and adaptable to withstand and effectively respond to unforeseen crises. Flexible learning models that can adapt rapidly to changing circumstances become increasingly vital.

In this future, education is delivered through a flexible blend of online and in-person learning experiences, offering accessibility and adaptability. International collaborations and virtual exchange programmes are commonplace, with students and educators worldwide connecting and collaborating on learning projects through sophisticated virtual platforms. Metaverse-based global classrooms facilitate immersive cross-cultural learning experiences and enable collaborative projects on a truly global scale. AI-powered language translation and intercultural communication tools minimise language barriers, encouraging greater participation in diverse global learning communities.

Within this scenario, the emergence of decentralised autonomous education organisations represents globally distributed learning communities governed by blockchain technology. These organisations offer peer-to-peer learning opportunities and community validation. Additionally, AI-facilitated global

mentorship networks connect learners with experienced mentors from diverse cultural and professional backgrounds based on their interests and learning goals.
This future signifies that education has transcended traditional geographical boundaries, fostering a more interconnected and collaborative global learning community. The advancements in online technologies and a growing collective awareness of global challenges are key drivers behind the increasing internationalisation of education. However, the increased reliance on technology for global learning also raises significant concerns about equitable access to digital infrastructure and essential resources worldwide. While technology offers immense potential for global learning, it is crucial to actively address the digital divide to ensure that all learners, regardless of their location or socioeconomic status, can benefit from these opportunities. Advancements in technology and a growing recognition of global interdependence are the primary forces driving the development of these globally networked learning models. The availability of sophisticated online tools and the increasing necessity for international collaboration on various global issues contribute significantly to this evolving educational landscape. Consequently, national education systems may become more deeply integrated into a broader global learning ecosystem, requiring greater international cooperation and standardisation in certain aspects of education to facilitate seamless collaboration and recognition of qualifications. The rise of global learning platforms and credentials could gradually blur the lines between traditional national education systems.

Navigating the Uncertain Future of Education

The scenarios outlined above present distinct yet plausible trajectories for the future of education by 2050.

- The Age of Hyper-Personalised Learning highlights the transformative potential of AI and neuroeducation to tailor learning experiences to individual needs, potentially enhancing effectiveness but raising ethical considerations around data privacy.

- The Skills-Centric and Experiential Education Ecosystem stresses a future where education is tightly aligned with the demands of the labour market, prioritising practical skills and alternative credentials, which could lead to a more agile but potentially fragmented educational landscape.

- Finally, the Globally Networked and Resilient Learning Landscape envisions a future where technology facilitates seamless global collaboration and learning,

fostering resilience in the face of disruptions but requiring concerted efforts to bridge the digital divide.

These potential futures highlight the critical importance of foresight and adaptability in navigating the uncertain terrain ahead. Continuous monitoring of emerging trends and a proactive willingness to adapt educational policies and practices will ensure that education remains relevant, equitable, and effective in preparing learners for the challenges and opportunities of the coming decades.

THE FUTURE OF EDUCATION IN MALTA

Strategic Pillars & Priorities for the Next 25 Years

The Maltese education system is undergoing significant changes due to swift technological progress, shifting societal requirements, and growing global interconnectedness. Malta must adopt a forward-thinking and adaptive approach to education to navigate the coming 25 years and equip its citizens with the skills and knowledge necessary to thrive. This section outlines six strategic pillars that will serve as the foundation for the future of education in Malta. These pillars are interconnected and mutually reinforcing, collectively aiming to create a resilient, equitable, and future-ready education system that empowers all learners to reach their full potential and contribute meaningfully to society.

Pillar 1: Empowering Future-Ready Digital Citizens

A key element of Malta's future education strategy must be the development of digitally literate citizens capable of navigating and contributing to an increasingly digital world. Digital literacy is no longer a supplementary skill but a fundamental prerequisite for effective participation in all aspects of life and learning. The Malta Ministry for Education, Sport, Youth, Research and Innovation recognises this by setting an ambitious national target to improve digital literacy levels among students to 80% by 2030, exceeding the European Union's benchmark. This commitment highlights the national priority of ensuring that young people possess the essential digital competencies for future employability and active societal engagement. The Digital Education Strategy 2024-2030 document further reinforces this commitment by identifying digital literacy as a foundational 21st-century skill. This strategic emphasis, articulated in dedicated policy documents, signals a structured and well-resourced approach to achieving these critical national goals.

Integrating AI-powered adaptive learning platforms is crucial to foster profound and personalised learning experiences. These platforms can analyse student performance in real-time, allowing for the dynamic tailoring of educational content to meet individual learning needs and styles. Such adaptability can significantly enhance student engagement and cater to the diverse learning paces and preferences in classrooms. Furthermore, intelligent tutoring systems, powered by AI, can provide students with immediate feedback and guidance, effectively addressing knowledge gaps as they arise. This near real-time support mirrors the benefits of personalised one-on-one tutoring, making tailored learning more accessible and scalable across the education system. Malta has already begun to explore and implement personalised learning approaches within its education models, recognising its

potential to cater to diverse learning abilities and ensure that no student is left behind. Building on these existing initiatives will be vital for broader adoption across all educational settings.

Beyond technical proficiency, it is fundamental to equip students with the skills to navigate the digital world responsibly and ethically. This includes comprehensive online safety programmes, clear instructions on navigating social media, and developing critical thinking around digital content. While content filtering has a role in safeguarding, over-reliance may limit students' ability to use the internet responsibly and effectively. A balanced approach is needed—one that protects while also empowering learners with essential digital skills. Cybersecurity and digital safety are integral components of a holistic digital education. The Digital Education Strategy 2024-2030 further emphasises the importance of nurturing digital global citizens, focusing on digital literacy, well-being, and responsible digital citizenship. This comprehensive approach acknowledges the broader societal implications of digital technologies and the need to foster ethical and accountable online conduct.

Addressing the digital divide to ensure equitable access to digital resources and infrastructure for all learners is another critical element of this pillar. The "One Device Per Child" initiative, co-funded by the European Union, represents a significant step in this direction. It aims to provide digital devices to all primary and secondary students, regardless of socioeconomic background. This initiative, coupled with the provision of secure internet connectivity and content filtering in schools, demonstrates the Maltese government's commitment to overcoming barriers to digital learning. Robust infrastructure development is essential to effectively support digital learning initiatives and create a level playing field for all students.

The strong emphasis on digital literacy and infrastructure within Malta's national strategies indicates a strategic direction towards leveraging technology to enhance learning outcomes. The dual focus on providing access and promoting responsible use signifies a comprehensive approach to preparing future-ready digital citizens. However, the long-term effectiveness of initiatives like the "One Device Per Child" will depend on sustained investment in device maintenance, timely upgrades, and comprehensive teacher training to ensure educators can effectively integrate these tools into their pedagogy. This pillar's successful implementation will improve educational outcomes and equip Maltese citizens with the crucial skills demanded by a digital economy and society, potentially enhancing their global competitiveness and contributing to national prosperity.

Pillar 2: Cultivating Excellence in Educators and Leadership

The success of Malta's future education system hinges on the quality, dedication, and adaptability of its educators and school leaders. Therefore, enhancing their professional development, providing robust support systems, and cultivating strong leadership capabilities are essential strategic priorities. Continuous Professional Development (CPD) must continue to be a fundamental aspect, offering ongoing training and learning opportunities for educators to effectively adapt to evolving pedagogical approaches and the integration of new technologies. The role of educators in successfully implementing digital education necessitates comprehensive training to ensure they can confidently and effectively utilise digital tools in their teaching practices. Malta already offers various opportunities for teacher professional learning, including in-service training sessions, professional collaboration within schools, scholarships for further studies, and participation in European Union-funded projects. Leveraging and strategically expanding these existing CPD structures can provide a solid foundation for the ongoing development of educators. Furthermore, the new Collective Agreement for Educators in State Schools (2023-2027) seeks to enhance salaries and improve working conditions, which can be an essential incentive for attracting and retaining high-quality individuals within the teaching profession. A strong and motivated teaching workforce is fundamental to the future of education in Malta.

Fostering Professional Learning Communities (PLCs) within schools is another crucial strategy for cultivating excellence. PLCs provide platforms for educators to collaborate, share knowledge, and collectively inquire into their teaching practices to improve student outcomes. Promoting schools as professional learning communities can significantly enhance their effectiveness and improve educational results. Effective PLCs are characterised by a shared vision and values, a culture built on trust and collaboration, a sense of collective responsibility, and an inquiry-oriented mindset. Understanding and nurturing these key elements is essential for the successful establishment and impact of PLCs.

Investing in the development of leadership capacity among school leaders is equally important. Strong leadership drives positive change, fostering a constructive and innovative school culture. The school leadership team is critical in promoting a shared vision among stakeholders and nurturing distributed leadership, where decision-making is broadened across the school community. Peer learning activities in Malta[37] have also focused on building the capacity of school leaders to foster inclusive education, highlighting the ongoing need for targeted leadership development

[37] https://www.european-agency.org/news/commission-working-group-schools-pla

programmes to address specific challenges and priorities within the education system.

Finally, empowering teachers by actively involving them in decision-making and policy development is vital for fostering a sense of ownership and commitment. The Ministry for Education, Sport, Youth, Research and Innovation has increasingly adopted a person-centred approach, placing educators at the core of its processes and actively seeking their input in the development of educational policies. Valuing educators' perspectives and experiences can lead to the creation of more relevant and effective policies that are better aligned with the realities of the classroom.

The consistent emphasis on the critical role of educators and the necessity for their continuous development and support emphasises their importance to the future of education in Malta. The focus on PLCs and leadership development indicates a positive shift towards a more collaborative and empowered teaching profession. To maximise the impact of these efforts, it will be essential to ensure better coordination among the various CPD opportunities available and to strategically align them with the evolving needs of the education system and the individual professional growth of educators. A highly skilled, well-supported, and empowered teaching workforce is fundamental to achieving the goals of all other strategic pillars and directly impacts the quality of learning and the success of students.

Pillar 3: Fostering Holistic Wellbeing and Inclusive Education

A truly effective education system must prioritise the holistic well-being of its students, as well as their social, emotional, physical, and mental health, alongside their academic development. Furthermore, it must be inclusive, ensuring that all learners have equitable access to high-quality education and opportunities regardless of their background or circumstances. The National Education Strategy 2024-2030 explicitly recognises the interconnectedness of these aspects, with its first pillar directly addressing the Wellbeing of educators and students. This prioritisation highlights the foundational importance of wellbeing for a thriving education system. The strategy also emphasises the need to consider children's overall well-being, including their emotional understanding, online safety, and the development of positive friendships. This acknowledgement reflects a broader understanding that education extends beyond mere academic achievement.

Equity and inclusion are central tenets of Malta's national education strategy. The third pillar of the National Education Strategy 2024-2030 is dedicated explicitly to Equity & Inclusion, to address social fragmentation and inequalities within the education system. The Maltese government views education as a powerful tool for reducing social disparities and has enshrined the right to free education for all citizens

within its constitution and relevant legislation. This legal and policy framework provides a strong foundation for developing and implementing strategies that promote equity and ensure all students have a fair chance of success.

Adopting inclusive education practices that cater to students with diverse learning needs is crucial. This includes pedagogical approaches and support systems tailored to students with disabilities and those from diverse cultural backgrounds. The National Quality Standards in Education (3-16 Years) emphasise fostering an inclusive school culture characterised by trust, empathy, and mutual respect among all stakeholders. Creating a welcoming and supportive environment where all learners feel safe to express themselves and reach their full potential is essential for their engagement and academic progress. Peer learning activities in Malta have specifically focused on building the capacity of educators and school leaders to foster inclusive learning environments, highlighting the ongoing need for flexible guidelines and structured dialogue to support these efforts.

Addressing students' social and emotional needs is also essential. The National Education Strategy 2024-2030 acknowledges the growing challenges to students' well-being in the modern world, including rising obesity rates, mental health concerns, and the impact of digital consumption. A holistic approach to education must, therefore, include robust support systems for students' mental health and socio-emotional development.

The strong emphasis on well-being and inclusion across Malta's national education strategies demonstrates a clear commitment to creating a supportive and equitable learning environment for all students. This emphasis on academics is connected to personal development, and the dedication to equal opportunities reflects a comprehensive and socially responsible approach to education. The increasing attention given to mental health and digital wellbeing indicates a growing awareness of the unique pressures and challenges young people face in the 21st century, necessitating a greater focus on fostering emotional and digital resilience. Ultimately, a sustained commitment to holistic wellbeing and inclusive education can improve student engagement, leading to better academic outcomes and a more cohesive and equitable society in Malta.

Pillar 4: Building Bridges to Future Skills and Global Opportunities

To ensure Malta's future prosperity and the success of its citizens, the education system must effectively prepare learners with the skills demanded by the future workforce and nurture a global perspective. This requires a strategic shift towards competency-based pathways, recognising diverse skills through micro-credentials, fostering international collaboration, and strengthening partnerships with industry. A

competency-based approach to education shifts the focus from the content delivered to the demonstrable skills and abilities that a learner acquires. This outcome-oriented approach ensures that education is directly relevant to the needs of the evolving economy. Malta is aligning its education system with the European Union's framework of key competencies, enhancing the recognition and portability of Maltese qualifications across Europe.

Micro-credentials offer a flexible and targeted way to recognise specific skills and competencies, enhancing employability and promoting lifelong learning. These credentials, focused on smaller units of learning and often addressing in-demand skills, can complement formal qualifications and provide individuals with opportunities for upskilling and reskilling throughout their careers. Malta has already established a framework within its Malta Qualifications Framework (MQF) for recognising shorter learning programmes as "Awards", which acknowledge level-rated learning outcomes. Building upon this existing structure will be crucial for the wider adoption and recognition of micro-credentials, providing learners with valuable credentials that meet the evolving demands of the labour market.

Fostering global collaboration and awareness is essential in an increasingly interconnected world. Institutions like the University of Malta, the Malta College of Arts, Science, and Technology and the Institute of Tourism Studies actively pursue academic collaborations with international institutions. Such collaborations enrich the learning experience and promote intercultural understanding. Furthermore, Malta is committed to integrating global perspectives into its national curriculum through initiatives like Global Citizenship Education and Education for Sustainable Development, supported by UNESCO. Participation in international educational programmes and student/teacher exchange initiatives further enhances global exposure and understanding.

Strengthening the synergy between educational institutions and industry is vital to ensure curriculum relevance and provide students with valuable work-based learning opportunities. Higher education institutions actively engage with industry in curriculum development and work to embed industry knowledge within the learning experience. Closer collaboration with industry provides valuable insights into emerging skills demands, ensuring that educational programmes are aligned with the needs of the future workforce.

The strategic emphasis on competency-based learning, micro-credentials, global collaboration, and industry partnerships demonstrates a clear commitment to aligning Maltese education with future employment trends and the interconnected global landscape. By prioritising skills development and international engagement, Malta aims to equip its citizens with the tools to thrive in a rapidly changing world.

The increasing focus on industry partnerships signifies a recognition that traditional academic pathways alone may not fully prepare students for the diverse opportunities available in the future economy. Ultimately, the successful implementation of this pillar can lead to increased employability for Maltese graduates, a more skilled national workforce, and a stronger, more competitive economy.

Pillar 5: Transforming Assessment and Recognition for the Future

Modernising assessment methods and credentialing frameworks is essential to ensure that learners' competencies and achievements are accurately captured in ways that are meaningful for the future. A key part of this transformation is the ongoing implementation of the *Learning Outcomes Framework*[38], which provides a structured foundation for defining what students should know, understand, and be able to do at each stage of their education. This framework supports a shift towards competency-based assessment—focusing on the practical application of knowledge and skills in real-world contexts, rather than the mere recall of theoretical content. In parallel, there is a need to expand school-based assessment, make strategic use of data analytics, and continue evolving the Malta Qualifications Framework (MQF) to reflect emerging competencies. Moving from traditional grading towards assessing proficiency against clearly defined learning outcomes encourages deeper understanding, critical thinking, and the authentic application of learning. Collectively, these efforts offer a more reliable indication of a learner's readiness to face future academic, professional, and societal challenges.

Leveraging data analytics in assessment offers significant opportunities to gain valuable insights into student learning, identify areas for improvement, and personalise assessment strategies to better meet individual needs. Analysing assessment data can help educators identify trends, understand learning gaps, and tailor teaching and assessment methods. The growing availability of data analytics courses in Malta indicates an increasing recognition of the importance of these skills, which can be effectively applied to enhance the assessment process.

The Malta Qualifications Framework (MQF) plays a vital role in recognising diverse learning and skills. Pegged against the European Qualifications Framework (EQF), the MQF provides a national framework for understanding and comparing national and foreign qualifications, thereby promoting quality and learner mobility. Its flexibility allows for incorporating new credentials, such as micro-credentials, which are already being integrated. The continued evolution of the MQF is essential to ensure

[38] https://www.schoolslearningoutcomes.edu.mt/

that it accurately reflects the diverse skills and knowledge acquired through various learning pathways.

Expanding School-Based Assessment (SBA) represented another key aspect of transforming assessment. SBAs provided a more holistic and continuous evaluation of student progress and competencies, complementing traditional examinations. Implemented for Year 9 students in the academic year 2022/23, it was extended to Year 10 in 2023/24 and Year 11 in 2024/25 over three years. This strategic and measured rollout allowed adjustments and learning throughout the implementation process. The SBAs provided a more personalised and competency-based assessment method focused on students' mastery of key skills and knowledge.

The clear direction towards a more competency-based and data-informed approach to assessment and credentialing in Malta, with strong alignment to national and European frameworks, aims to provide a more accurate and relevant reflection of learners' skills and knowledge, ultimately enhancing their future opportunities and the overall credibility of the Maltese education system.

Pillar 6: Driving Innovation and Building a Resilient EdTech Ecosystem

Fostering a culture of innovation and developing a robust and sustainable EdTech ecosystem are crucial for the future of education in Malta. This involves the ethical and effective integration of Artificial Intelligence (AI), the development of a reliable technological infrastructure, the encouragement of experimentation with new technologies, and careful consideration of the ethical implications of EdTech use. AI holds significant potential to transform various aspects of education, including personalisation of learning, enhancement of collaboration, and provision of data-driven insights for improvement. AI-powered adaptive learning platforms can tailor content to individual student needs, while virtual tutors offer round-the-clock support. Furthermore, AI can contribute to administrative efficiency through automated grading systems. Malta's development of a national AI certification programme signals a commitment to fostering trustworthy AI development, which could have positive implications for the ethical implementation of AI in education.

Investing in and maintaining a reliable and up-to-date technological infrastructure is fundamental to supporting digital learning initiatives. The "One Device Per Child" initiative and the provision of secure internet connectivity address the foundational infrastructure needs at a national level. Higher educational institutions are investing in advanced EdTech, including virtual reality equipment and visualisation walls, to enhance learning experiences. The Digital Education Strategy 2024-2030 prioritises enriching digital resources within the education system, recognising the importance of high-quality digital learning materials for effective online and blended learning.

Encouraging educators and institutions to explore and pilot innovative educational technologies and pedagogical approaches is vital for fostering a culture of innovation. Malta's characteristics make it an attractive location for EdTech start-ups to test and refine new solutions. International collaborations, such as the partnership between Estonia and Malta focused on digital education, including pilot projects with Estonian EdTech solutions, can further drive innovation by sharing best practices and exploring cutting-edge technologies.

Addressing the ethical implications of technology use in education is a top priority. This includes safeguarding data privacy, mitigating potential biases in AI algorithms, and promoting responsible digital citizenship. Implementing robust content filtering systems and online safety programmes is crucial for protecting students in the digital environment. A thoughtful and responsible approach to AI implementation is necessary to ensure fairness and equity in educational outcomes.

Malta's clear interest in leveraging technology and fostering innovation presents significant opportunities to enhance its education system. The strategic focus on AI, EdTech infrastructure, and ethical considerations indicates a forward-thinking approach. Collaboration with international leaders in digital education can accelerate progress and ensure the adoption of best practices. A thriving EdTech ecosystem has the potential to create more engaging and effective learning experiences, better prepare students for the digital age, and stimulate the growth of a new sector within the Maltese economy.

Cross-Cutting Priorities

Several cross-cutting priorities will underpin the successful implementation of these six strategic pillars.

- Collaboration and Partnerships among all stakeholders (government, educators, students, parents, industry, and international partners) will be essential for achieving the outlined vision.
- Emphasising further the principles of Sustainability across the curriculum and in the management of educational institutions will align with global efforts towards environmental responsibility.
- Strengthening the Quality Assurance mechanisms will be crucial for monitoring the implementation and impact of these pillars and ensuring continuous improvement.
- The effective use of Data-Driven Decision Making will inform policy development, track progress, and support evidence-based choices.

- Finally, promoting a culture of Lifelong Learning will ensure that educational opportunities are accessible to individuals of all ages and backgrounds, fostering continuous personal and professional growth.

The six strategic pillars outlined provide a comprehensive framework for shaping the future of education in Malta over the next 25 years. Achieving the ambitious vision embedded within these pillars will require sustained commitment, strategic investment, and strong collaboration among all stakeholders. By embracing these priorities, Malta can ensure its education system remains relevant and equitable. Such an approach will empower all learners to thrive and contribute to the nation's future prosperity and well-being, especially in an ever-changing environment.

Strategic Recommendations for the Maltese Educational System

Malta's education system must evolve from traditional, knowledge-based models to a dynamic, inclusive, and skills-centred framework to equip learners for an increasingly complex, digital, and interconnected world. Recent policy, infrastructure, and pedagogy advances have laid the necessary groundwork. Yet, the pace of technological change, shifting labour-market demands, and global challenges call for a more radical transformation. Education should no longer be confined to subject mastery alone; it must cultivate critical thinking, creativity, and ethical leadership, nurturing intellectually curious, socially responsible, and resilient young people. Schools ought to foster environments that balance academic rigour with well-being, embedding values of respect, integrity, and community engagement at every turn. Drawing on scholarly research, consultations with educators, policymakers and industry leaders, and proven international practice, the following strategic recommendations offer an actionable blueprint to build an adaptive, forward-looking education system—one that empowers every student with the competencies required to excel as both professionals and citizens in a rapidly changing world.

Recommendation 1 – Promoting Lifelong Learning and Micro-Credentials

Despite Malta's ambition to foster a knowledge economy, its formal education framework remains anchored in lengthy degree pathways with limited avenues for agile, targeted upskilling. In contrast to jurisdictions that have embraced bite-sized credentials for rapid workforce alignment, Malta still relies predominantly on protracted qualification cycles that can lag behind evolving employer demands. The absence of a widespread, MQF-approved micro-credentials system means learners

cannot readily acquire, stack, or showcase modular skill sets in fast-growing fields such as digital services, renewable technologies, or social entrepreneurship. Consequently, individuals are often forced into full-time retraining, and employers struggle to identify candidates with particular expertise. Establishing a national micro-credentials ecosystem, ideally aligned with an EU or Global framework, would cultivate a culture of continuous professional development, enabling seamless transitions between secondary, tertiary, and adult education. By leveraging labour market analytics to align offerings with real-time skill shortages dynamically, this initiative would enhance both individual employability and national competitiveness. International recognition of Maltese micro-credentials would be strengthened through secure digital badging and blockchain verification, while close collaboration with industry partners would ensure content relevance. This proposal addresses a clear gap in the current system, delivering more accessible, modular learning pathways that respond instantaneously to market needs—an innovation not yet realised in Malta.

Proposals

- Develop a single, centralised micro-credentials platform fully aligned with the MQF, where AI-powered labour-market analytics automatically identify in-demand skill modules; learners can enrol in discrete units, earn verified digital badges and have credentials secured via blockchain.

- Forge formal partnerships with leading industry federations and SMEs to co-design and deliver bite-sized digital, environmental and entrepreneurial skill modules, ensuring direct employer endorsement, hands-on experiential learning and micro-credentials validation.

- Embed micro-credentials into personalised career guidance frameworks at secondary schools and adult learning centres, linking learners to curated pathways and employer networks, thereby facilitating seamless transition between education and workforce.

- Launch pilot modular learning tracks at the major educational institutions, facilitating stackable certifications that progressively create recognised qualifications. This initiative will employ flexible delivery methods, industry mentorship across various disciplines, and stringent assessment practices.

Recommendation 2 – Reforming Assessment Practices with Competency-Based Evaluations

Currently, Maltese learners face a divided assessment regime where formative School-Based Assessment (SBA) constitutes 30% while high-stakes summative examinations account for 70%, ultimately determining progression. Although SBA has been introduced for Years 9–11, primary and middle school cohorts remain subject mainly to traditional end-of-stage exams, reinforcing rote learning and intensifying test-related stress. International exemplars such as New Zealand and Finland demonstrate that competency-based evaluation—anchored in authentic tasks, portfolios, and peer assessment—delivers deeper learning, stronger motivation, and better real-world readiness. By mandating portfolio-driven assessments, schools can promote a more flexible learning environment. These assessments are anchored in the Maltese Learning Outcomes Framework, which aims to free schools and learners from centrally imposed, knowledge-centric syllabi. In this approach, students engage in self-directed progression and collaborative critique. They do this by incorporating rubric-guided peer reviews and reflective journals. As a result, they hone critical skills such as problem-solving, communication, and adaptability.

Co-developing capstone projects with industry consortia ensures that assessment tasks mirror workplace challenges, validating technical expertise and soft skills. Introducing a hybrid model that limits summative exam weighting preserves academic rigour while embedding continuous feedback loops. Targeted professional development will equip educators to design moderate competency assessments, and policy reforms will align the Quality Assurance Framework accordingly. This multifaceted shift addresses system gaps worsened by the pandemic, reduces performance anxiety, and aligns Malta's evaluation practices with leading European standards—an overhaul not yet undertaken domestically.

Proposals

- Extend school-based assessment to all primary and middle schools, complementing existing SBA in Years 9–11 with continuous formative tasks tailored to developmental milestones and learning outcomes.

- Mandate portfolio-based evaluation systems for most subjects, incorporating rubric-driven peer reviews and reflective journals, fostering learner autonomy, metacognitive awareness and collaborative critique across subjects.

- Co-design industry-recognised capstone projects with employer consortia, aligning assessment tasks to authentic workplace challenges and validating technical and transferable competencies.

- Establish and deploy a hybrid model that combines formative and summative assessments across all years. This model should shift the emphasis more towards ongoing, formative assessment and implementing continuous feedback loops. The goal is to reduce student anxiety while promoting deeper learning.

Recommendation 3 – Aligning Curricula with Industry and Future Workforce Needs

While institutions such as MCAST maintain positive links with local employers, Malta lacks a formal mechanism to ensure curricula evolve in tandem with rapidly shifting labour market demands. As digitalisation, automation, and sustainability imperatives transform skills requirements across sectors, static academic frameworks risk producing graduates whose competencies are misaligned with employer needs, leading to underemployment and skill shortages. Switzerland's dual apprenticeship model—where workplace learning is embedded into formal qualifications—achieves near-zero youth unemployment and offers every learner a clear progression route. Instituting National Industry Advisory Councils for each economic sector would introduce a structured, biennial review of curricula informed by real-time labour-market analytics and stakeholder consultation. Embedding formal apprenticeship and cooperative placement programmes from upper secondary through post-secondary levels would integrate practical learning into each qualification. Incentivising employer participation via tax breaks and recognition schemes would deepen collaboration and guarantee that content reflects emerging technologies and sustainability goals. An annual skills foresight report, leveraging big data and expert panels, would guide proactive curriculum updates, enabling Malta to anticipate shortages before they materialise. This comprehensive framework would fortify graduate employability, stimulate industry-education synergy, and ensure the national skills pipeline remains agile and future-proof.

Proposals

- Constitute National Industry Advisory Councils for each key sector, tasked with reviewing and proposing updates to the curricula every two years based on labour market analytics and emerging skill demands.

- Embed structured apprenticeship and cooperative placement programmes from upper secondary through post-secondary levels, formalising workplace learning as a core component of qualifications.

- Introduce tax incentives and recognition schemes for employers who host interns and contribute to curriculum co-design, strengthening public-private collaboration.

- Commission an annual skills foresight report, leveraging big data and stakeholder consultation to guide proactive curriculum enhancements aligned with future workforce requirements.

Recommendation 4 – Prioritising Sustainability and Global Educational Collaboration

Despite Malta's strategic nod to Sustainable Development Goal 4 and ESG principles, its education strategy lacks a dedicated sustainability pillar or institutional centre to cultivate an ecological literacy system-wide. However, the 'National Curriculum Framework For All' includes cross-curricular themes, with Education for Sustainable Development (ESD) being one of these themes. Sweden's model of fully integrated Education for Sustainable Development (ESD) across all subjects demonstrates how mandatory modules instil environmental stewardship, critical thinking and interdisciplinary collaboration from an early age. Without a national hub, teacher exchanges, collaborative research, and student-led ecological projects are ad hoc, limiting Malta's capacity to respond to regional sustainability challenges. Aligning with the Government's existing initiatives on sustainability[39], establishing the Malta Mediterranean Sustainability Hub would centralise transnational research, pedagogy exchange, and co-created student initiatives, with a stronger focus on education. This would position Malta as a regional green innovation and educational tourism centre. Developing vocational tracks in solar technology, circular economy and marine conservation—directly aligned with EU decarbonisation targets—would prepare a workforce capable of driving local environmental resilience. Formal partnerships with European and Mediterranean universities on joint sustainability curricula and mobility programmes would broaden learners' global perspectives and enhance institutional prestige. For example, the University of Malta already participates in the SEA-EU alliance and the Erasmus Mundus Joint Master's programmes, demonstrating strong international ties, but far greater scale and diversity of such collaborations are needed to break the island's insularity. Teacher professional development in sustainability pedagogy, supported by a digital

[39] https://sustainability.gov.mt/

resource repository, would ensure high-quality delivery. This holistic approach would produce graduates who are technically equipped, civically engaged, and ready to tackle climate challenges at home and abroad.

Proposals

- Implement mandatory Education for Sustainable Development modules across all key stages, ensuring ecological literacy and stewardship become core learning outcomes.

- Establish the Malta Mediterranean Sustainability Hub as a centre for research, teacher exchanges and transnational student projects on environmental innovation.

- Develop specialised vocational tracks in solar technology, circular economy principles and marine conservation, responding to EU decarbonisation targets and local environmental priorities.

- Forge strategic partnerships with European and Mediterranean universities to co-develop joint sustainability curricula and mobility programmes, enhancing academic collaboration and global competence.

Recommendation 5 – Embracing Trust-Based Governance and Teacher Autonomy

Malta's current teacher preparation pathway centres on the Master's in Teaching and Learning (MTL) and includes a Bachelor of Education route, which provides an alternative MQF Level 6 entry pathway for primary educators. However, both programmes omit a dedicated, year-long residency under expert mentorship. The Institute for Education and MCAST also offer postgraduate certificates and diplomas in educational leadership and pedagogy, none of which mirror the structured residency model. Malta participates in Erasmus+ teacher training exchanges, yet these short-term placements fall short of a continuous, cohort-based residency. By contrast, U.S. teacher residency programmes integrate a full academic year of paid, mentored internships with concurrent graduate coursework, yielding retention rates of up to 90 per cent after three years and demonstrable gains in instructional quality. Finland's decentralised, trust-based governance grants teachers autonomy over pedagogy, curriculum adaptations and assessment design—underpinned by municipal oversight rather than centralised compliance—contributing to its consistently top rankings and high teacher status. The absence of a similar residency pathway in Malta represents a missed opportunity to deepen school–university

collaboration, foster professional agency and accelerate new teachers' classroom readiness. Introducing a fully funded, year-long teacher residency would align Malta's model with international best practices, embedding sustained mentorship, structured coaching and robust graduate-level inquiry, thereby driving trust, autonomy and sustained excellence.

Proposals

- Establish a National Teacher Residency Programme to replace block placements with a fully funded year-long residency under expert mentor-teachers, combined with postgraduate coursework, structured mentorship, and a guaranteed teaching position after successful completion.

- Support teachers by enhancing their professional autonomy in adapting curricular content, pedagogy, and assessment design. This empowers them to address diverse learner needs and local contexts per the Learning Outcomes Framework's intentions.

- Overhaul routine compliance checks with school-led peer review and self-evaluation cycles, supported by the Quality Assurance Department. This approach will empower schools to take ownership of their quality assurance processes while ensuring consistency and high standards through expert guidance.

- Introduce performance-linked career pathways that reward instructional innovation, leadership and ongoing professional contributions, fostering retention and growth.

Recommendation 6 – Implementing Learning Analytics for Data-Driven Instruction

Although existing Information Systems capture attendance, assessment, and engagement data, these streams remain largely siloed and underutilised for pedagogical decision-making. UNESCO has highlighted the potential of learning analytics to translate raw data into actionable insights, enabling educators to personalise instruction and pre-emptively support at-risk learners. Without a unified analytics framework, teachers must rely on fragmented reports and intuition, limiting the efficacy of early intervention. Deploying a national learning analytics dashboard would consolidate multi-dimensional data into intuitive visualisations, flagging trends and highlighting individual learning gaps in real time. Comprehensive training in data literacy would equip educators to interpret dashboards effectively, tailoring

interventions to student needs. Integrating micro-learning feedback loops within digital platforms would deliver bite-sized formative insights, fostering self-regulated learning habits. Crucially, an ethical governance framework with transparent policies on data privacy, algorithmic fairness, and user consent must support implementation to ensure stakeholder trust and compliance with EU law. This initiative would complement the Quality Assurance Framework by embedding continuous, evidence-based monitoring into daily practice. By operationalising these components, educators could enhance equity through timely support, drive excellence via targeted instruction, and build a richer, data-driven learning culture across the system.

Proposals

- Deploy a national learning analytics dashboard to consolidate attendance, assessment and engagement metrics into intuitive visualisations for educators and administrators.

- Provide comprehensive data literacy training for teachers, equipping them to interpret analytics insights and personalise interventions for at-risk learners.

- Integrate micro-learning feedback loops within digital platforms to deliver instant formative assessment and promote self-regulated study habits.

- Establish an ethical governance framework with clear protocols for data privacy, algorithmic transparency and stakeholder consent, ensuring trust and compliance.

Recommendation 7 – Expanding Project-Based and Creative Learning Ecosystems

Malta's current curriculum remains heavily classroom-based, offering limited sustained exposure to project-based and hands-on learning that cultivates creativity, collaboration, and critical thinking—the so-called "4 Cs" essential for 21st-century success. Singapore and Finland have demonstrated that embedding maker spaces and structured design thinking programmes across all key stages can foster entrepreneurial mindsets and authentic problem-solving skills. Establishing Innovation Labs equipped with prototyping tools in every secondary school would give students direct access to experimental workflows and rapid iteration. Introducing modular design thinking and entrepreneurship courses from Year 5 onward ensures early exposure to ideation, user-centred design, and business fundamentals. By establishing a dedicated network of AI Ambassadors in every

secondary school, comprising trained educators and selected student champions who receive ongoing mentorship from industry experts, each institution will develop a sustainable pathway for AI literacy and skills development across all year groups. These Ambassadors would organise peer-to-peer workshops, lead project-based initiatives harnessing AI tools, and coordinate with local tech partners to deliver authentic, real-world challenges that deepen critical thinking, collaboration and creative problem-solving. Partnerships with creative industry bodies to mentor student teams and curate public exhibitions of their work would showcase innovation, bolster civic engagement, and strengthen school-industry linkages. Essential professional development in project-based pedagogy will prepare teachers to facilitate these environments effectively. This ecosystem would ignite a culture of continuous innovation, equipping learners to navigate complexity and drive economic growth through creative enterprise.

Proposals

- Establish Innovation Labs equipped with maker-space tools and fabrication equipment in every secondary school, fostering hands-on prototyping and experimentation.

- Embed structured design thinking and entrepreneurship modules into the core curriculum from Year 5 onwards, developing creative problem-solving skills early.

- Establish an AI Ambassador initiative by selecting and training educator and student ambassadors to integrate AI tools into the curriculum, mentor peers, and liaise with industry for ongoing real-world projects.

- Partner with creative industry bodies to mentor student teams and curate public exhibitions, showcasing learner innovations and strengthening industry-education synergies.

Recommendation 8 – Adopting Open Educational Resources and Pedagogies

Although Malta's One Tablet per Child initiative has dramatically expanded digital access via the eSkola platform, a good chunk of state-funded content remains proprietary, limiting educators' ability to adapt, collaborate and reuse resources. UNESCO's OER policy framework demonstrates that mandating open licences for all publicly financed materials can cut costs, spur pedagogical innovation and democratise learning. Rather than building a separate repository from scratch, Malta should leverage eSkola's existing infrastructure by embedding permissive open

licences, structured peer-review workflows and version control. Comprehensive professional development in open-pedagogy practices—covering collaborative curriculum design, remixing techniques and quality assurance—would establish communities of practice dedicated to continuous improvement. AI-driven curation and advanced search analytics would help teachers quickly discover the most relevant lesson plans, videos and interactive modules. At the same time, micro-grants for cross-school co-creation would enrich the resource pool with locally grounded, high-quality materials. Strategic partnerships with international OER networks would further diversify content and build capacity. This integrated approach transforms eSkola into a next-generation OER ecosystem, advancing equity through free access and fostering a culture of open, collaborative innovation in Maltese education.

Proposals

- Mandate OER licensing for all state-funded digital content and require publishers to release materials under permissive open licences.

- Offer professional development in open pedagogy techniques, enabling educators to co-create, adapt and remix resources collaboratively.

- Convert existing repositories into a federated OER ecosystem by integrating open licensing, version control, peer-review workflows, AI-driven content curation, and analytics. This will enable educators to adapt, remix, and share multimedia lesson plans.

- Provide micro-grants to incentivise cross-school collaborations on OER development projects, fostering a vibrant community of practice.

Recommendation 9 – Formulating an AI Ethics & Policy Framework

AI promises transformative gains in personalised tutoring, automated assessment, and administrative efficiency, yet it also introduces risks related to algorithmic bias, data privacy, and eroded pedagogical integrity. While UNESCO's global guidance emphasises human-centred, ethically grounded AI deployment, Malta currently has no formal policy or oversight mechanism for AI in education apart from the MDIA sandbox. Pilot initiatives could inadvertently perpetuate inequities or misuse sensitive student data without a clear framework. Developing a comprehensive national policy would articulate permissible AI use cases, privacy safeguards and accountability structures, ensuring that AI tools augment rather than replace educator expertise. Establishing an AI ethics committee, co-chaired by representatives from the Ministry of Education and academic experts in AI, data

ethics and pedagogy, would ensure interdisciplinary stewardship. Embedding AI literacy, bias mitigation and data privacy modules into teacher professional development would empower educators to evaluate AI applications critically. Regular stakeholder consultations—including student and parent voices—and scheduled policy reviews would keep regulations responsive to emerging trends. This holistic framework would safeguard student welfare, foster responsible innovation and position the country at the forefront of ethical AI integration in education.

Proposals

- Develop national guidelines for responsible AI use in teaching, learning analytics and administrative processes, aligned with UNESCO recommendations.

- Conduct pilot deployments of AI tools under strict ethical oversight and efficacy evaluation.

- Establish an AI ethics committee co-chaired by the Ministry for Education, Sport, Youth, Research and Innovation and academic experts in AI, data ethics and pedagogy.

- Implement comprehensive teacher training programmes on AI literacy, bias mitigation, algorithmic transparency and data privacy to build critical evaluation skills.

Implementation Framework

To translate these strategic recommendations into practice, Malta should begin by convening a dedicated reform unit within the Ministry for Education, Sport, Youth, Research and Innovation—bringing together representatives from schools, higher-education institutions, industry, teacher associations and student voices to guide early pilots, foster collaboration and ensure coherent governance.

In the short term, this unit would focus on proof-of-concept trials: establishing the first teacher residency partnerships, piloting the learning-analytics dashboard in a handful of schools, and converting eSkola into a small-scale OER environment. These pilots will test assumptions, surface logistical challenges, and build the mentor-coach and data-literacy capacity that will underpin broader change.

Over the medium term, successful models and lessons learned from these trials will be scaled system-wide. The reform unit will orchestrate the roll-out of micro-credentials and competency-based assessments across all school levels, convene sectoral councils to align curricula with the evolving labour market, and deepen partnerships with employers and international OER networks. Concurrently, a comprehensive suite of professional-development programmes (spanning digital pedagogy, open-licensing practices, sustainability education and AI ethics) will equip educators and leaders with the skills to sustain innovation. Funding will draw on re-priorised domestic budgets, EU recovery and innovation funds, and targeted private-sector contributions, ensuring both financial resilience and ownership by all stakeholders.

In the long term, these reforms will be embedded into Malta's statutory and quality assurance frameworks, with the initial reform unit evolving into a permanent Centre for Education Innovation. A robust monitoring and evaluation ecosystem—built around clear performance indicators, annual impact reviews and adaptive feedback cycles—will drive continuous refinement. Throughout, transparent communication via a public dashboard and regional engagement forums will maintain momentum, secure community buy-in, and sustain political support. By sequencing pilots, scaling proven approaches and institutionalising rigorous evaluation, Malta will cultivate an agile, inclusive and future-ready education system.

THE LABOUR MARKET OF THE FUTURE

STRATEGIC CONTEXT

This final report is a thought-provoking discussion of the economic model Malta is envisioning, the type of labour market needed to sustain this model and more importantly the skills set which workers in Malta will need in the coming years. The labour market has changed drastically in quantity terms in the last decade, but it needs to change in quality terms in the next decade. According to the Labour Force Survey, the number of employed persons increased from 149,859 (September 2011) to 325,631 (December 2024), that is more than doubling in a period of 13 years (NSO, 2025). However, the NSO 2022 nationals skills survey, showed a labour market which was heavily mismatched both in terms of the level of education and the type of skills acquired through education, resulting in an alarming majority of workers in jobs below or above their level of education and in jobs unrelated to their fields of studies (NSO, 2022). This can result in lacklustre quality work and thus impacts on productivity levels, particularly in certain sectors of the economy.

In the initial phase of our project, we chose to give only a definition of what is meant by skill or capability, to gauge the level of information within the local economy and its participants. There was a minimal distinction between technical and soft skills in the first report, as this was derived from the first questionnaires administered to graduates and workers.

The ILO's 2018 guidelines on qualifications and skills define a skill as:

"the innate or learned ability to apply knowledge acquired through experience, study, practice or instruction, and to perform tasks and duties required by a given job"

(p.3).

It further suggests the distinction between: job-specific/technical skills (specialist knowledge particular to an occupation); basic skills (literacy, numeracy and ICT, skills needed as a prerequisite for further education and training and to acquire the other two types of skills): and transferable skills (relevant to a broad range of jobs and easily transferable, and which can include problem-solving, language, socio-emotional, communication, teamwork, and other cognitive skills). The latter were by and large what the first report considered as soft skills. The basic skills were assumed as given if one were to engage in post-compulsory education, since our first survey was

among tertiary level students. However, considering that the educational system still has several students who do not engage in further education or even take SEC exams indicates that these students may not feel they can accomplish this step of continuing to learn. Thus, even basic skills may be missing as there is no way to gauge what they have accomplished throughout their compulsory educational process. According to the 2021 Census Final Report (Volume 3), there were over 20 thousand illiterate persons in Malta, including 519 young individuals aged 10-19, and 632 youths aged 20-29. The educational system was unable to provide these individuals with even basic skills, making further learning even more problematic (NSO, 2024).

Figures for adult education (18-69 years of age) show that only 11.6% engage in formal education, with slightly more than half of them being aged 18-24, thus the cohort which is possibly attending further education and thus is not considered as an early school leaver. This means that the level of those adults above the age of 24 who are engaging in some form of formal education is even more limited. Eurostat data puts the figure of early school leavers at 10.2% in 2023. Those aged over 55 were unlikely to engage in further education. Thus only **5.78%** of those aged 25-54 engaged in formal education or had some form of qualification to show new knowledge and skills acquired during 2022. Figures for non-formal training were higher standing at 41.6% of the 18-69 age group, and training came in the form of workshops, lessons or on the job training. Thus, while skills were learnt, and these could be utilised in the labour market there is no formal certification of such skills and thus it is more difficult to show future employers the worth of the person's skillset. There were others who engaged in informal 'education', which came from a family member or friend, from printed material or electronic devices, or by visiting libraries and museums. Like non-formal training, there is no certification to present to the labour market (Eurostat, 2025).

There were high expectations in 2022 for the National Skills Survey which would map the skills availability and profile of the working age-population in Malta (Eurofound, 2023). Towards the end of 2022, the NSO conducted its first ever national skills survey which showed a situation of a country which is not fully utilizing or efficiently using its resources and talent. This impacts the level of productivity. The Maltese labour market has a significant level of skills mismatches. In terms of vertical mismatches (the level of education of the person employed and the job do not correspond), thus a person can be either over-educated or under-educated for the job. NSO data show the figure tends to be very high, at 54.3%, with 35.1% being over-educated and 19.3% being under-educated. In both cases, it is unlikely that the productivity level required by the job is reached. The over-educated might have settled for the job because there was nothing better for them and the latter are in a job above their capabilities. Women and foreign workers tend to more over-educated, then men and locals. Services and sales workers and craft and related trade workers also had a higher

share of over-educated workers. On the other hand, more than half of managers were under-educated, as were over a fourth of professionals. Over-education was also higher in public administration, defence, education, human health and social work activities. However, a fourth of persons working in information and communication were under-qualified, as were over a fifth in manufacturing. The over-qualification rate has increased from 12.4% in 2012 to 20.2% in 2021. This signifies that one fifth of the workforce are in a job which is not making the best use of their capabilities, with the figure for women being 10.3% higher than for men. The figure is even stronger at 19.6% higher for foreign workers. Over-qualification is present in all EU27 labour markets, with Luxembourg being the lowest at 3.9% and Spain recording the highest at 35.8%. A high level of overqualification shows a labour market which is unable to offer jobs which match high level qualifications and, it is a labour market which is losing out on the talent and skills available in the labour force. This fact alone calls out for a reshaping of the economy and also signals that the country has the potential and capabilities to engage in such a transformation, where overqualified persons can be better and more efficiently and productively utilised.

Another form of mismatch is horizontal, which is the discrepancy between the field of education a person has studied (highest level of education attained) and the person's current job. According to the ILO guidelines, only those with at least higher secondary education (where an element of specialization has been engaged in) should be considered. In Malta's case, International Standard Classification of Education (ISCED) 4 refers to post-secondary education, i.e. post-compulsory education. LFS figures for 2021 indicate that almost half (47.6%) of workers with an ISCED 4 or higher level of education were working in a different field from that studied, with similar percentages for both men and women, and a slight difference for those aged 55 and over, where there were more women in horizontal mismatch. Almost half (48.1%) of persons with a tertiary level of education were not working in a job related to their field of education. Horizontal mismatch was less likely in areas such as construction and finance and insurance. The biggest horizontal mismatch was found for service and sales workers (66.9%) and managers (57.6%). However, craft and trades workers (70.8%) and professionals (60.7%) were working in jobs directly related to their studies.

When one takes into consideration both types of mismatches, the labour market is in a situation where only 16.3% of workers are working at the educational level and field of studies commiserate with the job. The remainder are either below or above their level of education (36.1%), not working in a job related to their field of studies (12.4%), or worse, in a job which their level and field of education are a mismatch in both categories (35.3%). These figures are relevant to persons with a post-secondary level of education or above. The data paint a picture of a labour market which is not working professionally: it only has 16.3% pieces of a jigsaw puzzle in the correct place.

The groundwork for our report included desk research on recent reports, studies, conferences and articles in renowned journals and websites. Interviews were held online with several international organisations, such as the International Labour Organisation, CEDEFOP, Jobs and Skills Australia (JSA), and experts from the labour market field, including academics and practitioners. Other entities such as the Directorate General for Employment, Social Affairs and Inclusion, and Skills England were contacted via email. In total 22 interviews were held. Their replies come with the proviso that the answers do not necessarily reflect those of the entity and should not be considered as official endorsement of the entities the interviewees represent. For this reason, not all entities are being mentioned, since the identity of the person would be deducted. Their answers are interspersed throughout this report and thus anonymity has been contained. Many answers were similar, even though they come from different parts of the world and the interviewees have different responsibilities. Interviewees were asked six main questions: what changes they anticipate in the labour market of the future and why; how these changes impact future skills needed; what they consider the top skills needed for future jobs; what impact all this is likely to have on the education system; whose responsibility it is to upskill and reskill (employees, employers, governments or other institutions); and what are the ethical and societal implications in a labour market which includes AI, robots, machine learning, with some of these taking over certain current jobs.

The above paragraphs have introduced the topic, provided definitions utilised in this report, referring to local statistics and studies to provide a contextual framework, and provided the methodology. The remainder of the report presents seven sections and the conclusion. The first section looks at major forces reshaping the nature of work, and expectations within the global and regional labour markets. The second section provides the evolution of employment structures and the changed attitudes towards work, particularly with newer generations. The third section focuses on technology and automation and their impact on jobs and tasks. The fourth section discusses managerial transformations and career trajectories. The fifth section depicts the situation of the Maltese labour market, in terms of skills, productivity and supply of labour. The sixth section provides the different methods one can use to gauge the labour market and make predictions. The seventh section provides policy impacts and recommendations of this report. The last section concludes.

Changes in the Labour Market on a Global and Regional Scale

The labour market has always evolved to accommodate the changes going on in the economy, society and particularly in technology, new discoveries and innovative practices. Sometimes it was the other way around, that the labour market demanded

changes in society. Changes have revolutionized labour markets, bringing with them obsolescence of certain jobs, for example bus conductors, the milkman or more recently a large number of cashiers in banks and shops, and the creation of new jobs which tend to be of a higher skilled nature. Whilst manual jobs remain, if the adoption of certain technologies, such as automation and AI, are undertaken, then manual and even certain 'mental' jobs will continue to diminish in number. That is not to say that all jobs can be produced by robots, AI, technology or other non-human intervention. But the advances in technology, the digital revolution and generative AI have created environments whereby certain jobs done by humans can be taken over wholly or partially by technology. For example, whilst the bank cashier has been replaced by the automated teller machine (ATM), nonetheless the machine still needs to be loaded with cash, envelopes, chits, ink and still requires reconciliation at the end of the day and maintenance on a regular basis. Thus, the types of jobs associated with cash dispensing have changed in nature, but human intervention is still needed, most often behind the scenes and not on the frontline. This has been happening for significant decades, but the pace of the current technological changes far supersedes anything that was accomplished previously. The increase in the take-up of technology will drive up a widening wedge between those who forge ahead with this technology and those who will lag further behind. New skillsets are required to deal with job and labour market transformations, in a significant number of jobs. New skills will need to be learnt and adopted.

According to the 2025 World Economic Forum's Future of Jobs Report,

"Technological change, geoeconomic fragmentation, economic uncertainty, demographic shifts and the green transition – individually and in combination – are among the major drivers expected to shape and transform the global labour market by 2030."

(WEF, 2025, p. 5)

Continuing with the trend which has been accelerating in recent years, technological innovations, (particularly in AI and data processing), robotics and automation, and energy generation, storage and distribution are the areas most likely to impact future employment, both in terms of disappearing and replacement jobs. The accompanying technical skills needed will include those related to AI and big data, networks and cybersecurity, and technological literacy. Slower growth and inflationary pressures are anticipated to impact on transversal skills such as 'creative thinking and resilience, flexibility, and agility'. In the past years, climate change has created atmospheric catastrophic events, with the result that mitigation has become a global concern with employers. The interviewees of the WEF report expect increases in jobs such as 'renewable energy engineers, environmental engineers, and electric and autonomous vehicle specialists' (all three among the top 15 jobs which

are growing the fastest). Environmental stewardship is the accompanying skill in this regard.

Demographic changes are affecting the structure of labour markets in both developed and developing countries. According to Levy (2025), a University of Sorbonne scholar, two thirds of countries in the world are below the fertility replacement ratio, with '1 in 6 individuals experiencing infertility'. This is being linked to lifestyle and environmental issues which means that unless we turn around our way of living, which has been changing in the past five to six decades, the chances of reversing the trend are unlikely to happen. Ageing populations and declining fertility rates are resulting in a smaller labour force particularly in developed countries. These will increase the need for jobs in healthcare, particularly for the elderly, and care workers. On the other hand, fertility trends in developing countries whilst also declining, nonetheless are leading to larger working-age populations. This imbalance in labour markets is likely to have an impact on talent management on a global level, which increases the possibility of migration but also puts pressure on increasing the potential of such talent on education-related professions, particularly in sending countries. Alternatively, since talent management and utilization of such resources are to be appropriated by more developed countries, such talent augmentation could be financed and even provided for by receiving countries. Geopolitical tensions in the past years and in more recent months may lead to new trends in global trade and production processes, challenged by 'increased restrictions on trade and investment, as well as subsidies and industrial policies'. The possible escalation of trade wars based on tariffs and retaliation tactics will also change labour markets, because of price changes leading to new equilibria in demand and supply. Offshoring and re-shoring and possibly changed investment trajectories will alter production locations and thus influence labour market configurations. The jobs associated with this type of disquieting and unstable conditions are related to security, whilst there is an increasing demand for network and cybersecurity skills. Demand for human-centred skills such as 'resilience, flexibility and agility skills, and leadership and social influence' are expected to increase.

Societal changes in the developed world include a low fertility rate which is restricting the growth of local labour markets and leading to requests for foreign workers in many countries. This migration is leading to a brain drain in the home country and countless problems in the hosting country such as increases in housing needs and prices, congestion and strains on the infrastructure in general, and societal issues related to cultural incongruencies and xenophobic tendencies. This comes coupled with an ageing population, which lives longer and needs more care. All these are leading to a shrinking of the working-age population which needs to support more dependents. Migration is often considered as a good solution to ensure that the economy continues to grow. However, data also shows that often

migrants' skills are not fully utilised since their qualifications (particularly those of third country nationals) are not deemed as comparable and thus not accepted, resulting in underutilization of the migrants' potential and skills.

The political turmoil in certain parts of the world is creating economic cautiousness and instability, whilst delaying the adoption of future oriented technologies. It is not only the physical wars being waged in different parts of the world, but also the more recent attacks on the global trading system in the form of tariff increases, or threats of tariff escalations. The uncertainly created globally is likely to impinge on global demand with its repercussions felt on jobs and the labour market. A dampened demand pulls all economic actors down with it.

The World Economic Forum in its annual 2025 Future of Work report discussed economic growth, not for its own sake but sought to widen the perspective indicating four pillars where growth needs to be innovative, inclusive, sustainable and resilient (WEF, 2024). The report says the world is only halfway there. The existing flux of the labour market is expected to intensify with those not updating themselves, through upskilling and reskilling, being referred to as 'similar to dinosaurs', who will become extinct. The expectations of the employers interviewed for the WEF report estimated that "44% of existing workers' skills will be disrupted in the next five years." The 2025 report provides the usual lists of jobs which are fast declining, and these include, clerical, cashiers, administrative, postal workers, printing related workers, street vendors, graphic designers and certain types of legal work. On the other hand, the type of jobs which are increasing at a fast pace are related to data science, fintech engineers, AI and machine learning specialists, software developers, security management and data warehousing, and different types of specialized engineers. These fastest growing jobs are all specialized, technology-related ones, which require specific technical skills, whilst they are replacing jobs which needed mainly lower-end skills.

These drivers collectively are predicted to lead to structural labour market alterations, representing just over a fifth (22%) of today's global jobs. A total of 170 million new jobs are projected, displacing 92 million current jobs. Net job creation is expected in the range of 78 million jobs. Thus, those jobs lost are more than amply being replaced, however, by far superior type of jobs which require a higher level of technical and soft skills. The largest increase will be in frontline jobs such as health and education related jobs, farmworkers and food processing workers, delivery drivers, construction workers, and salespersons. Nonetheless, the number of farmworkers has been replaced by technology in certain instances, while some countries are already utilizing robots and drones to deliver goods. Warehousing is more robotic in certain companies. Innovations with the capacity to build walls are already being tested out. The fastest growing jobs, as mentioned earlier are, 'Big

Data Specialists, Fintech Engineers, AI and Machine Learning Specialists and Software and Application Developers. Green and energy transition roles, including Autonomous and Electric Vehicle Specialists, Environmental Engineers, and Renewable Energy Engineers' (ibid.). On the other hand, clerical, secretarial and cashier work will continue to decline.

In terms of skills, the WEF report calculates that 39% of skills will be altered or even become obsolete in the next five years. In the past five years, similar reports had indicated that more skills would need to be transformed but this transformation seems to have slowed down. This is mainly due to the fact that uptake of new technologies has not occurred at the same speed as initially envisaged, however, it could also be related to training, upskilling and reskilling already engaged in during the intervening years. In 2020, the calculation was that 57% of existing skills would need to be changed or amended. Thus, this could indicate that in the intervening years, those who are considered as front-runners have already increased their capacity by providing their employees with the required new skills, or have perhaps in the meantime poached those skills from other firms or even countries. A global race for talent has been in the making for a number of years, with talent attraction formulated in national migration policies spelling these out in more detail.

A report by McKinsey (2025) finds that it is not employees who are not ready for AI but rather it is the leaders who are not being fast enough in its adoption, with only 1% considering themselves as having fully adopted the existing potential technology. AI has the same potential as earlier groundbreaking innovations, but whilst the long-term gains appear appealing the short-term prospects may not be so obvious. Employers need to think big and see the full potential that AI can deliver to their operations.

According to the 2025 WEF report, seventy percent of employers view analytical thinking as the most important skill, while AI and big data analysis are the fastest-growing skills. Apart from skills mentioned earlier on, (such as network and cybersecurity, technology literacy, AI learning). On the negative side, declines are expected in manual dexterity, endurance and precision, since these are being taken over by AI and precision robotics.

Skills gaps are the biggest hurdle for company transformations. Employers are placing significant importance on reskilling and upskilling. The WEF report indicates that 59% of employees would need retraining in the next five years. Whilst 29% could be upskilled and could retain their current role, 19% would need to be reskilled but redeployed within the organisational structure. The remaining 11% are considered at risk of unemployment since they are unlikely to have the skills or training capability needed for a new job.

However, these expectations and changes are related to the employers interviewed. The level and type of skills gaps and training needs depend on a myriad of contextual realities, including the sector of economic activity, the level of new technologies adopted by the business enterprise, the incentives and support offered by public institutions for businesses to upgrade their business model, digitalisation process and upskilling and reskilling of employees, and the type of economic model envisioned by the governing authorities. Such skills gaps analysis need to be undertaken in the local context. Further down, a discussion on ways to engage in such an exercise is presented.

"Over 40 years ago, the internet was born. Since then, companies including Alphabet, Amazon, Apple, Meta, and Microsoft have attained trillion-dollar market capitalizations. Even more profoundly, the internet changed the anatomy of work and access to information. AI now is like the internet many years ago."

(McKinsey, 2025)

The interesting finding is that the report 'concludes that employees are ready for AI. The biggest barrier to success is leadership.' It is thus up to the decision-makers to make the changes needed and adapt the infrastructure and operations in readiness for AI and its potential.

Furthermore, the prevailing conditions are also dependent on the global competitive environment, economic directions and regulations provided by the region within which Malta operates, that is the European Union.

At this point one needs to assess the regional perspective impacting on Malta. The toll on the natural environment, climate change, greenhouse gas emissions and depletion of certain resources have led to more attention being given to green jobs and an economy which is more ecologically friendly, such as the push for a circular economy. This means that new investments need to be made to cater for this green and sustainable transition. The EU's focus is on the twin transitions of the green and digital spheres. This is then reflected in changes in the labour market and the skills needed for this twin transition. The European Skills Agenda of 2016 set out certain targets to be reached by 2025, the current year. Table 1 presents the indicators, targets and 2022 data for EU27 and Malta.

Table 1 - European Skills Agenda

Indicator	Target	EU 27 average*	Malta *
Participation of adults aged 25-64 in learning during the last 12 month (in %) **	50%	46.6 (6.3)	46.4 (7.5)
Participation of low-qualified adults 25-64 in learning during the last 12 months (in %)	30%	25.1 (2.8)	21.3 (u)***
Share of unemployed adults aged 25-64 with a recent learning experience (in %)	20%	29.2 (6.2)	n/a
Share of adults aged 16-74 having at least basic digital skills (in %) (Information and data literacy, communication and collaboration, digital content creation, safety, and problem solving)	70%	55.6	63.02

*Latest year available 2022 except last item which is 2023
** indicates formal and non-formal learning (figures in brackets show only formal learning for which certification is provided)
*** low reliability
n/a not available
Source: Based on Eurostat data.

Figures appearing in Table I, where available, show that Malta may be in a position to reach some of the targets, such as the first and last indicators, however data for the other two are unreliable, indicating few observations. Moreover, a word of caution is needed in this respect. In a labour market, whilst non-formal and informal training are important and can be utilised on the job, certification is only offered in formal training, thus the transferability and utilization of that knowledge from one job to another is not always guaranteed or can be helpful in the search for alternative employment.

The year 2023 was the European Year of Skills, marked by skills gaps and skills shortages. A dedicated Eurobarometer survey (Flash Eurobarometer 529) was held during the year to gauge the role of skills amongst SMEs. A significant 95% of all EU27 SMEs surveyed (12,909) stated that it was very (82%) or moderately (13%) important to have workers with the right skills. The total figure for Malta was slightly higher at 89% and 7% respectively. At the time of the survey 74% of SMEs indicated they faced skills shortages for at least one role in their company, with the figure rising to 87%

for Malta (surpassed only by Austria at 88%). Skills shortages remain a problem for all companies.

The EU's focus on the green and digital transitions is ensuring that the EU is able to compete in terms of technological changes in a fast-paced digital age, whilst complying with sustainability issues, linked primarily to the Sustainable Development Goals. The EU is facing problems with its labour market, top of which is its ageing population and other demographic changes, including a declining fertility rate. The EU needs to ensure that it is utilising all its resources and to make the most efficient use of its local and foreign talent. The ageing population issue has increased attention to a growing need in the care economy, and the gaps in the labour market are pushing governments to engage more with the silver economy, leaning on a new type of market for additional services required by older citizens. Another policy is active ageing which entices persons who have experience and expertise not to leave the labour market on retirement, but to continue to offer their knowledge and skills. However, this is unlikely to be possible for all types of jobs, since not all human beings will have the same mental and physical capacity for the job they engaged in before their retirement. Furthermore, engaging in today's labour market requires a level of digital skills which older workers may not possess or are able to learn.

The COVID-19 pandemic brought on new realities and possibilities in the form of remote working and learning, which put pressure on the digital infrastructure and created stark differences in terms of access to and capacity of the existing framework. Thus, the pandemic showed the constraints of the EU digital readiness. However, it was not just the infrastructure which was found to be wanting in certain areas, but also the accompanying skills, which continue to be elusive in terms of the jobs being created in a more technologically-oriented economy. Illiteracy, lack of entrepreneurship, skills mismatch and skills gaps are creating problems between existing vacancies and current skills.

The EU has engaged in various projects to upgrade the skills for a more technologically and digitally oriented economy, including the Harnessing Talent Platform and Talent Booster Mechanism and many more projects and funding opportunities for upskilling and reskilling of workers. The EU is facing a skills shortage and a recent report by the European Commission identifies shortages in 42 occupations, mainly in construction, trades, transport and health sectors. Around 80% of European business struggle to find the skilled workers they require. The shortages are also accompanied by skills mismatches, with Ilias Livanos, from Cedefop, indicating that education systems are clearly not prepared for the rapid changes of robotisation and artificial intelligence happening in the labour market, and insisting that continuing training is the responsibility of individuals and employers. This result also transpired in the interviews held with employers, unions, and

educational representatives in our study, with these findings already presented in the second report. On 5 March 2025, the EU launched its latest initiative, the Union of Skills, to tackle the region's skilled labour shortage. This is based on four pillars: "investing in education and training; promoting professional retraining; encouraging the mobility of students and workers; and making the EU more attractive to foreign workers" (Euronews, 2025). Another related project is named 'Choose Europe' which encourages skilled workers from third country nationals to work in the EU. Other initiatives include foreign student visas support, Erasmus+ exchange programmes, and the Skills Pact aimed to upskill and reskill workers. Competition for outside talent is heavy, particularly from the US, China, India and more recently Arab-speaking countries, with the latter offering high salaries to attract skilled workers.

There are also issues of investment and scale economies which also come strongly into the picture. In fact, a Eurofound report on the role of robots in the labour market shows that for now only large companies are making use of robots and cobots (Eurofound, 2024). Details regarding this situation for Malta are presented in a section further below.

The global and regional labour markets are evolving at a very fast pace and whilst assistance and even funding are available, the desire to make changes to a current profitable enterprise and thus disrupt the status quo, might not always be as enticing or readily acceptable as the economy demands. Employment conditions have always changed, demanding new skills and adaptation. At this point in history these changes are much faster demanding speedy and continuous learning of new skills. The next section discusses the ways employment is changing in the current economic environment.

The Evolution of Employment Structures and Attitudes Towards Work

Employment structures have been changing in the past decades, with the 9-to-5 jobs facing opposition from people who do not wish to be restricted within such timeframes on a daily basis.

This section explores how employment structures are changing, with a focus on shifts such as the rise in remote work, (particularly egged on by its possibility during the pandemic), the gig economy, mostly through platforms, and changes in traditional full-time employment models. Expectations are that the hybrid model (part remote and part in traditional offices) will continue, particularly with newer generations not appreciating being tied down in an office, but requesting more flexibility and freedom to work in different environments, offices, homes, cafes, parks etc. The hybrid model can also be beneficial for employers since it reduces costs in terms of

space, and amenities expenses (electricity, water, air-conditioning). Recent research by McKinsey indicates that remote working has not diminished productivity, but has in certain instances increased productivity, due to employees feeling more committed working at their own pace and environment (Choudhury, 2024) and often quieter and less distracting settings. However, meeting colleagues within the traditional office settings help in connectivity, and the sense of belonging. Another feature which is becoming more evident is that workers are requiring more autonomy on the job.

The biggest change has occurred in terms of the gig economy. This relates to temporary contracts, freelancing, mini contracts, short-term jobs, or work based on projects. This offers individuals more flexibility, but it is also an insecure type of work, which is not suitable for all workers. Temporary agencies began after the World War II (WWII), but their intensity has increased, particularly aided by online platforms, which espouse buyers and sellers of goods and services. Legislation regarding platform work remains in its early stages in many countries and certain agencies who match the buyer and seller, may be profiting from this legal lacuna. However, employers who require short-term employees are finding the gig economy to work in their favour. Persons who like to choose their own working pace are also content with the choice of task-related payments. Terms of the job can often be negotiated, there is more flexibility and more than one job at a time can be undertaken with more than one 'employer'. Freelancing also increases the wide range of projects which the individual can engage in, gaining insight and experience in different fields, increasing his or her marketability in a changing and more demanding job market. The gig economy can also sustain individuals with additional income, in conjunction with their steadier income from their main job. Research indicates that AI and machine learning experts earn more through freelancing than being in a traditional employed situation.

The skills being required for the latter type of freelanced work is mainly in terms of programming and the finance world. On the other hand, demand for customer support work is decreasing. This push for more programmers and software developers is congruent with the drive for digital transformation, particularly instigated by the growing pace of e-commerce and advancing automation and AI. For the financial world, skills related to financial modelling, and tax and investment analyses are increasing in demand, and can be offered online. Customer support work is being replaced by Chatbots and other self-service solutions, with many companies resorting to these to reduce costs. Uber, Bolt and Wolt revolutionised transportation and delivery, and Airbnb affected hospitality, just to name two areas that have seen an impact globally and also in Malta in recent years.

The gig economy is not beneficial for all workers, since it offers less job security, volatility in income revenue, absence of benefits generally associated with employment, such as different types of leave, and some workers may need to accept low wages, with certain platforms even exploiting a number of freelancers, due to increases in workers' supply, particularly in low income sectors such as delivery, cleaning, and other manual mini jobs.

Employers also need to understand that workers are putting greater emphasis on their well-being, mental health and rationale for living and working. These may include mundane issues such as more relaxed dress codes, but can also affect schedules through requests for flexible hours to accommodate their home conditions, online meetings, and time and space to cool off. Work is no longer the primary goal for many people, but a means to sustain a certain lifestyle. Furthermore, workers are looking not just at salaries but also other working conditions and perks. Several studies indicate that such perks may be the deciding factor in a market where sectorial salaries tend to converge. These can include, private health insurance or private pension funds, space for recreation or meeting up other colleagues, kitchens and free food or snacks, gym memberships, different types of allowances (parking, internet, telephony, access to journals etc), but also career paths through training and personal development programmes, whether in-house or sponsored and availed off externally, flexible hours and remote working, inhouse medical assistance, training camps, away days for teambuilding, mental health support, discounts offerings such as cloudigo, and many others, with some entities offering company shares which increase with the number of years one is loyal to the same company.

Literature indicates differences in attitudes to work from diverse generations, since each generation reflects its environment. The baby boomers (1946 to 1965) will soon be leaving the labour market, since those born in 1965 are turning 60 in 2025, there was quantity and people willing to work hard. The Gen X (1966 to 1980) have seen significant changes to the labour market, in the introduction of technologies which altered the method of working, bringing with it more technology, computing capacity and the world wide web. The Millennials (1981 to 1996), continued to see dramatic changes brought on by advances in communications and telephony advances which handed the internet on one's palms. Gen Z (1997 to 2012) who have now been in the labour market at most for a decade have diverse attitudes to work, the work environment, expectations and ideas about leisure. These impinge on their relationship with their employer. According to the results of the interviews held with Maltese employers during 2023, they believe new employees do not appear to have the same work ethic as previous employees. Research on Gen Z employees shows that they tend to have more demands such as working from outside the confines of an office. (More on Gen Zers below).

Another change which has inched higher up on the work agenda in the past decade is the idea of a shorter working week. Research suggests that working long hours is associated with a lower level of well-being and thus persons with a weak work identity prefer to work part-time (Bryan and Nandi, 2015). In 2015, Iceland started the shorter work week experiment with 2500 individuals (representing roughly just 1% of the workforce). By 2019, the programme was expanded and now in 2025 the project covers 90% of workers in Iceland, who work a 36 hour, four-day week, instead of their previous 40 hour, 5-day week, with no reduction in pay. Six years after this widespread experiment, data shows that the fear that this would reduce productivity not only has been dispelled but in fact in certain sectors, productivity has even increased. The workers indicate they can better balance their life and work commitments, and their stress level has decreased, both considered as goals for Generation Z. These led to positive impacts on wellbeing and mental health. Interestingly, the shorter week also impacted on gender equality, providing both parents with the time allocation to enjoy life as a family, and to evenly distribute domestic and parental duties. Iceland was able to be successful with this programme through significant investments in digital infrastructure, even in its remote areas, which gave the possibility of remote working, without the need to spend long hours at the main office or travelling to it. People proclaim this has led to 'less stress, more job satisfaction and more time to enjoy life.' Belgium also legislated for a four-day week but did not shorten the hours, merely distributed the hours of the fifth day on the other four days. The success seen by Iceland was not replicated in Belgium and the four-day week has not been greatly taken up. From another perspective, research also suggests that the four-day week is not viewed positively by everyone, but rather it is more the aspect of flexibility and autonomy on work hours which is more enticing. Nonetheless, the success generated by the Icelandic programme has led to pilot projects in other countries, such as Germany, Portugal, Spain and the United Kingdom. The Icelandic programme was mainly pushed by Gen Z advocates who treasure flexibility, autonomy, balance between their life and work, and well-being.

Perhaps one of the biggest changes the labour market is witnessing refers to the different attitudes of the more recent entrants into the labour market, the Gen Z workers just mentioned above. This is the generation born between 1997 and 2012, with their entry into the labour market happening at most for the past decade, but for those who undertook post-secondary education, even less than that. Many employers see them as different from previous employees. Gen Zers are at the beginning of their working life and have different expectations. Although they seek financial security, they desire a sustainable balance between life and work. They appreciate more the hybrid system, with remote working offering more freedom, whilst office work leading to mentoring, camaraderie, networking and learning on the job. They realise that their current skills have a shorter shelf-life than earlier

generations had with their skills, and this is due to dramatic and fast changes in the technological environment. They know they will need to update their skills over the course of their working life and often. Companies who are willing to offer support in this regard are more likely to look attractive to new entrants, since this indicates a career path. Early indications from research suggests that Gen Zers are seen as difficult to work with, however, this needs to be understood and tempered with the idea that earlier generations have also been stereotyped. For example, Baby Boomers were considered as resisting change, particularly the learning of new technologies, Generation X were seen as cynical or apathetic, while Millennials were labelled as being job-hoppers and feeling entitled. Gen Zers have a more agile mindset, they are curious, sometimes easily bored, need to be kept interested, and they have core values which are challenging perspectives on life and work. Whilst this generation does not have the expertise derived from experience, because of their adaptive skills and their knowledge of ever-changing technology, they are able to find solutions quicker and easier than earlier generations. They have lived their short lives immersed in technology. Cat Ward, vice president of the Jobs for the Future, on a LinkedIn article stated that '... many see Gen Z workplace needs — for transparency, diversity, flexibility, purpose, career mobility, and more — as unreasonable.' However, she continued that '(T)heirs is a generation molded by transformative forces, including a global pandemic, a racial reckoning, political gridlock, climate crisis, and the rise of artificial intelligence." Ruettimann, an HR and management consultant, in a LinkedIn post, maintains that,

"Gen Z also appreciates feedback, seeks mentorship, and craves a sense of community in the workplace, while also wanting autonomy over their workdays. A blend of flexible work policies, comprehensive onboarding, continuous learning opportunities, and a strong company culture that values diversity and inclusion can help engage and develop this cohort — one that's already emerging as the next generation of leaders."

It is for these reasons that the new generation of workers are being seen to be difficult to work with, needy and do not have the work ethic as previous generations. In fact, this was evident in the interviews conducted with Maltese employers who referred to them as having a different work ethic, which was seen as a negative aspect of this new cohort of workers. However, one needs to delve deeper into the rationale for this attitude and not only respect it but try to exploit its positive elements, such as willingness to keep on learning, to be innovative and curious, and to be tech-savvy.

Another change for discussion is in relation to the idea of job security. According to a Forbes article, job or career security is no longer attached to an employer but rather the security to remain relevant in the labour market. This means that skills rather than

job titles create the new type of security. The knowledge that your skills can be transferred from one job to another is the certification one needs in changing jobs. This means that the loyalty which defined the employer/employee relationship is being eroded, employees are more likely to move to where they find the most benefits. These benefits do not just relate to their work conditions but more so to life in general. Employees have discovered they need to be treated not as workers but as human beings, and this may mean something different to employers, but it has changed the perspective of employees. If employers do not heed this change in attitude, they will see more burnouts, disengagement, and above all expensive labour turnover. Retaining talent demands taking note of the life of employees beyond the working environment, creating the space for the fulfilment of the human being, mental health, well-being and home life. In the literature this is being referred to as an employee value proposition (EVP), meaning that an employee is looking beyond compensation, but is seeking compatibility with the entity's values, culture, working environment and is thinking also about flexibility and a career path. An EVP is,

"...a statement of the values, rewards, recognition, support and company culture that an employer gives employees, enabling them to do their best work and achieve their highest potential".

(Qualtrics, 2025)

Particularly in a tight market, where employees have more choice, an EVP is what makes the company stand out. The benefits of a 'compelling EVP' include less employee turnover, increased employee engagement, leading to better performance, profitability and growth, resulting in higher cost savings and an overall higher level of transparency. This provides for a sense of belonging which in recent years research has shown is disappearing with certain employees. The company also needs to ensure a degree of personal development, create a mix of rewards and benefits, and above all cater for the individual's well-being. An EVP puts on the table both quantitative and qualitative components. The EVP does not only assist in attracting talent but more so in maintaining high the retention rates.

The final change is the continuous evolution of digital tools on the workplace. During the pandemic, this was mainly related to online meetings. However, since then this has evolved into other AI tools, such as generative AI models and automation tools. These are assisting in content creation, workflow efficiency and optimization, and even decision-making in terms of planning, sorting out ideas, prioritizing activities, research, etc. Work is being transformed and those employers who force themselves to maintain outdated models will lose the talent that wants to move on to these continuously updated fresher meadows.

This section has looked at new trends in the labour market, such as freelancing, the gig economy, flexibility, well-being, Gen Z demands, shorter work weeks, job security and evolving digital tools (the latter discussed in more detail in the following section).

Technology, Automation and Skills

This section turns to the impact which technology and automation are having and will continue to have on the labour market. This includes the role of artificial intelligence in creating new job opportunities and the necessity for workers to adapt to tech-driven environments.

New technologies have always been significant drivers of economic growth, disrupting the status quo, creating winners and losers in the process. "(W)ith the globalization of the kind that we have had since the 1980s it is not only adoption of the new technology that is important, speed of adoption is also important" (Pissarides, 2018) for companies and countries to remain competitive. The 1960s saw digital technologies and computers being introduced.

"Computerization and new developments in digital technologies brought the internet and – nearly half a century after the introduction of digital technologies to the workplace – artificial intelligence, robotics, the internet of things and 3D printing; machines now have the potential to replace brain power to an extent unthinkable only half a generation ago."

(ibid. p.2).

Adoption is imperative, and speed is of the essence. Jobs will be lost but new ones, better ones will be created. Higher education is essential, not only because new technologies generally take over lower skill jobs but also because educated persons are more adaptable to changing environments and new demands. However, another benefit which cannot be forgotten is the fact that technology increases productivity, which in turn pushes wages upwards. Thus, the adoption of new technologies needs to ascertain that this does not only impact profit but also trickles down, reflected in higher returns, on those workers who adapt to new technologies and increase returns for their employers. These returns are more likely to be for those with adaptable skills, leading to increases in wage inequality. New technologies and automation will have two significant impacts: job replacement and wage inequality.

Christopher Pissarides, Professor of Economics at London School of Economics, focuses his research on the labour market. Just seven years ago, in 2018, he made certain assertions, such as jobs in arts will never be automated, but even in such a

short period of time, AI has debunked such assertions with it being able not only to replace certain arts features, such as painting, architectural designs but also present deepfakes which cannot be distinguished from the real ones, thus able to create films with deepfake actors representing the real actors. The pace of technology is too fast for anyone to even dare say what can or cannot be replaced. This makes it even more difficult to gauge the type of jobs which can be replaced and the skills needed for the new ones. Pissarides maintained that future modern industrial economies will have smaller but dynamic manufacturing sectors, since robots will do most of the work, but the services sector will expand and this is where many workers will find jobs, at all levels of the economy, such as hospitality, health, education, household transport and logistics, and IT services.

However, one thing is certain, the more versatile, knowledgeable, adaptable and agile a person is, the more that individual can be equipped for changes in the labour market. STEM and IT skills top the list of technical expertise which are expected to remain relevant in tomorrow's labour market, whilst 'social skills' related to personal contact are needed to survive in a changing environment. Educational systems need to adjust their curriculum to start teaching such person-to-person service provision skills.

The second impact is on wage inequality. Many of the person-to-person work in services is likely to be in the lower wage bracket and this means that those with significant technical skills will be gaining disproportionately higher salaries compared to the lower-waged ones. This demands action from government in the form of redistribution through taxation. This is already happening in the form of free education, health, public transport and childcare centres. Direct money transfers are less likely to be effective, as compared to subsidization. Moreover, money transfers generally discourage employment.

How fast adoption of new technologies is engaged in is key to how much more productive the economy can become. A 2024 Eurofound research report looks at the interaction between humans and robots (advanced robotic systems with embedded AI capabilities) and how these affect working organisation and conditions of work. Robots are not leading to loss of jobs but rather to a redefinition of jobs.

Different factors influence the adoption of robotic technologies. According to a survey conducted by Eurostat, external factors include 'high labour costs and difficulties in recruiting personnel feature prominently as reasons to invest in robots'. Moreover, internal factors relate more to 'increased competitiveness and productivity gains'. Adoption has been mostly undertaken by large companies (mainly manufacturing), since the capital investment for smaller companies can be restrictive and because they do not have the economies of scale needed for such

investments to be viable. Furthermore, it is more likely that EU large companies adopt industrial robots (welding, laser-cutting) currently at 20%, than service robots (transport, surveillance) standing at the moment at 10%. To accept such changes and ensure health and safety issues, not only from the physical aspect but more so from the psychosocial viewpoints, the Eurofound report suggests worker involvement in adoption of such technologies. Whilst no new credentials were needed in the adoption process,

"Nonetheless, adopting robotic systems required new digital, analytical and soft skills in some establishments in certain sectors (e.g. manufacturing) or certain occupations (e.g. managers and supervisors).

(Eurofound, 2024, p.2)

And even though a survey by the European Agency for Safety and Health at Work did suggest that human-robot interaction resulted in more work intensity, deterioration of the social environment, higher surveillance and reduced autonomy for the worker, further in-depth analysis points to managerial attitudes rather than the actual technology (ibid.) The Eurofound report concludes that a human-centric approach is needed, social partners can shape such policies, and that skills development include 'digital literacy and adaptability and resilience in the face of automation'.

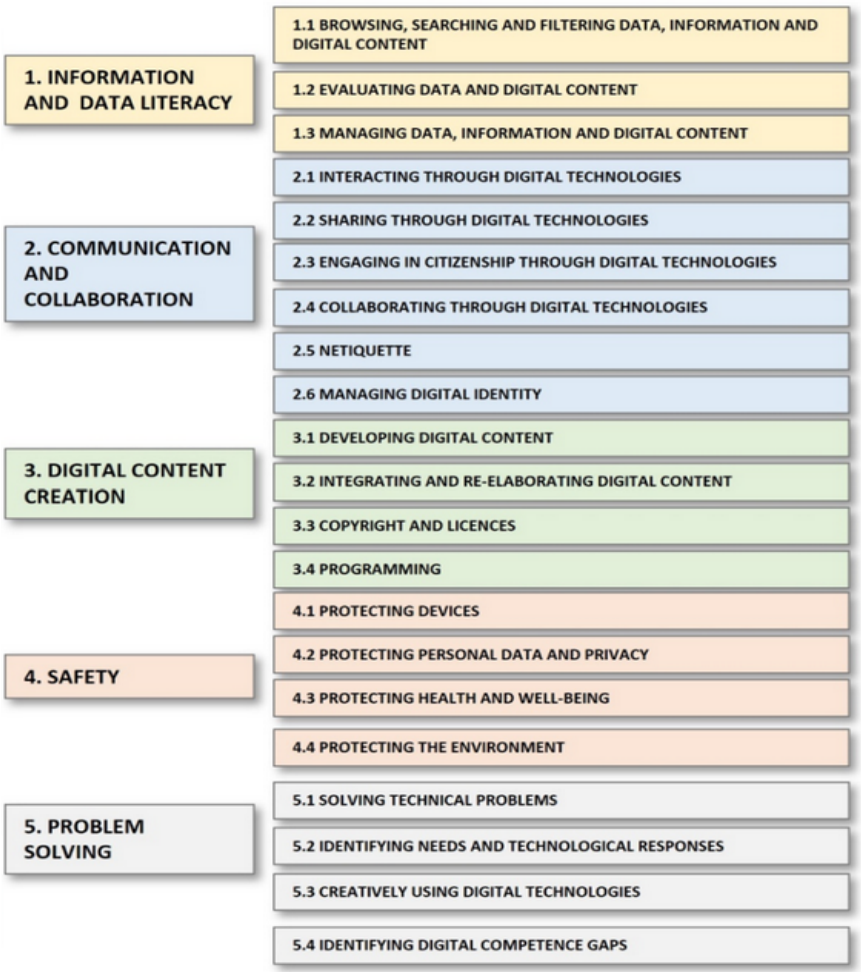
Digital and transferable skills remain the key types of skills for the foreseeable future. Adoption of robots decreased across the EU27 from 2018 to 2022 (from 6.7% to 6.3%). This was mainly due to the pandemic having a dampening effect on new investments according to the World Economic Forum in its annual Future of Jobs report. Nonetheless, smaller countries such as Denmark, Estonia, Lithuania and Malta saw a marginal increase in the number of enterprises using robots, although this might be overexaggerated due to the actual small size of the market for robots, and concomitant small number of large enterprises. For Malta, the usage increased from 4% to 7% of enterprises. Only Cyprus and Greece used less industrial robots than Malta, but Malta is above EU average when it comes to service robots.

Cobots (collaborative robots) are applications including robotic use, which humans can utilise to enhance their capacity. They are normally small in size, less costly and light to manoeuvre, and are used mainly in manufacturing, healthcare and other support services. Social robots are aimed to interact with humans, for example the most common is taking on the role which customer services used to handle such as chatbots, but social robots are wider than this and utilised in retail, banking, education, health and entertainment. These social robots 'are equipped with sensors, actuators and advanced AI algorithms, enabling them to perceive their environment, process information and respond to human cues and commands' (Eurofound, 2024).

Whilst basic digital skills were required for all types of human-robot interactions, the report indicates that continuous training and upskilling will continue throughout a worker's lifetime.

Within this context it is important to define what the EU means by digital skills and to gauge the uptake of such by different countries. The Digital Skills Indicator is the tool used to measure digital skills and these cover five competence areas (information and data literacy, communication and collaboration, digital content creation, problem-solving, and safety skills). Examples include "sending e-mails, using spreadsheet software, managing access to personal data, fact checking, or changing software settings" (EU, 2025). To qualify as an individual with basic digital skills, the person must perform at least one activity within each of these five areas. Figure 1 below describes these activities in more detail.

Figure 1 - Digital Skills – Five Competence Areas and Related Activities



Source: European Commission (2025) https://digital-skills-jobs.europa.eu/en/latest/briefs/digital-skills-deep-dive

In 2023, only two countries (Netherlands and Finland) had reached and gone over the 80% goal of the 16-74 population having at least basic digital skills. For the EU27, the actual figure for 2023 was 56%. For Malta this was 63.02% for 2023 (as shown in an earlier table above) with the figure being slightly higher for females. The lowest is Romania at 27.73%. According to data from the digital economy and society statistics showing usage by enterprises, in 2024, 20.05% of EU enterprises employed ICT specialists (Malta being the highest at 34%), while 13.48% used AI technologies (Malta higher at 17%). A far higher proportion, 52.90% conduct remote meetings over the internet (68.2% for Malta), while those enterprises in the EU using internet connections of more than one gigabyte was low at 15.09% (Eurostat, 2025). A 2025 IMF report on the impact of AI on Malta's labour market found that 'Malta is slightly less susceptible to AI job displacement than other advanced economies', nonetheless women, young individuals and those with only compulsory education appear to be at a greater risk of job displacement. This is mainly due to the fact that these groups tend to be in specific service-oriented jobs, where most job displacements are expected to occur. The report also finds Malta (based on the IMF's AI Preparedness Index), to be well-prepared for AI, but at the same time it states that a 'lack of expertise, high costs, and system incompatibility hinder greater adoption'.

In December 2024, the OECD issued the results of an adult skills survey conducted in 31 countries, as part of its Programme for the International Assessment of Adults Competencies. Although Malta is not included, the report provides some insights from around the developed world. The survey looks at 'literacy, numeracy and adaptive problem-solving skills – skills that are fundamental for personal economic and societal development' (OECD, 2024). Countries such as Finland, Japan, the Netherlands, Norway and Sweden are at the top of the list, but 18% of adults (25-64) across all OECD countries do not have even the most basic levels (ibid.). The share of adults using the internet rose to 95% in 2023 from 76% in 2012. Adults whose parents had a higher level of education excelled in literacy with a 50-point difference. Adults with high numeracy levels were 11% more likely to report good health. However, except for a few countries, numeracy and literacy levels have in the past ten years either remained stable or are falling, particularly for the low educated, leading to a widening gap. The report encourages life-long and wide-long learning to sustain adults throughout their life. This is a message worth taking note of, considering the low level of adults who engage in lifelong learning in Malta.

Higher education does not always mean better skills across countries, but always means better within countries. For example, Finnish high school children do better than tertiary-education adults in other countries such as Israel and Lithuania. This is due to the existence of differences in the quality of the education system, in its provision and organisation and in what is actually achieved in terms of skills, values and attitudes. Skills mismatches across OECD are lower than Malta's, with the former

standing at a third while in Malta this is a stark 83.7%. This implies substantial social and economic repercussions and costs. For those who are overqualified in their jobs, the OECD study concludes that they receive 12% lower salaries than those who are matched, and they are also less satisfied in life. A difference in skills levels also exists across almost all OECD countries between native-born and foreign adults, and it could be related to the language issue. The report insists that adaptability is key to a changing labour market, with lifelong learning being crucial, with authorities improving the recognition of skills, and making better use of the possibilities AI is offering (OECD, 2024, p.5).

Adopting AI technologies has not resulted in less jobs being available. However, the type of skills needed has changed. Repetitive tasks and work which can be undertaken by AI or robots will gradually disappear, however, skills related to science, engineering, and other sectors where AI and automation, up to now, are unable to take over will continue to be in demand. How humans and AI interact in the future labour market is still evolving and much depends on the uptake of technology, how skills develop and how humans adapt to a changing labour market environment. The future depends on present capabilities, on technological developments, and on how fast companies adopt them, what hurdles they face, legally, financially and in terms of human resources capabilities, to operate within new work environments. Adoption also depends on governmental policies, economic directions, demands from consumers and clients and the degree of competitiveness in the market and from trading partners.

Managerial Transformations and Breaking Career Stereotypes

The above discussion has mainly focused on the assumption that some aspects of the traditional labour market will remain in place, such as careers and managerial attitudes. But these should not be taken for granted as they are likely to change or adapt to new realities as well. It was already mentioned above that the 9-to-5 job is being questioned, but so is the idea of one career path for the individual. The new trend is a non-linear career path, and this is where transversal skills come to good use, not only in seeking another job similar to the existing one but knowing which skills can benefit you in the search for an alternative career move. Interesting enough one of the features of Jobs and Skills Australia is the ability for a person to calculate if he or she were to change careers what percentage of skills could be transferred from one area to another. In certain sectors, companies are not looking for degrees but are basing their recruitment drives on skills. A WEF article in 2023 provided an analysis of this situation, where persons will likely have not one job but many jobs, and not one career but possibly many careers, some even simultaneously, the latter created through the many possibilities offered by the gig economy.

What is driving this new trend of skills over degrees? Time is the primary issue, followed by labour shortages, advances in technology and the increasing demand for adaptable and job-ready professionals. A four-year degree seems a long time to wait for an employer who needs the worker today before tomorrow. So would-be workers are looking for quicker less expensive alternative learning paths, which include: online courses and certificates from platforms such as LinkedIn learning, Google career certificates and Coursera; micro-credentials and digital badges in specific skills; employer-sponsored training programmes or apprenticeships/internships, boot-camps, and other hands-on learning possibilities. For employers, this means a wider talent pool they can have access to, and testing out these capabilities as part of the recruitment process is becoming more standardised. A solution to a real on-the-job problem is a way for the employer to gauge the potential of a candidate and for the degree-less candidate to show his or her value in a real-life situation.

This shift from the employers' perspective is based on the idea that college degrees do signal the level of understanding of a person, but they do not show the capability of transversal skills which are needed on the job. Thus, such an employer seeks skills more than degrees. Already in the last years, EY and Google, just to name two, are not recruiting graduates only but taking on board other persons from all spheres of life, creating a more diverse workforce. They are also offering inhouse training to ensure the employees have the same values of the company in terms of processes and 'the way we do things here'.

"Companies want people with an eye for detail, creative problem-solving skills, a collaborative mindset and an ability to deal with ambiguity and complexity. These too are skills that can be learnt, often through apprenticeship programmes."
World Economic Forum, 2020.

The demands of workers are also different nowadays, with the role of management expected to be more hands-on and less top-down. The workforce is much more diverse, and issues of inclusion and equity are part of the package of being a good manager. These practices can also require managers needing to possess conflict resolution capabilities, due to the fact that for example what was acceptable discourse some years ago, might be considered as hate speech or sexual inuendo in today's world.

Another element that needs to be tackled is the issue of gender-based segregation in career and job groups. Educational segregation is still leading to male and female oriented careers, although this is decreasing in some respects. However, the healthcare and education sectors remain female dominated, and STEM professions

are by and large still male dominated. More exposure to role models during the formative school years could bring about a bigger change in the coming years. Attracting more children to STEM subjects without any sex distinction will benefit the economy in the coming decades.

Therefore, whilst the degree remains the main signal for employers in traditional and focused professional jobs, such as doctors or lawyers, new job configurations such as analysts can be learnt without the support of a degree and can be evaluated through actual real-life assessments. Nonetheless, big tech companies who are serious about their AI ambitions are measured through the number of Ph.Ds they employ, with the WEF predicting that by 2027, the employment of AI and machine learning specialists will be increasing by 30%. This calls for a refreshed push towards encouraging more STEM graduates. In Malta, figures for 2022 show a rather low rate at 11.6% with the EU27 average being 23%, and countries such as Ireland (40.1%) and France (35.3%) having much higher representation. Only Cyprus and Luxembourg have a lower number of STEM graduates.

Malta's Labour Market: Transformations, Skills Shortages, and Productivity

The past ten years have seen the Maltese labour market increase in number, not only through more women in the labour market, but also through schemes which encouraged those inactive or on social assistance to engage in the labour market and increase their revenue stream. However, the biggest impact was through immigration, initially unregulated, somewhat disorganised and hardly monitored. Nonetheless the labour market has been developing and changing significantly for longer than the past decade.

The number of women in the labour market had always been traditionally low in Malta and encouragements over the decades had come in the form of paid maternity leave, tax holidays, national insurance credits for time taken to take care of children, and training programmes. These were subsequently supplemented through free childcare centres, breakfast clubs, after-school activities, summer schools and more recently free school transport. EU directives, led to a lengthening of maternity leave to 18 weeks, with the first 14 weeks being fully paid (as they had been for some time) and the last four weeks paid at a lower sick leave level, a slight increase of paid paternity leave from one day to ten days, an introduction of carer's leave of five days, and four months paid (again at the sick leave level) parental leave.

The second change to the labour market were programmes such as the tapering of benefits and the in-work benefit for those who had been on social assistance and

would get a job, whilst not losing all their benefits for the first three years, even if in a decreasing staggered manner. This increased the number of workers in the labour market.

The biggest impact was the result of a significant push from immigration, initially from other EU member states, but more recently the islands becoming more dependent on third country nationals. Eurostat data from 2014 to 2023 shows that, whilst the employed local population increased from 167,200 (2014) to 188,800 (2023) (12.9% increase), the number of EU nationals employed in Malta increased from 2,600 to 34,000. The biggest influx into the Maltese labour market came from non-EU nationals which recorded an increase from 7,000 (2014) to 72,700 (2023). According to a Parliamentary Question, preliminary figures show an increase during 2024, to 85,713 for third country nationals. (PQ_25116, 3 February 2025). In total the number of people employed increased from 186,800 (2014) to an estimated 325,631 (2024), meaning a 74.32 % increase in just ten years. There is limited information as to the type of jobs or skills this increase has brought to the labour market. (Employment figures may not tally due to different sources being used, such as administrative data and the labour force survey).

Jobsplus data does show the type of jobs occupied and the economic sectors migrants are in as at end September 2024. Data show that there are 122,187 foreign workers, of which 83,350 are third country nationals. There are more men than women, with the majority of foreign workers being over 30 years of age. Almost a fourth of EU nationals work in the professional, scientific and support services sector, followed by wholesale and retail, storage and communications, with the third sector being arts, entertainment and recreation. Just over a fifth of EU nationals are clerks and support workers, while a third are professionals and managers. Similarly, almost a fourth of third country nationals work in the professional, scientific and support services sector, followed by wholesale and retail, storage and communications. The third sector differs with 17% of Third-Country Nationals (TCNs) working in the accommodation and food service activities. Twenty eight percent of TCNs work in elementary occupations, while another 24% work as services and sales workers, whilst the third highest cohort at 10% work as technicians and associate professionals. The National Skills Survey showed that in 2021, 33.4% of foreign workers were overqualified for their job.

'The shortage of skills has become a perennial problem in the Maltese labour market (Eurofound, 2023, p. 12). The Malta Employers Association refers to several factors which are influencing changes in the labour market, including 'low birth rates and a high percentage of young people opting to go abroad' (ibid.). The MEA urged for 'capitalising on digital skills, investing in training and mentorship, a better connection

between academic entities and industry, and the prioritising of risk assessment' (ibid.).

The Online Vacancy Analysis Tool for Europe (OVATE) project at CEDEFOP utilises online job advertisements to gauge the type of jobs and skills being requested by employers. From Q4 2023 to Q3 2024, at the 2-digit International Standard Classification of Occupations (ISCO), the top job advertisements were for office professionals (18.1%), office associate professionals (13.6%), business managers (10.2%), ICT professionals (9.6%) and researchers and engineers (5.4%). In terms of skills, at ESCO level 3 classification, the top skills requested were, demonstrating willingness to learn (68.9%), collaborating in teams and networks (62.7%), personal skills and development (60.4%), taking a proactive approach (50%), accessing and analysing digital data (48.5%) and using digital tools for collaboration and productivity (48.1%).

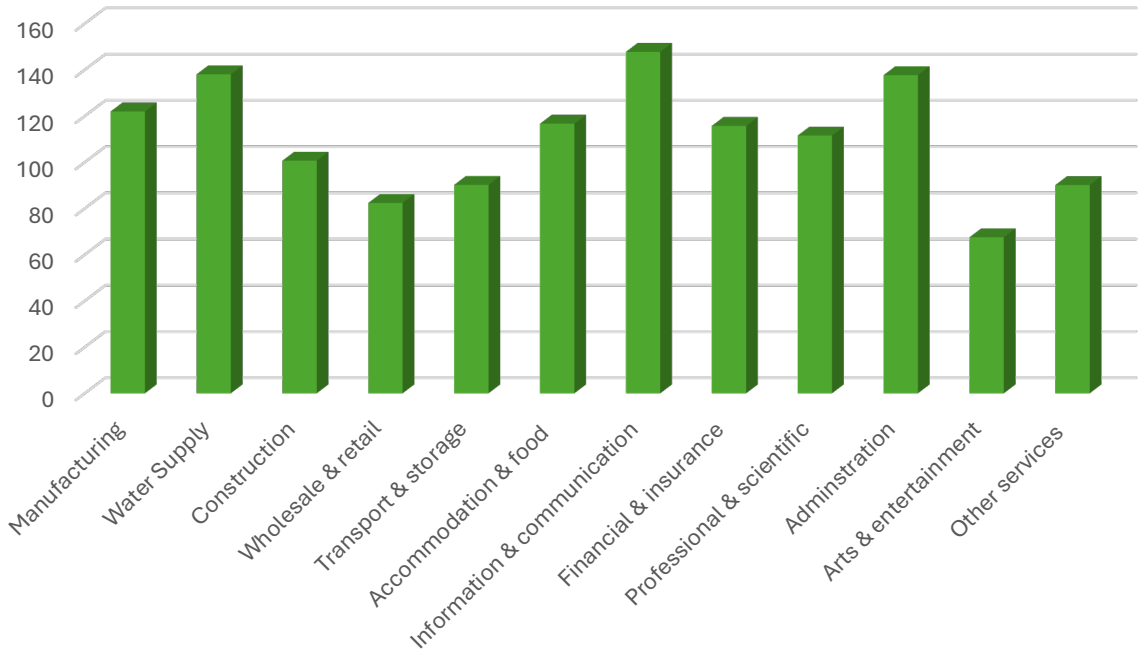
The Online Job Adverts (OJA) tool indicates that in terms of sectors, manufacturing, and administrative and support services activities make up 15.1% each of adverts, that is almost a third of all online adverts. Consultancy, marketing, accounting and legal account for 10.3%, while human health and social care activities represent 7.7% of adverts. Next are information and communication (5.8%), wholesale and retail trade (5.2%) and education (4.8%).

The 2023 Cedefop skills forecast states that, "... the overall effect of occupational change depends on several factors that need to be considered together. Increasing automation and digitisation, a move towards a service-oriented economy, even within manufacturing, will lead to a greater use of higher-level occupations."

(Cedefop, 2023, p.7).

Cedefop's 2025 skills forecast for Malta shows that in the next ten years, the top three sectors seeing employment change in absolute numbers will be in human health, retail trade, and education. However, growth will be in electricity, gas and other mining sectors. The top occupations seeing the most growth are science and engineers, personal care workers, and health associate professionals. One of the interesting statements is that requests for workers with low educational level will decrease by 8.6%, those with medium level of education will see an increase of 3.7%, while those with higher level of education will see an increase of 4%. Those with low level of education will not be able to find jobs.

Figure 2 – Real productivity per person in Malta for 2024, by economic sector



Source: Based on Eurostat data

Productivity in Malta has increased in some sectors but has decreased in others. Graph1 shows real productivity per person by sector for the year 2024, with 2015=100. This shows that in a decade, information and communication grew by 47.8%, this was followed by 38% for water supply, administration at 37.7%, and manufacturing at 22% (data for the electricity sector is not available as deemed sensitive). Accommodation and food grew by 16.7%, financial and insurance by 15.7%, and professional and scientific by 11.5%. Construction remained static at 0.6% for a whole decade. The remaining sectors: transport and storage, other services, wholesale and retail, and arts and entertainment, saw negative growth, meaning productivity was less when compared to 2015.

It is important to remember that overall productivity depends on four elements: human capital, (including skills, knowledge, abilities and motivation); quality of assets, (including IT systems and adoption of technology); organisational efficiency; and external factors, (including engagement in supply chains and networks). Thus, productivity is dependent on both the actions of the business operators and their employees.

This section has provided a picture of the current labour market and certain expectations and estimates for the foreseeable future.

Methods of Gauging the Needs of the Labour Market

Each country has different methods in how to analyse its labour market situation. Information can be gleaned from the current situation based on a labour force survey into occupations, another method is looking at current job adverts and analysing the skills being requested and another method is based on expert opinion, taking into consideration the economic climate, technological uptake and disruptive expectations. We have already referred to the first two methods in the above paragraphs. Forecasts are thus dependent on the reading of the current situation and expectations thereof. This makes forecasting even more difficult within an environment that is continuously changing and adapting to technological advancements. The issue with skills is troubling many governments, in fact Skills England was set up in 2024 to analyse, harness talent and make recommendations for the next decade. In its first year it has issued a new metric on how to gauge occupations in demand and an assessment of skills needs in the economy.

The occupations in demand index of Skills England uses seven indicators, which lead to a ranking in terms of the demand for each occupation in the labour market. These seven indicators are: visa application density (the number of visa applications as a proportion of employment); skills shortage vacancy density (the number of vacancies employers have indicated are due to a skills shortage as a proportion of all vacancies); online job advert density (the number of online job adverts for an occupation as a proportion of employment); annual change in hourly wage (the year on year change in average hourly wage in an occupation); wage premium (the average wage of an occupation compared to other occupations in the same skill level when controlling for factors such as age and sex); annual change in hours worked (the year on year change in average weekly hours worked in an occupation); and annual change in contract or temporary workers (the year on year change in the number of contract or temporary workers as a proportion of employment). This requires a significant amount of administrative data which is not readily available in Malta's case.

Occupations are then defined as in *critical demand* (if they are outliers in relation to the seven indicators); *elevated demand* (if above average in relation to the indicators); or *not in high demand* (if below average). The index shows demand for occupations across all of the UK and not in a particular region.

Another classification of occupations is related to the level of skills required, with four strata being identified: those occupations which require only compulsory education (Level 1); those requiring compulsory education and work-related training (Level 2); those requiring post-compulsory education but not a degree (Level 3); and those

requiring a degree (Level 4). Elementary occupations are at Level 1; administrative, clerical, sales, customer services, machine operatives, drivers, civil enforcement, caring and personal service occupations are Level 2; associate professionals, technicians and skilled workers are Level 3; and managers and professionals are Level 4 (ie the latter requiring a degree). These are based on SOC (standard occupation classifications) as set out by the Office of National Statistics UK (ONS, 2025).

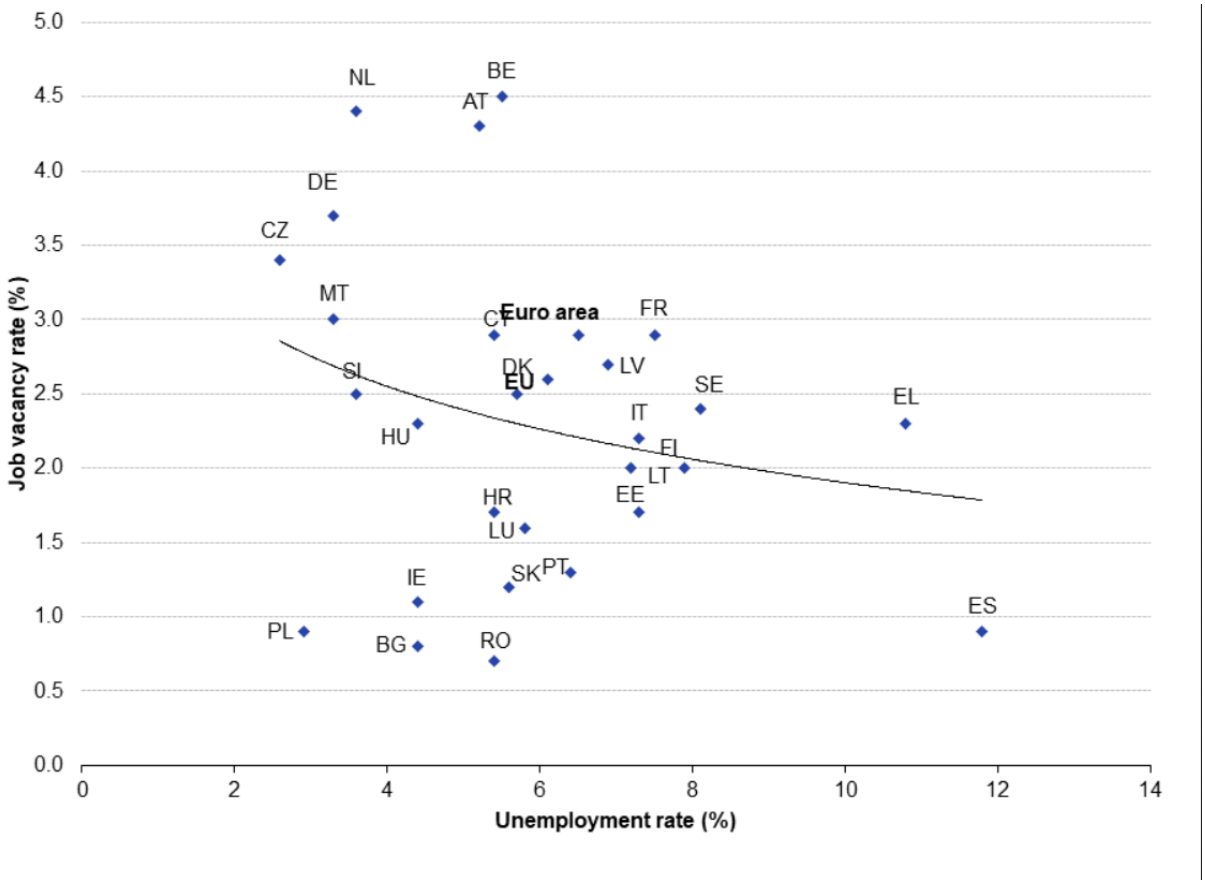
Jobs and Skills Australia, provide continuously updated information on skills, and occupations shortages across the different states. It has commissioned Victoria University to utilise its employment forecasting (VUEF) model to project the needs of the market for the next decade. The projections are available by industry, occupation, skill level and state/territory. The website also allows for interactive use, providing both employees and employers with a useful tool to plan ahead for the coming years. The range of resources offered by JSA is significant including data-sets, tools and dashboards: providing data on employment projections, an internet vacancy index (similar to Cedefop), labour force trending (a longer term perspective to the labour force survey), recruitment experiences and outlook survey, regional labour market indicator, small area labour markets (geographical areas); and tools such as occupation and industry profiles, occupation shortage list and VET qualification similarity analysis (to simplify the VET system and qualification design); and dashboards such as the jobs and skills atlas; employment region dashboards and profiles; nowcast of employment by region and occupation (provides estimates of employment in 355 occupations across 88 regions in Australia on a monthly basis) and the VET national data asset (for example providing information of the situation of 2020 graduates today in terms of their salary increases, employment rate, and if further studies were undertaken, similar to a graduate tracer record). The advantage of all this rich and continuously updated information creates a solid foundation for decisions taken on the individual, business, state and country level.

The above are only two examples of how national skills councils operate and the breadth and depth of data which is provided to economic agents. This requires access to administrative data and the capacity to process such data into regular, open-access, meaningful, and analytical reports. The Australia one has the advantage of offering this plethora of useful updated information in an interactive way to suit the needs of the economic agents.

With limited data, one way of gauging the labour market is through the Beveridge curve, which plots the vacancy rate against the unemployment rate, showing the negative relationship between the two. This means that an increase in job vacancies leads to the number of the unemployed to decrease. A labour market that is tight is one with low unemployment and high vacancies, signifying labour shortages which put pressure to increase wages. The opposite happens in a slack labour market. The

former normally happens during economic booms and is represented on the graph on the upper left side, and the latter during recessions, and is found on the lower right side. Figure 2 takes the average of four quarters of data and provides information of the countries at a point in time. However, if one were to plot the different annual points of a country, one would also note shifts in the Beveridge curve, indicating the efficiency of matching supply and demand.

Figure 3 – The Beveridge Curve – 2023 Q3 – 2024 Q2 average



Source: Eurostat
https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Job_vacancy_and_unemployment_rates_-_Beveridge_curve

The section above has shown that information about different aspects of the labour market is key to understanding and having the necessary data to provide evidence-based policy measures.

POLICY IMPLICATIONS AND RECOMMENDATIONS

The pace is fast. There is no denying this. Global uncertainty and how AI may influence jobs and how fast the workforce would need to adjust mean that 'workforce planning is more difficult than ever'. According to a 2025 McKinsey and Company study, 'Employers do not know how many AI experts they will need with what type of skills, whether that talent bench even exists, how quickly they can source people, and how they can remain an attractive employer for in-demand hires after they come aboard." This means that the competition between those who adapt and those who do not is only likely to intensify.

Pretending to have the capability of a crystal ball is naïve. However, it is certain that this report can offer some strategic recommendations not only for policymakers and business leaders, but also for employees, students and unions. Everybody will need to navigate through these imminent changes in the labour market. Different policies will be impacted, including, labour policy, migration, education, social security, training, industrial, funding, statistics and administrative data, innovation, and many more.

Hereunder are our recommendations:

Recommendation 1 – Quality vs quantity

There appears to be a growing consensus that the current model of the economy is not sustainable, and that competition cannot be based on low wages and quantity of workers. The researchers on this project have been saying this loudly for the past three years and it appears that the message has finally been received. The labour market has the potential to increase its productivity if the existing resources are fully utilised according to knowledge possessed and with upskilling and reskilling into higher-level type of jobs. Such a quality structural change within the economy will not be achieved in months or years, but the long-term returns will more than compensate for any impasses which the current economy is likely to encounter in its present economic organisation. Quantity has led to inefficiencies, congestion, pollution, wasted time, inflation in housing, and more significantly a decline in the quality of life.

Malta Vision 2050 may be a first step in this direction, but changes need to be endorsed by all stakeholders, for its eventual success. It also requires not only all parties to participate but also coherence in policies and structures, unfortunately currently there is overlap of roles and simultaneously operations in silos which inhibit

a clear way forward. A streamlining exercise is needed to ensure efficiency of resources.

Recommendation 2 – Information is power

This research has also pointed out that data is lacking or more worryingly available but not well-kept, organised and readily accessible for research purposes. This is particularly relevant in the case not of published data already available on the NSO website but rather administrative data which contains a wealth of information that is continuously being adjusted, updated and augmented. It is hoped that recent work on the Malta data portal will be finalised and eventually administrative data is made available, to provide the foundations for information-based policymaking and to aid research for actionable programmes and recommendations. The data portal is a work in progress, which needs beefing up and finalisation.

Recommendation 3 – Labour law amendments

It is encouraged that the current labour law be amended to take into account significant changes which have occurred in the labour market in the past decades. Such changes include the protection of people working in the gig economy, ensuring a degree of benefits in terms of different leave policies, and workers in the labour market beyond their retirement age who are engaged after they retire, just to mention two examples. There are other conditions which need to be guaranteed for persons working with temping and recruiting agencies, and which ensure that the dignity of every worker is upheld. Enforcement in favour of such workers is necessary under these conditions. It is also encouraged to consider increases in family leave to ensure more balance between life and work. The current family leave is not enough to support an increase in the fertility rate.

Recommendation 4 – Certification, Micro-credentials and Digital Badges

The first national skills survey showed a labour market which was not making efficient use of the knowledge and skills claimed by the workers. Additionally, the experience gained over the years was at times not monetised in the labour market. Moreover, only a small portion of training was formal and thus certified. In this regard, a national institution or even private accreditation entities could engage in certification and the provision of micro-credentials and digital badges to formalise existing expertise, experiential learning, and informal and non-formal educational experiences. On the

employers' side, acknowledgement and valuation of such certification encourages more training from the employees' perspective.

Recommendation 5 – Transversal or Transferable Skills

One of the most important results of this research, which was communicated in the first report, and continued to show its standing during the full programme of this study, was the emphasis on transversal skills. Such skills are unlikely to be fully taught on the job, as technical skills can be and often are taught. Transversal skills become part and parcel of a way a person behaves and deals with everyday events at work and life in general. Therefore, teaching such skills need to be undertaken at a very young age, to become ingrained in a person's life-skills. People tend to be more resourceful when faced with a crisis or a problem and equipping them with skills to face such situations improves the creativity and resourcefulness when faced with problem-solving requirements. Personal communications, (excluding social media methods) may also need to be on the agenda, together with critical thinking, teamwork, empathy, and sharing.

Recommendation 6 – Upskilling and Reskilling

There are several entities which engage in funding programmes for workers to upskill and reskill, such as Jobsplus, and Malta Enterprise, however, these might need more publicity particularly with small employers or employees themselves. Furthermore, the bureaucracy and paperwork entailed, discourages the take-up of such schemes on a large scale. Furthermore, a skills-needs analysis needs to be undertaken at regular intervals, in collaboration with the National Skills Council. Discussions with skills councils in other countries showed they were proactive and well-versed in the needs of the economy and employers, with regular published reports and updates found online. These guided and aided employers and employees alike in terms of what skills were being currently requested by the labour markets and the expectations and trends anticipated in the near future. The Malta National Skills Council needs to provide such services online, and the newly launched website definitely needs to provide more and continuously updated information for economic agents.

Recommendation 7 – Trades and Craft-related Skills

Trades and craft-related skills run the risk of being lost. Such skills are required by a high-quality tourism industry and by households and businesses to ensure the durability of goods which can be maintained through such skills. Consumerism and

the throw-away society have led to repurchases of goods when servicing is not available or too expensive because of high demand and fewer people offering certain services. The vocational sector in other countries is held in high esteem and drives several sectors forward, including manufacturing, construction, maintenance work, technical expertise on machinery and electrical equipment, but also tourism associated craftsmanship, whether this is in terms of filigree, culinary delicacies or wrought ironworks. Data indicate that globally the creativity and cultural industries continue to grow, even in times of economic slowdowns. Furthermore, they are the foundations of innovative economic activities. Perhaps it is time to rethink the Trade and Vocational Schools system, bringing it earlier to those students who are not academically inclined. They have skills which they can develop in other profitable areas and those skills might be lost if three years are wasted away waiting for compulsory education to end. The introduction of the possibility of a trade subject in year 9 does not appear to have had an impact on the endurance of certain trades and vocations in the wider economy. Countries such as Austria provide students with the vocational branching out in compulsory education from year 9 until year 12, similar to what Malta had in earlier decades. MCAST has recently launched an Institute for the Trades, and this is an important step in the right direction, but we are also maintaining that we need to engage those students who would be interested in trades at an earlier stage in their educational voyage, and branch out this Institute at a younger age. The Institute could also offer 'taster weeks' to these younger students for them to engage directly with a variety of trades on offer.

Recommendation 8 – Life and Work Balance

Whilst Malta transposed the Work-Life Balance Directive in August 2022, this has not been adequate or sufficient to create the right conditions for workers to balance their life commitments with their work obligations. This is likely to impact the labour market in the future, with less workers being available, due to a declining birth rate. At this rate, Malta will continue to depend on immigration for the foreseeable future, unless the economic model changes to one where less workers are required and where certain jobs are automated. Recent research on family size has shown that workers need more generous measures to sustain a family, particularly with both parents likely to be in the labour market. Remote working where possible is also to be encouraged, since this creates the right environment to build a family. Malta with the lowest fertility rate at 1.06 will lead to less people of working age, an ageing population and demands for foreign workers intensifying even more in the future. Financial incentives are unlikely to work as research in other countries has already shown this; flexibility and leave policies lead to more success, but these need to be generous. The current level of family leave is not going to offer the type of support needed in this precarious situation.

Recommendation 9 - Encouraging Entrepreneurship

Productivity in Malta is low and even negative in certain economic sectors. Furthermore, the level of entrepreneurship remains a small percentage of the labour market. Entrepreneurship can be encouraged from a young age, through real life examples of people who have succeeded based on their own ideas and stamina. Entrepreneurship Ambassadors and assistance through for example Malta Enterprise, in collaboration with educational institutions (such collaborations existed but take-up was not significant, therefore one needs to understand the reasons for this) could be embarked upon again, learning from previous experiences.

Recommendation 10 - Innovation Ecosystem for Economic Growth

The innovation ecosystem is still in its infancy stage although some positive examples of innovative companies have been lauded in recent years. Nonetheless, an ecosystem which supports innovative economic growth is still lacking and whilst the bits and pieces of the puzzle may be within the economy, the actual glue which provides a full picture is still lacking. Funds are available, institutional support is there though not organised as a whole system, and ideas also abound, but putting them together needs increased commitment.

Recommendation 11 – Millennials and Gen Zers

Every generation is different as research continues to show, with people often conditioned by the circumstances through which they lived, such as wars, high inflation, fast-paced inventions, international crises or an isolating pandemic. Thus, values about life and work are linked to such contexts when the generation is growing up. The last two generations appear different in their work ethic and what they believe a job represents to them. They are seen as job hoppers, moving on to the next job if they feel they are no longer enjoying their job. Their needs are different to earlier generations. A Forbes report sees baby boomers as having a strong work ethic and being loyal. Gen X are seen as more independent and have an entrepreneurial spirit. Millennials are more tech-savvy and have a collaborative approach. Gen Z are embedded in 'digital nativity, global awareness and a desire for social impact'. The latter's demands in the labour market are diverse, ranging from inclusivity, mental health, life/work balance, sustainability champions, and social idealism. Adjustment to such demands is expected to grow further in the coming years when more Gen Zers enter the labour market.

Recommendation 12 – Mental Health and Well-being

The pandemic was a wake-up call in terms of IT resources, but it also showed up other elements such as loneliness, mental health and well-being. The years after the pandemic brought a new focus on such aspects; that modern life has put pressure on people's health. With the new generation, attention is being paid not only to the job, but what that job has in terms of support and amenities. Whilst salary remains important, workers are now looking at the overall conditions of a job, they want more flexibility and want to ensure that their mental health does not suffer. This awareness of certain working environments which are not conducive to a person's well-being, or their possibility of causing burnout, because of long hours, overwork and always being connected to the job, is creating more demands from workers. Employers need to ensure that the whole person is taken care of in terms of mental well-being, by adopting strategies which address any related risks.

Recommendation 13 - Shorter Working Week Experimentation

Certain countries have started experimenting with a shorter work week. This is attractive to workers as it provides them with more time to spend with the family and to engage in leisure activities. In certain cases, productivity increased because workers were happier on the job. But certain employers remain reluctant to experiment. The global movement in favour of shorter working weeks is gaining traction with more countries having trial runs in parts of their economies. Countries who reduced actual hours, whilst retaining the same workload, were more successful than countries who merely condensed existing statutory hours in less days.

Recommendation 14 – An Employee Value Proposition

Work defines a person, however, in today's world, filled with endless choices and distractions, work is a means to an end, now more than ever before. The overload of information, the online depiction of what companies stand for, the visibility of ratings on what is purchased, suppliers, employers, providers of anything, leads to an online view of what anyone is worth in terms of values and standards. Reputations matter, not only for individuals but also for employers and companies. Business entities with a visible and solid EVP are more likely to attract but also retain engaged and satisfied talent.

Recommendation 15 – Aligning Education and the Labour Market

Our research has emphasised the aspect of how education and the labour market need to be more aligned. One cannot expect an education system, which, from an early age prepares an individual for a particular job, in a labour market which is in a continuous flux. However, the education system is expected to provide individuals with basic skills, life skills, including the love for continuous learning, ability to sift through information and disinformation, decision-making after consideration of available options, digital and financial literacy, team playing, and values such as justice and social empathy. The teaching of a topic is not the main concern, but rather the ability to formulate an opinion after one gains access to knowledge and how to capitalize on that knowledge, develop conceptual reasoning, whilst continuing to build upon solid educational foundations. Education should develop honest and honourable citizens.

Recommendation 16 - Career guidance – not job related but skills related

Part of our research showed that career guidance needs an overhaul. Some jobs will be displaced and others will be changing drastically. Few jobs will not be influenced by a future global labour market which is heading towards the whirlwind of a revolution based on robotics, automation, AI technologies, and more. This makes career guidance more problematic and difficult to gauge the effect on certain jobs and sectors. For this reason, the recommendation is that students should be provided with a wider range of career possibilities, whilst professions such as engineering, medical, legal and educational still have prospects, nonetheless certain aspects of those professions will be taken over by bots or cobots. Workers need to be able to move from one strand of their profession towards another, in order to maintain a job in the same line of work. However, those better equipped to engage with new versions of their careers are those who can be flexible, adapt easily by having a wide range of skills and the capacity to continuously upgrade their skills arsenal.

Recommendation 17 – AI-induced Transformation

The labour market is expected to witness an AI-induced transformation. It has already started but the speed will pick up even more in the coming years. Unless we get on this transformative train we risk being left behind. It will lead to worker reallocation. According to a 2024 IMF report, 'almost 40 percent of global employment is exposed to AI' with the figure rising to 60% in developed countries, thus jobs in advanced

economies are more exposed to this reality but they are also more likely to exploit its benefits. 'College-educated workers are better prepared to move from jobs at risk of displacement to high-complementarity jobs....in contrast, workers without postsecondary education show reduced mobility' (ibid, p.2). Furthermore, retraining is crucial to ensure that all workers can benefit from another job should theirs no longer exist. Younger workers are more poised to adjust than older workers and therefore being prepared for eventualities is important for all age-groups, but more so for the older generation. Younger workers are more likely to be adept at using AI tools, as are more educated workers, with men slightly more likely than women (ECB, 2024).

Conclusion - Preparing for the Future Workforce

This final report has provided important evidence of what the future labour market is expected to be transformed into, assuming what we know about the current technology, envisaging that companies to remain competitive will need to adopt these and other future technologies, and attracting the right talent with the correct skills to deliver strategically on the company's growth. Nobody can be 100 percent future proof, but waiting for things to happen should not be on the agenda. Proactive adaptation needs to be the new way of working. Keeping abreast with developments overseas ensures that new trends do not pass us by, but engage us wholly in continuously changing ourselves, our skills, our businesses and our economic model. Agility and flexibility are crucial for being not only adaptable, since this entails something which we have no control over but rather being proactive in how we need to equip ourselves in the coming years.

All stakeholders need to come together on this very important challenge which the labour market is putting in our stride. The world moves on and we need to make sure we do as well. Whilst technological adoption has happened in certain industries and AI tools have been rolled out in others, there remains significant challenges due primarily to our small size and more so to the micro dimensions of many of our businesses. Nonetheless, this is a contest which AI is in a way forcing us to anticipate and quickly acknowledge that we accept the challenge ahead of us.

In recent decades lifelong learning has become a cliché, with terms such as upskilling and reskilling continuing on with the mantra of what needs to be done to survive and flourish in a new type of labour market where our contacts may not always be human but rather different forms of machines, databases, their analysis and other critical and sophisticated AI tools. This requires direction from government, commitment for fast change from the educational system, synergies within the business environments and a do-or-die attitude from workers themselves, who are the most likely to suffer from

displacement in their jobs, should they be unable to swerve towards another course on their career paths. Investment in people, skills and technology have created new job opportunities and prospects of higher income. The strategies to be adopted, endlessly reviewed and relaunched, require workers to be engaged in a changing labour market which demands their skills to be updated on a regular basis.

CONCLUSION

Against the backdrop of rapid technological change, evolving labour markets and profound environmental pressures, our island nation must reconcile its proud educational traditions with the demands of tomorrow. This document has navigated a complex terrain, drawing on the collective wisdom of various international institutions while remaining deeply attuned to Malta's distinctive landscape. Before delving into concrete recommendations, it is essential to set the scene: to understand why this moment demands both rigour and imagination, and how the choices we make today will echo through our schools, workplaces and communities for generations to come.

At the heart of this document lies a simple truth: education is neither a static repository of knowledge nor a mere preparatory phase before employment. Instead, it is a living ecosystem that must continually regenerate its mission, methods and partnerships to remain fit for purpose. For Malta, the challenge is twofold. First, we must modernise our curricula and pedagogical approaches so that every learner, regardless of background, acquires the critical faculties and adaptive capacity to navigate an unpredictable world. Second, we must forge seamless bridges between learning and work, ensuring that the insights gained in classrooms and workshops translate into the skills demanded by employers, the needs of our communities and the imperatives of environmental stewardship.

These ambitions, while compelling, are not self-executing. They require a recalibration of how we conceive schooling, retraining, and professional growth. They demand we break down silos—in subject disciplines, between early years, secondary and vocational pathways, across the public, private, and civic sectors. They call for a renewed ethic of collaboration: teachers working alongside industry mentors, policymakers listening to community voices, and education providers embracing continuous experimentation rather than clinging to entrenched routines.
Moreover, the stakes extend beyond individual fulfilment or corporate profitability. Malta's demographic profile is shifting; its economy is diversifying; and its natural environment faces intensifying threats. Within this context, education is a key player in social cohesion and sustainable development. The nation prospers when young people and mid-career adults possess the facility to adapt, the confidence to innovate, and a commitment to civic engagement. Equally, suppose our systems remain fragmented or out of sync with real-world demands. In that case, we risk embedding inequality, stifling entrepreneurship and forfeiting our competitive edge in an increasingly networked global economy.

This report adopts an integrated perspective. Rather than prescribing isolated fixes—more digital devices here, a new VET programme there—it articulates a coherent

architecture of reforms. We begin by reimagining curricular design and teacher development as dynamic, reciprocal processes in which educators and learners co-construct knowledge through inquiry and real-world challenges. We then explore how digital and green literacies can be woven into every learning experience, not as add-ons but as fundamental dimensions of contemporary citizenship. Next, we examine pathways that fluidly connect initial education with lifelong upskilling, grounded in industry-led frameworks that recognise prior learning and reward continuous mastery. Finally, we propose governance mechanisms—quality-assurance clusters, sectoral skill councils and open data platforms—that ensure these reforms evolve in concert with emerging needs and evidence.

Behind every recommendation is a commitment to equity. It is not enough to raise average performance; we must lift the floor, ensuring no learner is left behind. This means providing targeted support to disadvantaged communities, calibrating funding formulas for complexity, and embedding early-intervention systems that identify barriers to progress before they become insurmountable gaps. It also means recognising that excellence and inclusion are not opposing poles but mutually reinforcing: schools that tackle individual needs with specificity become richer learning environments for all.

Above all, this report is a call to collective responsibility. The transformations we envisage will not materialise through policies alone but through sustained partnerships among government ministries, educational institutions, employers, civil-society organisations and families. It is an invitation to co-design solutions, pilot boldly, learn rapidly from setbacks and scale what works. In doing so, Malta can transcend its historical constraints of scale and resource, leveraging its agility to innovate with a speed and cohesion impossible in larger systems.

Before engaging with the proposals, we encourage readers to move beyond narrow debates about budgets or administration. Instead, consider the underlying questions: How can we nurture minds that are both grounded in Maltese values and proficient in the universal language of ideas? How do we fashion learning environments that respond to local contexts while anticipating universal challenges? How do we weave together the strands of knowledge, skill, and character so that every learner and society flourish?

The journey ahead will demand tenacity, creativity and an unwavering focus on impact. Yet if we seize this moment, Malta can pioneer an educational and labour-market model that marries the best of international precedent with the courage to forge new paths—one that prepares every citizen not merely to cope with change but to shape it.

Strengthening Educational Foundations

At its core, any lasting transformation must spring from the classroom. Malta's schools and training centres provide a vital foundation for young minds to acquire the knowledge, inquiry habits, and collaborative attitudes essential for innovative citizenship. Our proposals call for a wholesale recalibration of curricula, pedagogies, and support structures to ensure that every learner emerges with the adaptive capacities demanded by a world in flux.

Foremost among these reforms is the shift to interdisciplinary, challenge-based learning. Students develop critical thinking, creativity and communication skills in concert by organising learning around authentic projects—whether modelling coastal resilience, designing sustainable tourism offerings or researching digital-health solutions. This contrasts with the legacy of compartmentalised subjects and high-stakes examinations focused on rote recall. Instead, formative assessments, portfolios and performance tasks will capture the discovery process, reward collaboration and mirror the multifaceted nature of professional problem-solving.

Empowering educators to lead this transformation is equally vital. A career-spanning professional-development framework will equip teachers with contemporary methodologies—digital pedagogy, differentiated instruction and sustainability education—while recognising their expertise through a tiered career pathway. School-based instructional coaches, CPD hubs and online communities of practice will sustain innovation and ensure that new approaches diffuse rapidly across the system. Rigorous evaluation of CPD outcomes—tracking changes in classroom practice and student engagement—will guide continuous refinement.

No discussion of modern education can ignore the digital imperative. A comprehensive Digital Education Roadmap will guarantee high-speed connectivity, up-to-date devices and on-site technical support in every institution. Yet technology alone is insufficient: integrating digital tools into curricula demands intentional design. Educators must learn to deploy simulations, coding platforms and collaborative online workspaces in ways that deepen subject learning rather than distract from it. Targeted support—device-loan schemes, after-school digital-mentorship centres and adaptive-learning software—will safeguard equity, closing the digital divide for socio-economic and geographical minorities.

Finally, sustainability must move from a peripheral theme to a lived experience. School grounds and VET workshops become living laboratories: roof-top solar arrays maintained by students, rain-harvesting systems designed in science classes, community-garden projects that teach ecological stewardship. Partnerships with local authorities, heritage organisations and environmental NGOs will anchor learning

in Malta's unique landscape and heritage, instilling a sense of responsibility beyond the school gates.

By fortifying these educational foundations—integrative curricula, empowered teachers, digital inclusion and experiential sustainability—Malta equips its young people with the mindsets and skills essential for success in the decades ahead.

Bridging Learning and Work Through Lifelong and Inclusive Pathways

Even the most robust schooling must seamlessly connect to the world of work and civic engagement. Malta can build lifelong-learning infrastructures, harness vocational excellence, and cultivate global competence, ensuring that education remains a dynamic continuum rather than a one-time endeavour.

Central to this effort is establishing flexible learning pathways. Traditional degree programmes and VET diplomas coexist with modular micro-credentials, short-form courses and digital badges that allow individuals to upskill or reskill at every career stage. A unified national credit-transfer framework recognises prior learning, accelerates progression and prevents redundancy. Whether a school leaver embarks on a hospitality apprenticeship or a mid-career professional pivots into renewable-energy engineering, these pathways are clear, portable and responsive to evolving labour-market demands.

Vocational and technical education must be reimagined as a high-status, industry-integrated ecosystem. Sectoral consortia involving employers, trade bodies, unions, and training providers co-design curricula, oversee dual apprenticeships, and certify competencies. Apprentices spend substantial time in workplaces, building real-world skills under industry mentors, then complement these with theory modules in VET centres and collaborative innovation labs. Public campaigns and high-profile skills competitions will elevate VET's image, showcasing success stories and demonstrating that vocational pathways offer career prospects equivalent to academic routes.

Lifelong learning extends beyond vocational skills to include global competence and intercultural agility. In a more diverse, interconnected Malta, proficiency in multiple languages and familiarity with different cultures are invaluable assets. Curricula enriched with world literature, comparative histories and ethical debates foster empathy and broaden perspectives. Virtual-exchange partnerships with institutions abroad enable students to collaborate on transnational projects—addressing climate justice or digital-rights challenges—while in-person exchanges deepen cultural

immersion. Service-learning initiatives cultivate civic responsibility and ethical leadership.

Malta will create portable learning accounts to support these pathways, funded jointly by the government, employers and individuals. These accounts cover course fees, mentoring services and digital-learning subscriptions, reducing financial barriers and incentivising continuous development. Employers benefit from a skilled, adaptable workforce; workers gain autonomy in managing their learning journeys; and the government secures a dynamic talent pipeline aligned with national objectives.

This bridged approach—combining flexible credentials, industry-embedded VET and global citizenship education—ensures that learning never stops at age eighteen but evolves in step with each individual's aspirations and the nation's strategic needs.

Aligning Skills with Labour-Market Imperatives for Economic Resilience

Securing Malta's economic future demands a decisive shift from a labour-intensive growth model to one rooted in quality rather than quantity. Our labour market today retains a high degree of over- and under-qualification—only 16.3 % of workers match both the level and field of their education—yet this imbalance masks untapped potential and stifles productivity. To address this, Malta must embrace a "quality-first" strategy that fully deploys existing talent in roles corresponding with their expertise and systematically upskills and reskills workers into higher-value positions. This long-term re-orientation will declutter congested sectors and improve overall quality of life, even though the structural change it entails will span years rather than months.

Central to this endeavour is the principle that information is power. Effective policymaking and timely interventions hinge on robust, accessible data, far beyond published statistics to include rich administrative records and real-time vacancy tracking. Completing and enhancing Malta's Data Portal must be prioritised, ensuring that education authorities, employers and researchers can draw on granular labour-market intelligence— sector forecasts and skills-gap analyses—to calibrate university and VET enrolments, funding incentives and transition programmes with precision.

Yet a modern labour market is only as resilient as its legal and institutional frameworks. Labour-law amendments must safeguard those in non-standard arrangements—gig workers, temporary staff and retirees who choose to re-enter the workforce—by extending basic benefits, reinforcing leave provisions, upholding

dignity and security for every participant. Such reforms not only protect vulnerable cohorts but also signal that Malta values the contributions of all workers, thereby strengthening social cohesion.

Bridging the gap between informal learning and formal recognition is equally critical. The labour market has long suffered from undervalued "hidden" skills acquired on the job, through community engagement, or self-directed study. A national framework for certification, micro-credentials, and digital badges would formalise experiential and non-formal learning, making skills visible to employers and empowering individuals to curate portable portfolios of competencies. Endorsed by public and private accreditation bodies, these credentials will foster a culture of continuous learning.

Moreover, transversal skills (problem-solving, teamwork, empathy and effective communication) must be woven into all education and professional development stages. Far from mere "soft" add-ons, these capabilities support workers' adaptability and creativity in disruption. Embedding transversal skills training from the earliest years ensures that every learner internalises resourcefulness and collaborative mindsets as second nature.

To sustain this learning continuum, Malta requires seamless upskilling and reskilling infrastructures. Current funding schemes from Jobsplus and Malta Enterprise have potential but remain underutilised due to complex application processes and limited publicity. Streamlining bureaucratic procedures, enhancing outreach to small employers, and establishing a dynamic skills-needs analysis cycle—anchored by an empowered National Skills Council—will ensure training programmes stay aligned with evolving labour-market demands.

We must also safeguard trades and craft-related skills, which form the backbone of high-quality tourism and essential services, yet risk disappearance in today's throw-away culture. Apprenticeship-style pathways, supported by public recognition campaigns and incentives for heritage-skill practitioners, will sustain these vital competencies for generations to come.

A truly resilient labour market flourishes when entrepreneurship and innovation ecosystems are nurtured from the ground up. Dedicated Entrepreneurship Ambassadors, re-energised collaboration between Malta Enterprise and educational institutions, and targeted seed funding will catalyse start-ups and high-growth ventures. Simultaneously, a coherent innovation ecosystem—integrating R&D grants, incubator spaces and industry-academic partnerships—must replace fragmented support structures to accelerate home-grown technological breakthroughs.

Generational shifts necessitate fresh approaches to work culture. Millennials and Gen Z bring distinct values—flexibility, purpose, digital fluency and social idealism—which can be harnessed through robust employee-value propositions (EVPs). Employers should combine flexible hours, mental-health support, career-development pathways and modern workplace amenities to attract and retain these cohorts.

Finally, recognising the AI-induced transformation ahead, Malta must invest in targeted reallocation programmes. With a significant proportion of jobs exposed to automation, retraining older workers and equipping all demographics with AI-complementary skills is essential to prevent obsolescence and harness new opportunities.

By synchronising these measures—prioritising quality, powering decisions with data, modernising labour law, formalising learning, strengthening transversal and vocational pathways, and cultivating entrepreneurship and generational alignment—Malta will forge a labour market that is not merely reactive but proactive, resilient and ready to thrive in the decades ahead.

Conclusion

In this study, we are proposing a new chapter for Malta, one in which education and work converge to form a single, dynamic continuum rather than two separate domains. The reforms set out in this document are not mere policy prescriptions; they constitute a deliberate strategy to shape human potential, spur innovation and knit our communities together around a common purpose. By reframing learning as an ongoing journey, one that begins in the classroom but extends into every corner of adult life, we prepare our citizens to meet change not with trepidation, but with confidence and creativity. Equally, by treating the labour market not as a reactive mechanism but as a partner in upskilling and career design, we ensure every worker finds meaningful opportunity and every employer discovers the talent required to thrive.

This vision demands a recalibration of our institutional mindsets. Schools become launch pads for curiosity and experimentation, where young people learn to navigate complexity by tackling real-world challenges. Vocational centres transform into hubs of industry collaboration, where mastery of craft coexists with fluency in tomorrow's technologies. Universities and adult-learning providers align their offerings with emerging sectors, from renewable energy to precision health, embedding flexibility so that learners can pivot as new fields arise. All the while, data-driven insight illuminates gaps and guides investment: labour-market dashboards feed into

curricular adjustments; skills-gap analysis shapes micro-credential portfolios; and formative assessments inform both teaching and policy in real time.

Crucial to this transformation is the recognition that no single actor can realise it alone. Government, educators, businesses, civic organisations and families must forge genuine partnerships, each contributing distinct expertise and resources. Ministries carry the responsibility of setting frameworks and ensuring equity; schools and trainers bring pedagogical innovation; employers invest in on-the-job learning and mentorship; community groups surface local needs and champion inclusion. In this ecosystem, trust is the currency: when teachers and industry mentors co-design modules, or when employers participate in peer-review clusters, they exchange knowledge and reinforce a shared commitment to quality. Such collaboration not only accelerates reform but cements social cohesion, as diverse stakeholders unite around the common cause of human flourishing.

At the same time, Malta's transformation will be visible in the quiet progress of individuals finding their true vocations. A young graduate, once adrift in a sea of generic qualifications, now holds a stack of micro-credentials validated by industry and supported by a portable learning account. A mid-career worker, whose previous role succumbed to automation, re-engages with training on sustainable agriculture, guided by a sector council that ensures the training matches real demand, and secures a position in a growing green-tech cooperative. A skilled tradesperson, long under-recognised, gains formal certification for expertise honed through apprenticeships and community service. These personal breakthroughs ripple outward, as higher employment rates bolster public revenues, fuel new enterprises and strengthen neighbourhoods.

Beyond individual trajectories, the cumulative effect of these reforms will reshape Malta's identity. Malta should be celebrated for the agility of its workforce, the ambition of its learning ecosystems and the boldness of its environmental stewardship. Innovation hubs streaking with solar arrays and digital-twin laboratories will attract talent and investment; international partnerships; academic, corporate and cultural will flourish on the back of our global-competence curriculum; and our balanced approach to regulation and entrepreneurism will serve as a model for other small states seeking to punch above their weight.

This is not a predetermined conclusion but a choice, a commitment to sustained effort, courageous experimentation and honest evaluation. We will encounter setbacks: pilots that fail to scale, funding models that need recalibration, and educators who require additional support. Yet by building feedback loops into every initiative, through transparent data sharing, formative peer review and open forums for stakeholder reflection, we ensure that each challenge becomes an opportunity to

learn and improve. Our collective resilience will be measured not simply by the measures we set, but by our ability to iterate swiftly, draw lessons from missteps and deepen collaboration when progress stalls.

The imperative is clear: the decisions taken now will echo across generations. By investing in integrative learning, flexible credentials, robust data ecosystems and inclusive governance, Malta can design a future where every citizen can adapt, contribute and prosper. In doing so, we honour our heritage of community solidarity and cultural richness, even as we embrace the disruptive forces reshaping global economies and societies. The coming years will reveal who rises to this challenge, but the blueprint is in our hands. Let us move forward with determination, harness our collective ingenuity and write the next chapter of Malta's story as architects of a truly human-centred future.

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