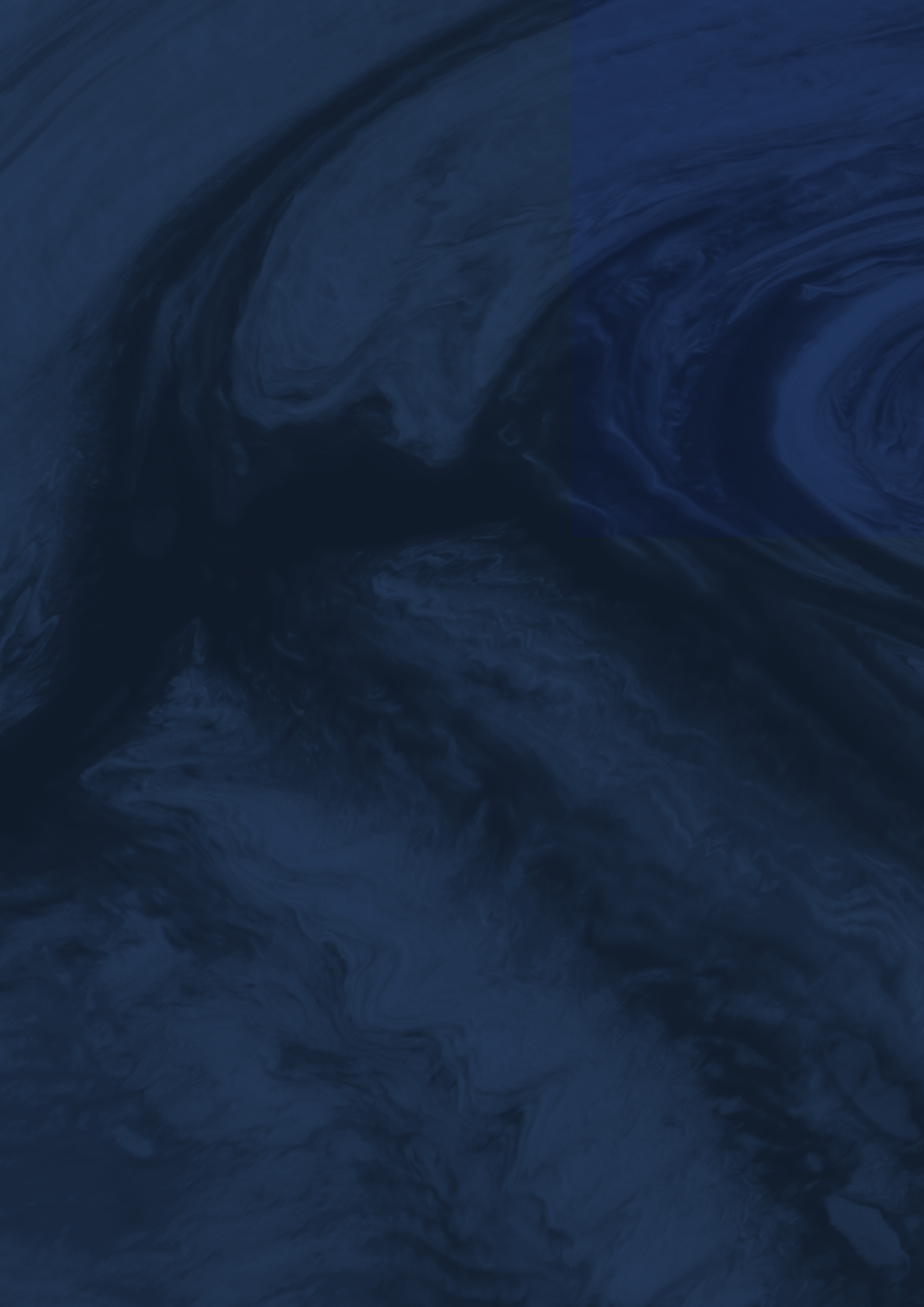
National Productivity Board

NATIONAL PRODUCTIVITY REPORT

2024

MALTA'S TWIN TRANSITION

A Roadmap for Sustainable Productivity and Resilience



NATIONAL PRODUCTIVITY REPORT

2024

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PARLIAMENTARY SECRETARY'S FOREWORD

Malta stands at a pivotal moment in its economic and social development. The twin transition—the simultaneous advancement of digitalisation and sustainability—represents the most significant economic shift of our time. Across Europe and beyond, nations are redefining their economies, embracing new technologies, rethinking how they use resources, and laying the foundation for more resilient, competitive, and sustainable growth. Malta must not only keep pace with this transformation but position itself as a leader among small states.

As a Government, we recognise that the choices we make today will define Malta's future for generations to come. This is why we are committed to ensuring that our economic policies, investment priorities, and national strategies align with Vision 2050, a long-term framework designed to build a future-ready Malta—one that is productive, sustainable, innovative, and inclusive.

Vision 2050 is a reflection of Malta's ambition—an ambition that sees us not merely adapting to global changes but actively shaping our own trajectory. It recognises that productivity must be at the core of our economic transition. As we navigate the twin transition, our approach is not just about achieving compliance with international targets but about unlocking new opportunities for economic diversification, job creation, and enhanced quality of life for all Maltese citizens.

For Malta, the twin transition is not an abstract concept; it is a strategic necessity. Our economy is unique—dynamic and service-driven, but also constrained by our small size, resource limitations, and external dependencies. If we are to remain competitive and resilient, we must fully integrate the digital and green transitions into our economic model.

The digital transition provides an opportunity to enhance efficiency, unlock new business models, and modernise traditional industries. This Government has heavily invested in digital infrastructure, e-government services, AI adoption, and emerging technologies to position Malta at the forefront of digital transformation. However, infrastructure alone is not enough—we must ensure that digital skills, workforce readiness, and business adoption move in parallel. This is why we have launched nationwide digital skilling programs, SME support initiatives, and investment incentives to accelerate digital transformation across all sectors.

At the same time, the green transition is critical to Malta's long-term sustainability. Climate change, rising energy costs, and environmental constraints require us to fundamentally rethink how we consume resources, plan our cities, and power our economy. Government policies are already supporting renewable energy adoption, sustainable transport, and circular economy initiatives. We are also mobilising investment in clean technology, green finance, and climate adaptation projects to ensure that Malta's economy can thrive in a low-carbon future.

Both transitions—digital and green—must reinforce each other. This is why Malta is investing in smart energy grids, AI-driven resource management, and data-driven governance models that will enhance efficiency across industries. These changes aren't just about policy; they are about ensuring that our businesses remain globally competitive, our workforce is equipped for the jobs of tomorrow, and our citizens benefit from a more liveable and efficient economy.

The National Productivity Report 2024 provides an in-depth analysis of Malta's productivity performance and offers a strategic roadmap for action. The framework outlined in this report aligns with our Government's economic priorities, ensuring that productivity gains are not only measured in economic terms but also in terms of social well-being and environmental sustainability.

This Government is fully committed to implementing the necessary reforms, investments, and policies to make this transition a success. We are dedicated to working with businesses, academia, and civil society to ensure that Malta not only meets global standards but sets new benchmarks for sustainable growth.

This report is an important contribution to that effort. I thank the National Productivity Board and all stakeholders who have contributed to this analysis. The insights and recommendations presented here will play a vital role in shaping policy decisions that will guide Malta into the next phase of its economic evolution.

Together, we have the opportunity to build a Malta that is not only stronger and more resilient—but smarter, greener, and more innovative than ever before.

Hon Andy Ellul
Parliamentary Secretary

CHAIRMAN'S INTRODUCTION

As Chairman of the National Productivity Board, it is my honour to present this year's National Productivity Report, which focuses on the profound opportunities and challenges posed by the twin transition—namely, the simultaneous advancement of green and digital transformations. This report reflects our nation's shared vision of achieving sustainable growth, resilience, and competitiveness in an increasingly complex and interconnected world.

The twin transition represents a defining moment for Malta. On one hand, the green transition compels us to address urgent environmental challenges, adopt renewable energy sources, and embed sustainability into every facet of our economy. On the other hand, the digital transition demands the adoption of cutting-edge technologies to optimise processes, unlock innovation, and improve connectivity. Together, these transitions offer a pathway to not only modernise our economy but also enhance our productivity and improve the quality of life for all our citizens.

Productivity is the backbone of economic progress. It determines our ability to grow, innovate, and improve living standards in a competitive global economy. This year's report underscores the central role of productivity in navigating the twin transition. It highlights how the efficient use of resources, coupled with technological advancements and sustainability practices, can drive long-term resilience and prosperity.

This report has been shaped by robust analysis, stakeholder engagement, and a deep understanding of Malta's unique socio-economic context. It provides a comprehensive framework of actionable recommendations aimed at addressing key challenges, from skills mismatches and infrastructure gaps to policy coordination and financing mechanisms. These recommendations are not merely theoretical; they offer practical pathways to align our national priorities with global and European Union standards, including the ambitions of the EU Green Deal and the Digital Decade.

We recognise that achieving the twin transition is a shared responsibility that requires collective action. Policymakers must enact and enforce forward-looking policies, businesses must embrace innovation and sustainability, and society as a whole must adapt to the demands of a changing world. The National Productivity Board is committed to supporting this transition by fostering collaboration, providing expertise, and ensuring accountability.

As we look to the future, we remain guided by the principles of inclusivity, sustainability, and resilience. This report serves as both a roadmap and a call to action for Malta to lead by example in addressing global challenges while seizing opportunities to secure our economic and social well-being. Together, we can ensure that Malta thrives in this new era, setting a benchmark for productivity and innovation on a global scale.

I extend my deepest gratitude to all those who contributed to the development of this report. Your expertise, insights, and commitment to Malta's future have been invaluable. It is my hope that this report inspires bold action and fosters a shared vision for a more productive and sustainable Malta.

Perit David Xuereb
Chairman
National Productivity Board

LIST OF ACRONYMS

AI	Artificial Intelligence
CE Malta	Circular Economy Malta
DESI	Digital Economy and Society Index
EA	Euro Area
EIB	European Investment Bank
EISI	European Innovation Scoreboard Index
EMI	European Monitor of Industrial Ecosystems
EU	European Union
FDI	Foreign Direct Investment
GCI	Global Competitiveness Index
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GII	Global Innovation Index
GVA	Gross Value Added

ICT	Information and Communication Technology
IMD	International Institute for Management Development
IMF	International Monetary Fund
IoT	Internet of Things
ISCED	International Standard Classification of Education
MFF	Multiannual Financial Framework
NEET	Youth not in Employment, Education or Training
NIIP	Net International Investment Position
NPB	National Productivity Board
SDGs	Sustainable Development Goals
SMEs	Small and Medium-sized Enterprises
STEM	Science, Technology, Engineering and Mathematics
ULC	Unit Labour Costs
WEF	World Economic Forum

EXECUTIVE SUMMARY

Malta is at the threshold of a transformative era, driven by the twin imperatives of digital innovation and environmental sustainability, collectively referred to as the twin transition. This profound shift represents an unprecedented opportunity for Malta to redefine its economic trajectory, address structural vulnerabilities, and position itself as a leader in sustainable development. The twin transition is not just a policy agenda; it is a systemic reimagining of how resources are managed, innovations harnessed, and societal needs met in a way that aligns with the urgent demands of our time.

At its core, the twin transition seeks to integrate the green and digital transformations as complementary and mutually reinforcing pillars. The green transition emphasises the adoption of renewable energy, circular economy practices, and sustainability frameworks to mitigate climate risks and ensure long-term ecological balance. Simultaneously, the digital transition leverages technologies such as artificial intelligence, big data, and the Internet of Things to optimise processes, enhance decision-making, and drive innovation. For Malta, these intertwined pathways provide a unique blueprint for achieving sustainable productivity growth.

The report highlights how the twin transition addresses Malta's persistent challenges, including resource inefficiencies, skills mismatches, and limited scalability as a small island economy. By embedding sustainability into economic and social systems and harnessing digital tools to drive efficiency, Malta can unlock new opportunities for innovation, competitiveness, and resilience. These efforts align seamlessly with the European Union's priorities under the Green Deal and Digital Decade, offering Malta access to technical support, funding mechanisms, and policy coherence.

The Twin Transition and Malta's Competitiveness

Malta's economic profile is characterised by its vibrant service-driven sectors, including tourism, financial services, and information and communication technologies. However, as a small island state, Malta faces distinct challenges such as limited natural resources, geographic constraints, and dependence on external markets. Productivity, defined as the efficient use of resources to create value, remains a critical lever for enhancing economic sustainability and improving living standards.

The report underscores the twin transition as a catalyst for redefining Malta's productivity landscape. The green transition fosters resource optimisation, cost reduction, and compliance with global sustainability standards, creating a competitive edge for businesses that align with these principles. Concurrently, the digital transition enhances productivity through data-driven strategies, streamlined processes, and greater market connectivity. Together, these dimensions hold transformative potential for Malta, enabling it to modernise industries, reduce carbon footprints, and expand economic horizons.

While Malta has made strides in sectors like renewable energy and digital infrastructure, gaps remain. Addressing these barriers will require targeted interventions in governance, infrastructure, workforce development, and financing mechanisms. The report presents a comprehensive roadmap for realising the twin transition's potential, emphasising the need for integrated strategies that align with national and EU-level goals.

Strategic Framework and Recommendations

Central to the report is the articulation of a Theory of Change framework, which provides a structured approach to achieving the twin transition's long-term objectives. The framework identifies critical inputs, such as governance reforms, capacity building, and technological investments, and maps them to activities, outputs, and desired outcomes. This systematic approach ensures that the twin transition is not only impactful but also inclusive and adaptable.

The report offers ten strategic recommendations to guide Malta's journey toward sustainable productivity. These recommendations focus on areas such as enhancing policy alignment, modernising infrastructure, building workforce capacity, and fostering innovation ecosystems. Each recommendation is supported by detailed analyses, highlighting the challenges they address, the opportunities they unlock, and their alignment with broader strategic priorities such as Malta's Vision 2050.

For instance, one of the key recommendations involves strengthening governance frameworks to ensure policy coherence and effective implementation of green and digital priorities. This includes creating integrated monitoring systems to track progress and fostering public-private partnerships to mobilise resources and drive innovation. Another recommendation emphasises the modernisation of infrastructure, with a focus on renewable energy systems, digital connectivity, and multi-modal transport solutions. These initiatives aim to reduce inefficiencies, enhance resilience, and position Malta as a leader in sustainable infrastructure development.

The report also highlights the importance of empowering small and medium-sized enterprises (SMEs) as engines of innovation and inclusivity. Tailored support mechanisms, knowledge-sharing platforms, and simplified access to financing are proposed to help SMEs adopt green and digital practices. In addition, targeted workforce development initiatives are recommended to bridge skills gaps and equip workers with the expertise needed to thrive in the twin transition economy. By aligning educational curricula with market demands and promoting lifelong learning pathways, Malta can create a resilient and future-ready workforce.

Implementation Pathways

Achieving the twin transition's ambitious goals will require a robust implementation strategy that prioritises adaptability, inclusivity, and stakeholder engagement. The report outlines key principles to guide this process, including the importance of aligning national initiatives with EU frameworks to leverage funding and technical expertise. It also stresses the need for continuous monitoring and evaluation, supported by data-driven insights, to ensure that strategies remain responsive to emerging challenges and opportunities.

The role of public-private partnerships is highlighted as a critical enabler of success. By fostering collaboration between government institutions, private enterprises, and civil society, Malta can mobilise the resources and expertise needed to implement complex initiatives. The report also emphasises the importance of equity and inclusivity, ensuring that the benefits of the twin transition are shared across all segments of society, including marginalised groups and underserved sectors.

A Call to Action

The twin transition represents a defining moment for Malta—a chance to lead by example in addressing global challenges while securing long-term economic and social resilience. The report concludes with a call to action for policymakers, businesses, and civil society to embrace the twin transition as a shared responsibility. By adopting the strategies outlined in this report, Malta can position itself as a pioneer of sustainable productivity, setting a benchmark for small economies worldwide.

This executive summary provides a cohesive overview of the report's key findings, emphasising the critical role of the twin transition in shaping Malta's future. Through its detailed analyses and actionable recommendations, the report aims to inspire collective action and chart a clear path toward a more sustainable, competitive, and inclusive Malta.

INTRODUCTION

Embracing the Twin Transition to Reimagine Productivity

Malta stands at a defining crossroads in its economic and societal development. The concurrent global imperatives of digital transformation and environmental sustainability, collectively referred to as the twin transition, have presented both a challenge and an opportunity. As the world accelerates toward a greener, digitally enhanced future, Malta has a unique opportunity to leverage this transformative shift to address structural challenges, redefine productivity, and secure long-term competitiveness.

The twin transition is not merely a policy framework but a reimagining of how nations can align economic, social, and environmental goals. The green transition centres on mitigating climate risks and building sustainable systems through renewable energy adoption, circular economy practices, and resource optimisation. In parallel, the digital transition involves integrating advanced technologies, such as artificial intelligence (AI), big data, and the Internet of Things (IoT), into industries and governance to drive efficiency, innovation, and connectivity. Together, these transitions form a synergistic pathway to sustainable and inclusive growth, positioning nations to thrive in an era of rapid change.

Malta, as a small island state, faces distinct challenges—limited natural resources, geographic constraints, and heavy reliance on external markets. However, these same factors provide a compelling case for embracing the twin transition. With its vibrant service-based economy and robust digital infrastructure, Malta is well-placed to become a leader in sustainable and digital transformation, setting an example for small economies worldwide.

The Productivity Imperative

Productivity is central to Malta's economic narrative, serving as a critical driver of growth, competitiveness, and societal well-being. Defined as the efficient use of resources to generate value, productivity underpins the ability of nations to improve living standards and sustain economic resilience. For Malta, addressing productivity challenges is essential to maintaining its competitive edge in a globalised economy.

The twin transition offers a transformative opportunity to enhance productivity across sectors. By integrating green practices, businesses can reduce costs, improve resource efficiency, and align with global sustainability standards. Concurrently, digital technologies enable data-driven decision-making, process optimisation, and market connectivity, fostering innovation and efficiency. Together, these transitions hold the potential to elevate Malta's productivity landscape, making it more resilient, inclusive, and forward-looking.

The dual focus on green and digital transformations aligns with Malta's commitment to European Union priorities, including the Green Deal and the Digital Decade. By leveraging these frameworks, Malta can access resources, expertise, and funding to implement impactful changes. However, success requires addressing barriers such as skills mismatches, fragmented governance, and infrastructure gaps.

Structure of the Report

This report provides a comprehensive roadmap for leveraging the twin transition to enhance productivity in Malta. It is organised into six chapters, each addressing a specific dimension of this transformation:

Chapter 1: The Malta Productivity Framework. The opening chapter outlines the conceptualisation of a productivity framework that will be used to analyse Malta's performance over time as well as to benchmark it against a number of its peers.

Chapter 2: Competitiveness Analysis. This chapter examines Malta's economic landscape, providing a detailed analysis of macroeconomic indicators and productivity metrics. It benchmarks Malta's performance against European counterparts, offering insights into the structural conditions shaping its productivity.

Chapter 3: Introducing the Twin Transition. Here, the report delves into the global and European policy frameworks driving the twin transition. It explores the synergies between digital and green transformations, emphasising their relevance to Malta's productivity agenda.

Chapter 4: Policy and Economic Context. This chapter evaluates Malta's current policies and initiatives, identifying gaps and opportunities for alignment with the twin transition framework. It provides the necessary context for understanding Malta's starting point in this transformative journey.

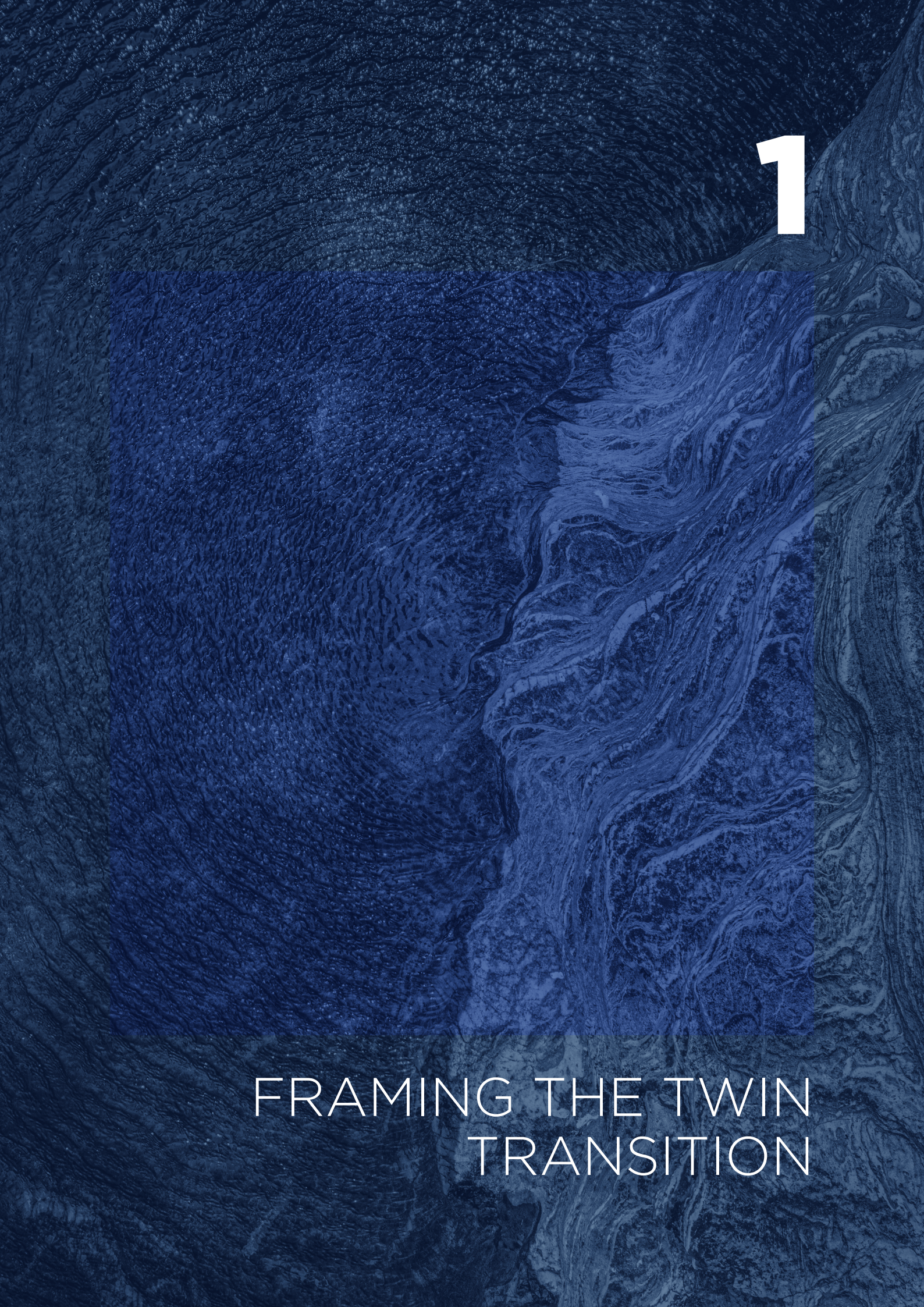
Chapter 5: Key Recommendations for the Twin Transition. The core of the report, this chapter outlines ten strategic recommendations for harnessing the twin transition. Each recommendation is supported by a detailed rationale, actionable steps, and SMART indicators to guide implementation and monitoring.

Chapter 6: Charting Malta's Path Forward. The concluding chapter synthesises the report's findings, emphasising the alignment with Malta's long-term strategic vision and issuing a call to action for collaborative engagement.

Setting the Stage for Transformation

The twin transition is not a singular goal but an ongoing process requiring collaboration, innovation, and adaptability. As Malta embarks on this transformative journey, it must embrace a holistic approach that integrates sustainability and digitalisation into every facet of its economy and society. This report aims to serve as a guiding framework, equipping policymakers, businesses, and civil society with the tools and strategies needed to navigate the twin transition effectively.

Through the chapters that follow, this report provides a clear vision for leveraging the twin transition to enhance productivity, address structural challenges, and create a resilient, inclusive, and sustainable future for Malta.



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FRAMING THE TWIN TRANSITION

The National Productivity Board will be adopting an analytical Productivity and Competitiveness Framework to assess Malta's competitiveness and productivity from year to year. This will provide a tool for clear and robust analysis, enabling a focused and long-term assessment of emerging trends, issues, and opportunities. This chapter will outline the rationale behind the Framework's design and structure and lay out its function based on the measurement and tracking of key indicators and trends. Its application within the context of the National Productivity Board's overarching focus, i.e. the '*diagnosis and analysis of productivity and competitiveness developments'* in Malta, will also be discussed.[1]

> ***As global economic changes accelerate, and challenges intensify, the definitions of national productivity and competitiveness are increasing in breadth and complexity; the relationship between the two concepts is also being reevaluated.***

The dynamics of productivity and competitiveness, particularly at a national level, are complex and multi-dimensional. In today's global economic environment, several variables work together to determine a country's performance, ranging from the significant and sometimes unanticipated impacts of external sociopolitical developments to the intrinsic structural factors which shape its economy. Both concepts are also increasingly being viewed as interlinked and mutually reinforcing rather than two distinct and separate forces. This dependence is evident in the established definition of competitiveness as '*the set of institutions, policies and factors that determine the level of productivity in a country, which in turn sets the level of prosperity that the country can earn.*' (World Economic Forum).[2]

On this basis, the quality and quantity of a country's productivity is the key determinant for the level of national competitiveness it can leverage, and by extension, the prosperity it can achieve which can then translate into better living standards for its citizens. Given that consensus on what comprises national competitiveness can vary, this interpretation also provides an opportunity to use well-established productivity indicators to measure and analyse this attribute in a meaningful way. This can then generate evidence-based inputs to inform policy development across a range of areas and sectors that directly or indirectly impact longer-term productivity and competitiveness.

Similarly, against a global backdrop of rising inequalities and an urgent climate crisis the targeted outcomes of a productive and competitive economy are also shifting beyond a tight GDP focus to encompass inclusive and sustainable growth. The European Commission in fact highlights this wider objective and explicitly links the productivity/competitiveness dynamic in its definition of a competitive economy as one "whose sustained rate of ***productivity*** is able to drive sustainable ***growth*** and, consequently ***income and welfare***."

A holistic approach which builds on the seamless interdependence between competitiveness and productivity, and the importance of both in driving resilient, inclusive and sustainable growth, is strongly advocated in the EU's new Competitiveness Strategy, which states:

> ***"Raising the EU's competitiveness is necessary to reignite productivity and sustain growth in this changing world. The core focus of a competitiveness agenda should be to raise productivity growth, which is the most important driver of long-term growth and leads to rising standards of living over time."***[3]

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[1] COUNCIL RECOMMENDATION of 20 September 2016 on the establishment of National Productivity Boards (2016/C 349/01)

[2] World Economic Forum. (2015).The Global Competitiveness Report 2015-2016.

[3] European Commission. (2024). The future of European competitiveness – A competitiveness strategy for Europe

This rationale has informed the framework presented in this report. This is structured to incorporate the competitiveness and productivity perspectives in its analysis, encompassing the key drivers and determinants that are relevant to both. In designing Malta's Framework, however, a desk review of established competitiveness and productivity assessment tools was first carried out to ensure that current and emerging trends in this area are factored into the final model adopted for Malta's assessment. This review focused on the latest tools applied by international organisations.

1.1 Identifying the Framework's Key Components – A Brief Assessment of Productivity and Competitiveness Analysis Tools and Trends

1.1.1 World Economic Forum – Global Competitiveness Index

The World Economic Forum's (WEF) Global Competitiveness Index (GCI) is widely used as a standard for measuring competitiveness at country level. It provides a very comprehensive evaluation framework, capturing both the microeconomic and macroeconomic elements of national competitiveness. This framework is consistently reviewed and refreshed by the WEF in line with global trends and developments. The most recent changes to the framework have focused on expanding the more traditional factors of production to address wider environmental and social protection considerations; the focus on technological readiness has also been strengthened. The last update was made in 2021 (GCI 5.0), and this is the version consulted in the design of the Framework for this report.

Structure of Global Competitiveness Index 5.0

The GCI 5.0 is structured into twelve policy pillars which are clustered across four foundational 'building blocks': the enabling environment, human capital, markets and the innovation ecosystem. A set of standard indicators is applied under each pillar to measure an individual country's performance using data sourced from internationally recognised organisations. This measurement is supplemented by qualitative insights from an annual Executive Opinion Survey conducted by the WEF. The figure below outlines the four competitiveness 'building blocks' and the pillar clusters that fall within each.

GLOBAL COMPETITIVENESS INDEX 5.0 - WORLD ECONOMIC FORUM				
Dimension	**Enabling Environment**	**Human Capital**	**Markets**	**Innovation Ecosystem**
COMPETITIVENESS PILLARS	**Public Institutions**	**Public Health**	**Labour Market**	**Innovation**
	Efficiency and transparency of public administration; quality of policy making aligned with a long-term government vision	National health outcomes based on accessibility of healthcare services, density of healthcare infrastructure and health workers as well as healthcare coverage and healthcare quality	Dynamism of labour market, particularly in responsiveness to changing needs; fairness in terms of protecting workers and promoting quality jobs	Level of innovation expenditure and deployment in a country; extent, quality and reach of innovation resources and collaboration
	Security & Social Cohesion	**Social Protection**	**Financial Conditions**	**Future Orientation of Business**
	Rate of safety and trust in an economy; covers physical security and crime, as well as levels of social capital	Social protection coverage of services related to both labour force participation and independent of labour force participation; also captures access to social services such as childcare and eldercare as well as the effectiveness of active labour market policies	Covers four dimensions of an economy's financial conditions that are conducive to long-term productivity growth: financial system depth, financial inclusion, banking system stability, and macroeconomic stability	The capacity of the private sector to adopt new technologies and adapt to new ways of working
	Environment	**Education & Skills**	**Competition**	
	State of natural environment & sustainability of development and resource use; factors in climate change drivers	Quality of national educational system and equality in accessibility to education; covers lifelong learning opportunities and skills relevance in the labour force	Overall market characteristics, including market size, levels of domestic competition and external competitive pressures	
	Infrastructure			
	Quality and density of transport, connectivity and digital infrastructure; also covers utility infrastructure			

1.1.2 EU Long-Term Competitiveness Agenda

Responding to the impacts of the pandemic and Russia's aggression in Ukraine, the EU has placed a renewed focus on its competitiveness and productivity agenda. However, looking beyond the immediate response to these crises, its core objective is to build a common framework for long-term sustainable growth. The Union's green and digital transformations as 'a source of innovation, growth and competitiveness' are at the heart of this framework, as are its Social Europe goals. This policy context will be discussed further, particularly in relation to Malta's realities, in Chapter 3.

In terms of the EU's measurement and analysis of productivity and competitiveness, the European Commission has identified **nine mutually reinforcing drivers** which will form the basis of its strategy in this area.[4] These are:

A functioning Single Market	**Access to private capital and investment**	**Public investment and infrastructure**
Research and Innovation	**Energy**	**Circularity**
Digitalisation	**Education and skills**	**Trade and open strategic autonomy**

Performance targets have been specified under each driver domain and the Commission will be tracking progress through a set of Key Performance Indicators. Action will be reinforced at country level through the European Semester process.

[4] European Commission. (2023, March 16). Communication from the Commission to the European parliament, the Council, the European economic and social committee and the Committee of the regions: Long term competitiveness of the EU: Looking beyond 2030 (COM(2023) 168 final).

Since 1997, the EU has used a Single Market Scoreboard to assess the performance of the Member States in the integration of the Single Market – advancing this integration was the cornerstone of the Union's competitiveness policy under the Europe 2020 strategy programme. In 2023 this Scoreboard has been expanded to include competitiveness indicators, in line with the Commission's Long-term Competitiveness Communication.

The Single Market and Competitiveness Scoreboard measures the performance and outcomes of Member States in three main areas: Single Market enforcement tools, business framework conditions, and outcomes and competitiveness. Relevant performance indicators are used to track the annual performance at country level, and collectively at Union level. Using defined criteria in different areas, outcomes are then measured to arrive at an understanding of the Member State's competitiveness.

SINGLE MARKET AND COMPETITIVENESS SCOREBOARD			
Policy Area	**Single Market Enforcement Tools**	**Business Framework Conditions**	**Outcomes and Competitiveness**
INDICATOR CATEGORIES	Formal and informal cooperation between the Commission and Member States	Responsive administration and burden of regulation	Growth, employment and social indicators
	Administrative cooperation between national authorities	Market surveillance	Integration of goods and services
	Assistance services for individuals and businesses	Access to public procurement	Economic resilience
		Access to services and services markets	Digital transition
		Labour mobility and matching across borders	Green transition
		Access to finance	

1.1.3 International Institute for Management Development – World Competitiveness Report

The International Institute for Management Development (IMD) publishes annual competitiveness rankings for selected economies using a similarly data-driven approach to the WEF GCI. This ranking was established four decades ago, however recent updates follow a similar trajectory to that seen in the GCI and the European Commission's Scoreboard. In all cases, other factors beyond strictly economic forces are being integrated into the analysis methodology. In the case of the IMD ranking, political, social and cultural dimensions have been enhanced, and the central role of governments in creating and maintaining the environment required for high productivity and competitiveness is highlighted.

[5] IMD World Competitiveness Centre. (2024). World Competitiveness Report 2024.

> ***"Governments play a crucial role, by providing an environment characterised by efficient infrastructure, institutions, and policies that can encourage sustainable value creation on the part of enterprise."***[5]

Like the WEF GCI, the IMD uses a combination of statistical indicators from recognised sources and primary data obtained through annual surveys to compute its rankings within an analytical framework. This framework is made up of four factors: economic performance, government efficiency, business efficiency, and infrastructure, with five sub-factors in each grouping.

IMD WORLD COMPETITIVENESS INDEX				
Main Factor	**Economic Performance**	**Government Efficiency**	**Business Efficiency**	**Infrastructure**
SUB-FACTORS	Domestic Economy	Public finance	Productivity & efficiency	Basic infrastructure
	International Trade	Tax Policy	Labour market	Technological infrastructure
	International Investment	Institutional Framework	Access to Finance	Scientific infrastructure
	Employment	Business legislation	Management practices	Health and environment
	Prices	Social Framework	Attitudes and values	Education

A Common Factor: The Importance of Government Pro Productivity Policies in Productivity and Competitiveness Performance

Across all three frameworks referenced above, the role of government intervention and policy development is seen, to varying degrees, as a key determinant in driving competitiveness and productivity.

It is clear from the above comparison that emerging trends address government action and policy as core competitiveness factors. From a supply side perspective, governments are key to the effective provision of physical, human and knowledge capital; from a demand side their role in creating the right conditions for enterprises to innovate, grow, and compete is also critical.

WEF GCI	The effectiveness of government policies and action is identified as a key pillar under the 'Enabling Environment' vertical ('Public Institutions'); policy quality, including in terms of implementation, is also critical in ensuring positive outcomes in several other pillars identified as contributors to competitiveness, such as human capital (health and education systems; labour market policy), infrastructure, security and social cohesion, environment. The increasing importance of business innovation and sophistication is also significantly tied to proactive and responsive government intervention in this area.
EU SCOREBOARD	Apart from a critical role in advancing the Single Market at country level, governments of Member States are central to creating efficient and effective business frameworks, the second of the three main areas captured in the Scoreboard.
IMD WCI	Government efficiency is highlighted as one of the four key verticals in the IMD framework. This covers sound public finances and institutions to generate confidence and drive strong public investment as well as targeted and effective tax, business, and financial policies and legislation to secure a competitive business environment. Beyond this, infrastructure in its widest sense – including health, education, physical and scientific infrastructure – is built into the framework as a distinct vertical. Government vision, policy and investment is a vital factor across all these fields.

[5] IMD World Competitiveness Centre. (2024). World Competitiveness Report 2024.

On this basis, the 'government policy effect' will be closely integrated into the Malta Productivity and Competitiveness Framework. This approach aligns with the NPB's mandated role of independent analysis of policy challenges specific the Malta's social and economic development.

Although the precise methodology varies, all three productivity and competitiveness frameworks discussed above share common elements. Environmental and social dimensions have been added to economic criteria to provide more comprehensive assessments better aligned with current and emerging challenges; the central role of governments and national policy has been strengthened, as has the decisive impact of innovation and development in driving competitiveness. Across all three examples statistical indicators are used to rate and benchmark countries. These elements are reflected in the National Productivity Board's Malta Productivity and Competitiveness Framework outlined below.

1.2 A Productivity and Competitiveness Framework for Malta

Since its constitution in 2019 the NPB has actively engaged in its primary role of the 'diagnosis and analysis' of Malta's productivity and competitiveness. As per the Council Recommendation of 2016[6] , it has published a comprehensive report each year with two key outputs:

- an in-depth assessment of Malta's productivity and competitiveness position for the year under review largely based on statistical indicators;
- a data-driven deep dive into a selected thematic area with very direct relevance to Malta's competitiveness, often through a forward-looking lens.

This approach has ensured a robust contribution to evidence-based policymaking at national level and has facilitated and informed decision making at enterprise level.

With the NPB now entrenched in its role, and the value and validity of its annual reports well established, the Board has decided to consolidate its analytical approach into a consistent framework that will be applied annually to a core set of performance indicators. This will provide a continuous vantage point to assess and track performance and enhance the NPB's capability to identify emerging trends and issues. The framework will be flexible to enable additions and changes to the criteria over time.

The thematic analysis element adopted in past reports will be maintained through the integration of all key policy areas which may impact productivity and/or competitiveness in the Framework. Within this model, areas of the Framework which are deemed particularly important in any given year will be selected for focused research, with findings included in the annual report.

The sections below will outline the key dimensions of the Framework, with a brief rationale for their inclusion in the Maltese context.

1.3 Malta Productivity and Competitiveness Framework - An Overview

1.3.1 Overall Structure and Rationale

In line with currents trends and best practice, the Framework assesses both productivity and competitiveness simultaneously, treating these concepts as interdependent and mutually reinforcing. The Framework adapts the 'building block' approach taken by the WEF and builds up from the foundational elements required to drive and support productivity and competitiveness. It then captures the key determinants of both in four main clusters organised by thematic area. These are again organised into direct and indirect channels in terms of their impact on productivity and competitiveness.

[6] Council Recommendation of 20 September 2016 on the establishment of National Productivity Boards (2016/C 349/01)

PRODUCTIVITY AND COMPETITIVENESS		
Indirect	**Market and Resource Allocation** • Financial markets • Product markets • Labour Market policies & measures • Competition Policy	**Internationalisation** • Trade • FDI • Migration
Direct	**Accumulation of Factors of Production** • Investment • Human Capital • Natural Resources	**Technological & Social Change** • Digital Transition • Innovation • Industrial Policy • Green Transition
Foundational	**Enabling Environment**	

A schematic of the Framework can be seen below.

Foundational Elements

Government vision, policy, and investment is pivotal to competitiveness. In both the WEF and IMD analytical model this is key to creating a positive enabling environment. It therefore forms the foundation of the Malta Framework, broken down into three key elements:

Institutions and Frameworks

Countries with a robust and consistent institutional framework marked by openness, transparency, and accountability are more likely to be productive and competitive[7]. Public institutions are key to creating an enabling environment through systems that favour innovation, growth and competition. A clear, long-term vision, delivered through smart policies and measures, supports business confidence and drives investment. Sound governance also safeguards a country's reputation and promotes ease of doing business, boosting opportunities for internationalisation and Foreign Direct Investment.

Government Capacity

Directly related to a nation's institutional health, government capacity captures the state's ability to carry out its essential work: raise taxes, maintain order, manage public resources, and deliver public services. Recent research has widened this understanding in the context of increasingly complex societies, particularly following experiences in the COVID-19 pandemic. Beyond a government's core fiscal and legal competencies, effective state capacity "*remains crucial for developed nations seeking to sustain rising living standards, social cohesion and a broader sense of trust in public institutions.*"[8]

Macroeconomic Policy

This focuses on the government's policymaking and implementation role in economic terms. Transparent and proactive public institutions which can deliver certainty and stability are key requirements for a strong and resilient economy. This includes a sound fiscal and monetary environment with an efficient and sustainable taxation model that can drive growth and entrepreneurship. Another key sub-element is labour market policy, which in effective economies aims to balance worker protection with the responsiveness and flexibility required by enterprises.

[7] Delgado, Mercedes & Ketels, Christian & Porter, Michael & Stern, Scott. (2012). The Determinants of National Competitiveness. Working paper series (National Bureau of Economics); Joseph E. Stiglitz. (2021). The proper role of government in the market economy: The case of the post-COVID recovery, Journal of Government and Economics, Volume 1, 2021,

[8] Speer. S. (2024). Incapacitated: Why Canada has a state capacity problem – and how to fix it.

Direct Channels

Accumulation of Factors of Production

This dimension covers the resources used within the economy to produce goods and services. For the purposes of this Framework, this will focus on investment, human capital, and natural resources.

INVESTMENT	HUMAN CAPITAL	NATURAL RESOURCES
Both the WEF and IMD analytical tools identify investment as critical to competitiveness, both in terms of facilitating access to finances for enterprises seeking to grow and innovate, as well as attracting international investment. Access to private capital and investment is also selected as one of the nine core competitiveness drivers in the EU's 2030 Competitiveness Strategy. For the purposes of the Malta Framework, this element also encompasses public investment, identified as a driver by the Commission since it is "key for competitiveness, through the provision of essential services such as healthcare and education and the funding of large-scale infrastructure in energy, connectivity and transport."[9]	Labour market characteristics and dynamics are highlighted as key determining factors for competitiveness in WEF and IMD indices. The 'human capital' interpretation however takes a wider perspective to encompass the knowledge, skills, and health of a population. On this basis and tied with the more forward-looking approach being adopted in economic analysis, effective and accessible education and health systems are vital for inclusive, resilient growth and competitiveness.	The WEF identifies the environment as a competitiveness pillar; the IMD links health and environment as contributing factors; the Commission highlights circularity as one of its nine core drivers. Given Malta's sustainable development and climate goals, the responsible use of natural resources needs to factor into this Framework. This particularly due to specific challenges Malta faces that impact competitiveness, including waste management, water and land scarcity, population density and urbanisation, and accelerating climate change.

Technological and Social Change

This dimension clusters elements which directly cause change at social, enterprise, sectoral, and national level. All these elements are already in play in Malta, with disruption anticipated to accelerate in the coming years.

Digital Transition

Digital transformation is critical to national productivity and international competitiveness. The rate at which an economy can adopt and integrate technology across all sectors is a key factor of economic performance; it also ties into other elements within the Framework since this integration can support sustainability and the green transition, promote social cohesion and well-being, and drive quality improvements in education and training. The digital transition is flagged in both the WEF and IMD frameworks and identified as both a key driver and outcome for competitiveness in the Commission model.

Innovation

The need for a healthy innovation ecosystem is singled out as a competitiveness pillar by the WEF and identified as a competitiveness driver by the European Commission; the need for quality scientific infrastructure is also highlighted in the IMD Index. Similarly to the digital transition, which can often drive innovation, policy tools are required to support research, development, and innovation across all economic sectors. A consolidated approach will also avoid the risk of technological spillovers and maximise resource efficiency and return on investment. Bridging industry and academia is also key to building a thriving innovation ecosystem with mutual benefits for both parties.

[9] European Commission. (2023, March 16). Communication from the Commission to the European parliament, the Council, the European economic and social committee and the Committee of the regions: Long term competitiveness of the EU: Looking beyond 2030 (COM(2023) 168 final).

Industrial Policy

This element covers targeted government interventions aimed at making domestic producers more competitive in all or selected industries. It is essentially cross-cutting in nature and can impact other elements within this Framework. The EU's new long-term competitiveness agenda is reconfiguring its Industrial Policy aims, referring to a Procompetitive Industrial Policy as a pillar of competitiveness.[10]

Looking ahead, increased focus is expected at EU level on:

- Speeding up the adjustment of industry to structural changes;
- Encouraging an environment favourable to initiative and to the development of SMEs;
- Fostering better exploitation of the industrial potential of policies of innovation, research and technological development

Green Transition

The urgent need to advance and accelerate the decarbonisation of Malta's energy supply has been highlighted by the crisis in Ukraine, with the resulting rise in prices for businesses currently being offset by increasingly unsustainable subsidies. Persisting geopolitical instability, now also evident in the Middle East, is likely to continue causing energy price inflation which can, over time, erode national competitiveness. The evident impacts of climate change in Europe which are already affecting economies and societies, not least in Malta, also necessitate a tight focus on, and prioritisation of, the green transition. As with the digital transition, a holistic approach can support effective and sustainable change, minimising the duplication of effort and optimising the allocation of valuable resources.

Indirect Channels

Market and Resource Allocation

The competitiveness and productivity of any economy is determined by the overarching business environment in which its enterprises operate, and how that environment compares to competing economies. Elements within this environment are critical to sound market and resource allocation: the costs of doing business, the effectiveness of regulatory frameworks and the quality and extent of supports available to businesses. These considerations are elevated for economies with a high proportion of small and medium-sized companies (SMEs), as is the case with Malta.

Financial Markets

Financial markets play a crucial role in efficiently allocating capital to productive enterprises, fostering innovation, and enabling firms to scale. Well-functioning financial markets ensure that businesses, especially SMEs, have access to affordable credit and investment opportunities, which can fuel growth and productivity improvements. A robust financial ecosystem also allows for risk management, facilitating business resilience and expansion.

Product Markets

Product markets directly impact the competitiveness of firms by determining how products and services are created, priced, and distributed. In an open and competitive product market, businesses are incentivised to innovate and improve efficiency to meet consumer demands. This leads to higher-quality products and services at competitive prices, further enhancing

[10] Scott Morton, F. (2024). The three pillars of effective European Union competition policy. Breugel Policy Brief Issue 19/24.

productivity. For Malta, improving product market competition, reducing barriers to entry, and encouraging innovation are key to ensuring that local firms remain competitive within the global market. A dynamic interplay between financial and product markets is thus critical for Malta's long-term productivity growth.

Labour Market Policies & Measures

The availability of a skilled and sufficient workforce to support growth and innovation is a fundamental requirement for productivity and competitiveness. Given its size and demographic profile, this aspect is also a significant and ongoing issue for Malta's economy. Closely linked to education and training policy, the development and implementation of policies that support labour market dynamism will be assessed. This extends to the level of policy coherence and responsiveness across the different institutions responsible. Key areas in Malta's case include sectoral labour/skills needs, the share of imported labour in the workforce, and the promotion of activation and skills matching. In terms of the digital and green transitions, this also applies to policies to support labour force resilience. The sharp rise of non-standard forms of work and employment will also be addressed.

Competition Policy

Competition Policy has been identified as a main pillar of competitiveness by the EU in its long-term strategy. In this context, the need for coherence with a pro-competitive industrial policy is highlighted.[11] Key aspects of competition policy that will be considered in the Framework are the quality and level of enforcement and regulation.

Internationalisation

This dimension gathers the international elements of Malta's productivity and competitiveness. Given Malta's domestic market limitations, internationalisation (in terms of both FDI and external trade) is key to the growth, diversification, and innovation of local enterprises. Ongoing skills and human resource gaps also render labour migration a priority issue.

TRADE	FOREIGN DIRECT INVESTMENT	MIGRATION
For Malta's small, open economy, the international trading environment (including multilateral agreements, reliable supply chains and access to global markets), and geo-political developments, are crucial. The Single Market continues to present an opportunity for further internationalisation, including for the SME segment but barriers to increased participation persist. EU policy to strengthen and streamline mechanisms in this area should therefore be monitored through this Framework.	FDI remains a significant contributor to employment, growth and innovation in the Maltese economy. It is also a diversification driver and can be a key facilitator in the green and digital transitions. Infrastructural Specific challenges, including infrastructural and skills gaps, are however emerging as potential barriers. This affects Malta's competitiveness in this area relative to other jurisdictions.	Strong labour demand continues to drive the inward migration of foreign workers, particularly in the services sectors. The socioeconomic effects of this need to be tracked through the Framework, given direct and indirect impacts on other elements, such as human capital and natural resources. Outward migration of the native population is also an area to be considered, with the retainment of skills rising in importance to reduce Malta's brain drain.

[11] Scott Morton, F. (2024). The three pillars of effective European Union competition policy. Breugel Policy Brief Issue 19/24.

1.3.2 Application of the Framework

Statistical indicators from recognised national and international sources will form the basis of the Malta Productivity and Competitiveness Framework. These will be grouped by dimension and have been selected in terms of reliability and relevance.

The application of the Framework in the 2024 report provides an evidence-based baseline against which future trends and developments can be tracked and analysed annually. Malta's performance in each dimension is also benchmarked against other selected Member States to offer a more comprehensive analysis of the country's productivity and competitiveness relative to its European counterparts. Finally, the Framework is designed to include a dashboard to facilitate and clarify the communication of results to all stakeholders.

Malta's 2024 Framework has been designed to provide continuity with the work of the National Productivity Board to date. This final section of the chapter highlights the main thrust and findings of the NPB's annual reports from 2020 to 2023, briefing mapping out how these relate to the Framework.

1.4 A Brief Outline of Malta Productivity and Competitiveness Annual Reports 2020-2023

NPB ANNUAL REPORT 2020	NBP ANNUAL REPORT 2021
Rather than a traditionally narrow focus on productivity, the 2020 report took a firmly holistic view, clearly signalling the interdependence of productivity and competitiveness. It also sets the trend for analysis that goes beyond the measurement of productivity and GDP but rather "endorses the idea that the quality of life of people is in itself an important element to make a country competitive, productive, and attractive for investment purposes." Although a major focus of the report is on managing the impacts of COVID-19 on the economy and productivity, it is strongly forward-looking, advocating that recovery should provide an opportunity to restructure and improve, advancing progress towards the Sustainable Development Goals and carbon neutrality. In policy terms, well-designed stimulus and incentive measures to drive the twin transitions are recommended.	Entitled 'Digital Malta' this report focused on 'digital transformation as a route to national productivity and competitiveness' and established an NPB practice to integrate deep thematic analysis with its annual reporting. This included primary research consisting of sectoral surveys to measure the digital maturity and readiness of firms. This highlighted gaps, mainly evident in skills, knowledge and awareness at firm level, which were analysed further; policy responses were then recommended based on the key enablers identified. The report also provides a comprehensive assessment of productivity and competitiveness drilling down to sectoral level. Based on Malta's competitiveness performance in the WEF GCI and a benchmarking exercise against other EU countries, it recommends actions and measures to address the gaps and challenges identified. Overarching areas of concern include structural deficiencies in the education system and slow absorption of innovation.

NPB ANNUAL REPORT 2022	NBP ANNUAL REPORT 2023
Taking its lead from a key finding of the previous year's report, the 2022 analysis focused on the thematic area of research, development and innovation, describing this as a 'key driver of productivity and competitiveness.' The analysis included a broad-based assessment of the current innovation landscape and ecosystem in Malta. Performance was measured wherever possible using hard data. This analysis drilled down to sectoral level and resulted in key insights and recommendations. Once again, the NPB adopted a holistic approach and linked innovation and R&D to Malta's green and digital obligations and objectives. This is also tied into the aim of securing competitive growth and resilience through sustainable, higher value-added economic niches and sectors that mitigate environmental threats and promote quality work.	The thematic area selected for this report was the relationship between wages and productivity. The study focused on seven sectors and centred around assessing the changes in wages and salaries and productivity, understanding the specific challenges and opportunities that emerged from the analysis and the development of recommendations to address them. Wages and productivity are not assessed in isolation but are tackled within a broader 'human capital' dimension. An analysis is therefore first presented on the current skills and educational attainment levels in Malta as important determinants of future productivity and competitiveness.

1.5 Foundations for a Competitive and Productive Malta

This Chapter has laid the foundation for understanding Malta's productivity and competitiveness within a structured and analytical framework. The Malta Productivity and Competitiveness Framework introduced in this chapter emphasises the interdependence between these two critical pillars of economic performance. By conceptualising productivity and competitiveness as mutually reinforcing, the framework provides policymakers, stakeholders, and researchers with a robust tool for addressing Malta's economic challenges and harnessing its potential.

A key takeaway from this chapter is the need to recognise that productivity is not simply about increasing output relative to input. Instead, it is an indicator of how effectively resources—human, natural, and technological—are utilised to generate value. Competitiveness, on the other hand, reflects Malta's ability to sustain economic growth by remaining attractive to investors, fostering innovation, and enabling enterprises to thrive in global markets. The interplay between these two dimensions is critical to achieving long-term economic resilience and improving the quality of life for Maltese citizens.

The framework presented in Chapter 1 is designed to align with Malta's unique characteristics as a small island state while drawing inspiration from global best practices. It integrates three essential components: foundational elements, direct drivers, and indirect contributors. The foundational elements—governance, institutions, and infrastructure—serve as the bedrock for all economic activities. Direct drivers, such as innovation, workforce skills, and sectoral efficiency, determine the day-to-day operational performance of the economy. Indirect contributors, including environmental sustainability and social inclusivity, ensure that economic growth is sustainable and equitable in the long term.

Importantly, this chapter has underscored the interconnectedness of these components and the necessity for a systems-based approach. Malta cannot address its productivity challenges in isolation; progress in one area often depends on complementary improvements in another. For example, enhancing workforce skills requires alignment with sectoral needs, which in turn depends on institutional support and effective governance. Similarly, achieving competitiveness in global markets demands a coherent strategy that integrates digital transformation, sustainability, and trade policy.

While the framework provides a theoretical lens, the real test lies in its application. This is where the importance of Malta's macroeconomic and sectoral context comes into play. A comprehensive understanding of the broader economic environment is essential to translate the framework into actionable insights. How has Malta performed in recent years? Which sectors are driving growth, and which are lagging? How do Malta's productivity levels compare to peer countries? These are the questions that must be answered to make the framework truly impactful.

As we transition to Chapter 2, the focus shifts from theory to data. Chapter 2 delves into Malta's macroeconomic and sectoral performance, providing a data-driven examination of key indicators. This empirical analysis not only highlights the opportunities that Malta can leverage but also sheds light on persistent bottlenecks that require urgent attention. By exploring these trends in detail, Chapter 2 bridges the gap between strategic planning and targeted interventions, offering policymakers a clear roadmap for addressing productivity and competitiveness challenges.

Ultimately, the insights from Chapter 1 set the stage for a deeper exploration of Malta's economic trajectory. Armed with a conceptual framework and a systems-based approach, Chapter 2 moves us closer to understanding the realities of Malta's economy and identifying the pathways to sustainable growth. Together, these chapters form the bedrock of the National Productivity and Competitiveness Report, equipping Malta with the tools and strategies needed to secure its place in an increasingly competitive global landscape.

2

COMPETITIVENESS ANALYSIS

This chapter provides an overview of the Maltese macroeconomic context. It highlights key issues to consider when analysing the country's productivity and showcases the full spectrum of conditionalities.

It then delves into the direct assessment of productivity using a two-pronged approach. Firstly, a detailed analysis of several indicators selected to report on each element of a productivity framework explicitly designed to allow for both immediate and future analysis of a country's productivity will be pursued. This analysis takes the form of a four-year trend analysis of pertinent indexes that report on these four framework elements while also benchmarking Malta against its European counterparts.
Secondly, this detailed analysis is complemented by a comparative assessment of Malta's productivity indexes against countries with similar or inspirational characteristics.

2.1 Macro-Economic Analysis

This section reports on the Maltese island's macroeconomic context.

Malta's economic profile reflects its unique standing as a small but vibrant EU economy, with robust sectors in tourism, financial services, and digital industries. The limited domestic market makes productivity growth crucial to Malta's economic sustainability.

The following sub-chapters provide a comparative analysis of key macroeconomic indicators across countries and economic groups that are relevant to Malta, whether as trade partners, direct competitors, or sources of economic inspiration.

2.1.1 Economic Growth

Malta's economy has been outperforming its European counterparts in terms of real growth for several years. This growth has been mainly driven by an increase in net exports, primarily as a result of service exports, and domestic demand. Household consumption thrived, supported by a strong labour market, sustained incomes and government subsidies. Government expenditure contributed significantly to the country's growth.

Malta's economy is forecasted to grow at a rate of 4.6% in 2024, a slight decline from 5.6% in 2023 but still outpacing the euro area average of 0.8% (European Commission, 2024). This growth is driven by domestic demand and tourism, which exceeded pre-pandemic levels in early 2024. The steady influx of foreign labour has also strengthened demand across various sectors, though it has raised concerns about wage growth in lower-income jobs (IMF, 2024; PwC, 2024).

Malta experienced a dramatic recovery post-2020, with a peak in real GDP growth of 13.5% in 2021 after a -3.5% contraction in 2020. This bounce-back highlights Malta's resilience, especially in contrast to other countries' more subdued growth rebounds. While Cyprus, Ireland, and Slovenia also saw strong recoveries, Malta's growth rate was among the highest, with Slovenia rebounding by 8.4% in 2021 following a -4.1% contraction. However, Slovenia's post-pandemic expansion was more restrained, with GDP growth slowing to 2.7% in 2022 and further moderating to 2.1% in 2023. This contrasts with Malta's 7.5% growth in 2023, demonstrating the country's sustained momentum compared to its peers. Other nations, such as Italy and the UK, showed slower recoveries, with the UK experiencing one of the steepest contractions in 2020 (-10.3%) and a much weaker rebound thereafter.

In the longer term, Malta's real GDP growth stabilises around 3.5%, reflecting a more sustained medium-term growth rate compared to the EU and Euro Area averages, which level off at a modest 1.5% and 1.2%, respectively. Growth rates across Europe are reported in Figure 1.

Figure 1 : Real GDP Growth (%), (Source: IMF)

Real Per Capita GDP

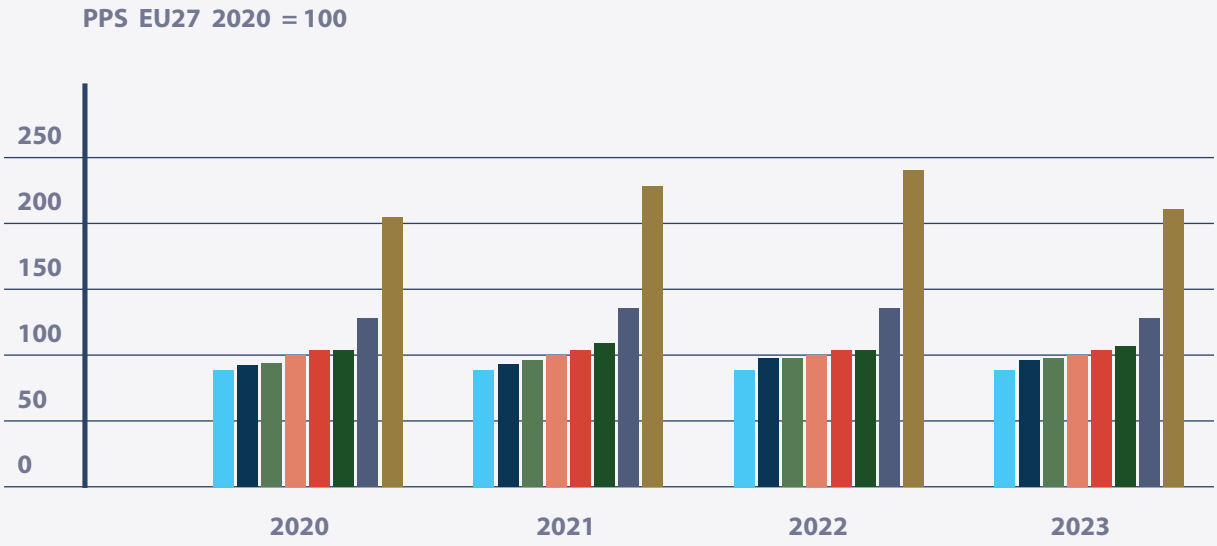
Malta's GDP per capita has shown remarkable growth over the past 15 years, reflecting the country's strong economic expansion and increasing alignment with higher-income European economies. In purchasing power-adjusted terms (PPS), Malta's GDP per capita (Table 1) nearly doubled from €20,700 in 2008 to €40,900 in 2023, highlighting the sustained momentum of economic development. Growth accelerated particularly after 2015, with GDP per capita surpassing €30,000 PPS in 2017 and continuing its upward trend. The COVID-19 pandemic led to a temporary decline in 2020, but Malta rebounded swiftly, with GDP per capita rising from €31,900 in 2020 to €36,200 in 2021, surpassing many European counterparts in terms of economic recovery.

Compared to other EU economies, Malta's GDP per capita has followed a strong upward trajectory, particularly in the post-2015 period, converging towards higher-income EU nations. While Cyprus had a higher GDP per capita than Malta in 2008 (€27,000 vs. €20,700), Malta has since closed the gap and surpassed Cyprus by 2023, reaching €40,900 compared to Cyprus' €37,100. This pattern of convergence is also reflected in broader comparisons, with Malta narrowing the difference with the Euro Area and EU27, both of which experienced more gradual growth over the same period. The Euro Area's GDP per capita increased from €27,800 in 2008 to €39,800 in 2023, while the EU27 average moved from €25,400 to €38,100.

The COVID-19 pandemic caused a temporary setback in 2020, where most economies saw a decline in per capita income, but the speed of recovery varied significantly. Malta's GDP per capita fell to €31,900 in 2020 but rebounded strongly, surpassing pre-pandemic levels by 2021 at €36,200 and continuing its upward climb. A similar pattern was observed in the Netherlands and Ireland, which saw contractions in 2020 but experienced rapid recoveries in 2021. Italy and Cyprus, on the other hand, experienced more gradual recoveries post-pandemic. While Italy's GDP per capita declined in 2020 to €28,400, it steadily increased to €37,500 in 2023, reflecting a slower pace of growth. Cyprus followed a similar pattern, declining in 2020 before recovering to €37,100 in 2023. These trends indicate that while most European economies have recovered, the pace of convergence and resilience post-COVID-19 varied significantly, with Malta positioned among the faster-recovering economies within the EU.

Malta's relative standing within the EU is also evident in Eurostat's purchasing power index, which benchmarks GDP per capita against the EU27 average (set at 100). In 2008, Malta's index was 81, indicating that its GDP per capita was significantly below the EU average. By 2023, this had risen to 107, meaning Malta's economy now exceeds the EU average in terms of purchasing power.

This shift places Malta ahead of Italy (98) and Cyprus (97) while narrowing the gap with wealthier EU states.



	2020	2021	2022	2023
Slovenia	88	88	89	92
Cyprus	91	94	98	97
Italy	93	96	98	98
EU27	100	100	100	100
Euro Area	104	104	104	104
Malta	105	109	105	107
Netherlands	131	132	134	133
Ireland	205	226	238	213

Figure 2 : Purchasing power adjusted GDP per capita (Volume indices of real expenditure per capita; PPS EU 27 2020 = 100)

[12] GDP per capita, measured in purchasing power standards (PPS), adjusted for price differences across countries, allowing for meaningful cross-country comparisons. Expressed as an index relative to the EU average (set at 100), values above 100 indicate a higher GDP per capita than the EU average, and vice versa. This index is designed for cross-sectional rather than temporal comparisons and helps assess economic convergence within the EU.

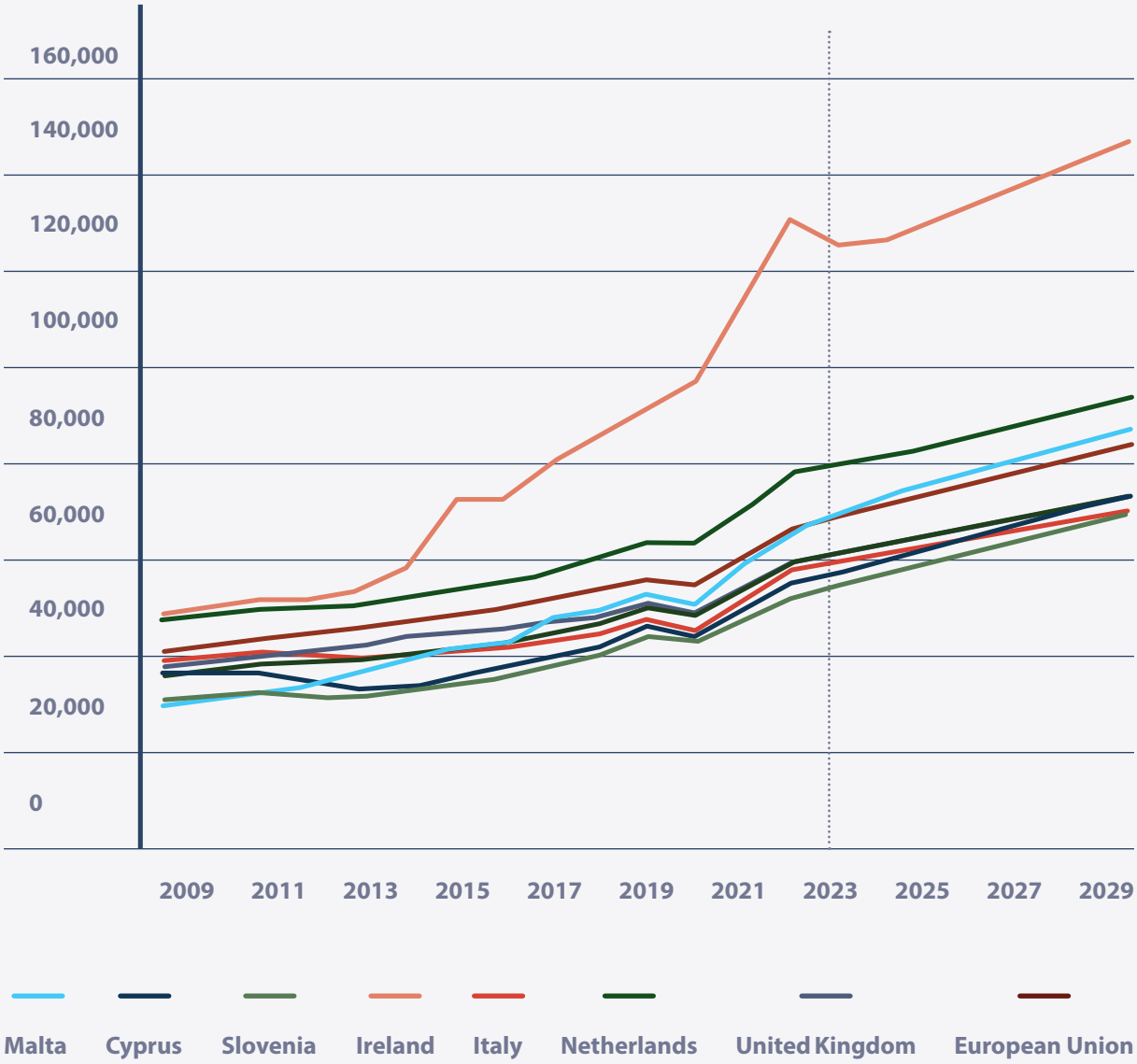


Figure 3: GDP per capita, current prices (Purchasing power parity; international dollars per capita), (Source: IMF)

Looking ahead, IMF projections for GDP per capita in purchasing power parity (PPP, international dollars) indicate continued strong growth for Malta. In 2023, Malta's GDP per capita stood at $69,181, reflecting significant gains over the past decade. Projections suggest an increase to $72,941 in 2024, $75,822 in 2025, and further reaching $87,296 by 2029.

This trajectory suggests that Malta is set to continue narrowing the gap with more advanced economies. By comparison, Italy is expected to grow at a slower pace, increasing from $59,164 in 2023 to $69,508 by 2029, while Cyprus is forecasted to reach $73,090 by the same year, still trailing Malta's projected levels.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Trendline
EU27	25,400	24,200	25,100	25,900	26,000	26,200	26,800	27,800	28,500	29,600	30,600	31,600	30,400	33,200	36,00	38,100	
Euro Area	27,800	26,400	27,200	27,900	28,000	28,200	28,800	29,700	30,400	31,500	32,400	33,400	31,800	34,600	37,600	39,800	
Ireland	34,200	31,300	32,700	33,900	34,500	35,300	37,800	51,500	50,800	55,300	58,600	60,000	62,500	74,800	85,500	81,200	
Italy	27,500	26,000	26,500	27,100	26,800	26,300	26,300	26,900	28,100	28,900	29,600	30,300	28,400	31,800	35,500	37,500	
Cyprus	27,000	25,600	25,400	24,900	23,600	22,000	21,600	23,000	24,900	26,400	27,800	29,300	27,700	31,100	35,100	37,100	
Malta	20,700	20,200	21,900	21,900	22,700	23,900	25,200	27,600	28,500	31,400	32,600	33,400	31,900	32,600	37,800	40,900	
Netherlands	36,300	33,900	34,300	35,000	35,200	35,800	35,700	36,600	36,900	38,500	39,900	40,500	40,000	43,700	48,400	50,800	
Slovenia	22,900	20,500	20,900	21,400	21,300	21,400	21,900	22,500	22,500	24,900	26,200	27,500	26,700	29,300	32,100	35,000	
United Kingdom	28,500	26,500	27,600	27,700	28,300	28,800	29,600	30,600	30,600	31,600	31,900	32,500	30,700	32,568	36,736	37,916	

Table 1: Purchasing power adjusted GDP per capita (PPS EU27 2020), (Source: Eurostat)

2.1.2 Inflation and Price Stability

Malta's inflation rate, primarily affected by food and services, is anticipated to drop from 5.6% in 2023 to around 2.9% in 2024, aligning more closely with the EU's inflation target. This moderation results from government price stability measures, such as fixed retail energy prices, which help buffer households and businesses from higher energy costs (PwC, 2024; IMF, 2024). Malta's efforts in stabilising inflation align with the government's long-term policy for economic resilience in a volatile global market (European Commission, 2024).

This trend mirrors inflationary movements across the Euro Area and broader EU, where most countries—including Italy, Cyprus, Slovenia, and the UK—experienced sharp inflationary peaks in 2022, followed by gradual declines in 2023 and 2024. Slovenia, for instance, saw inflation surge to 8.8% in 2022 before moderating to 7.4% in 2023, a higher rate than Malta. However, both countries are projected to stabilise at around 2.0%–2.1% by 2027, in line with broader Euro Area inflation expectations.

Inflation Rate(%) (2020-2029)

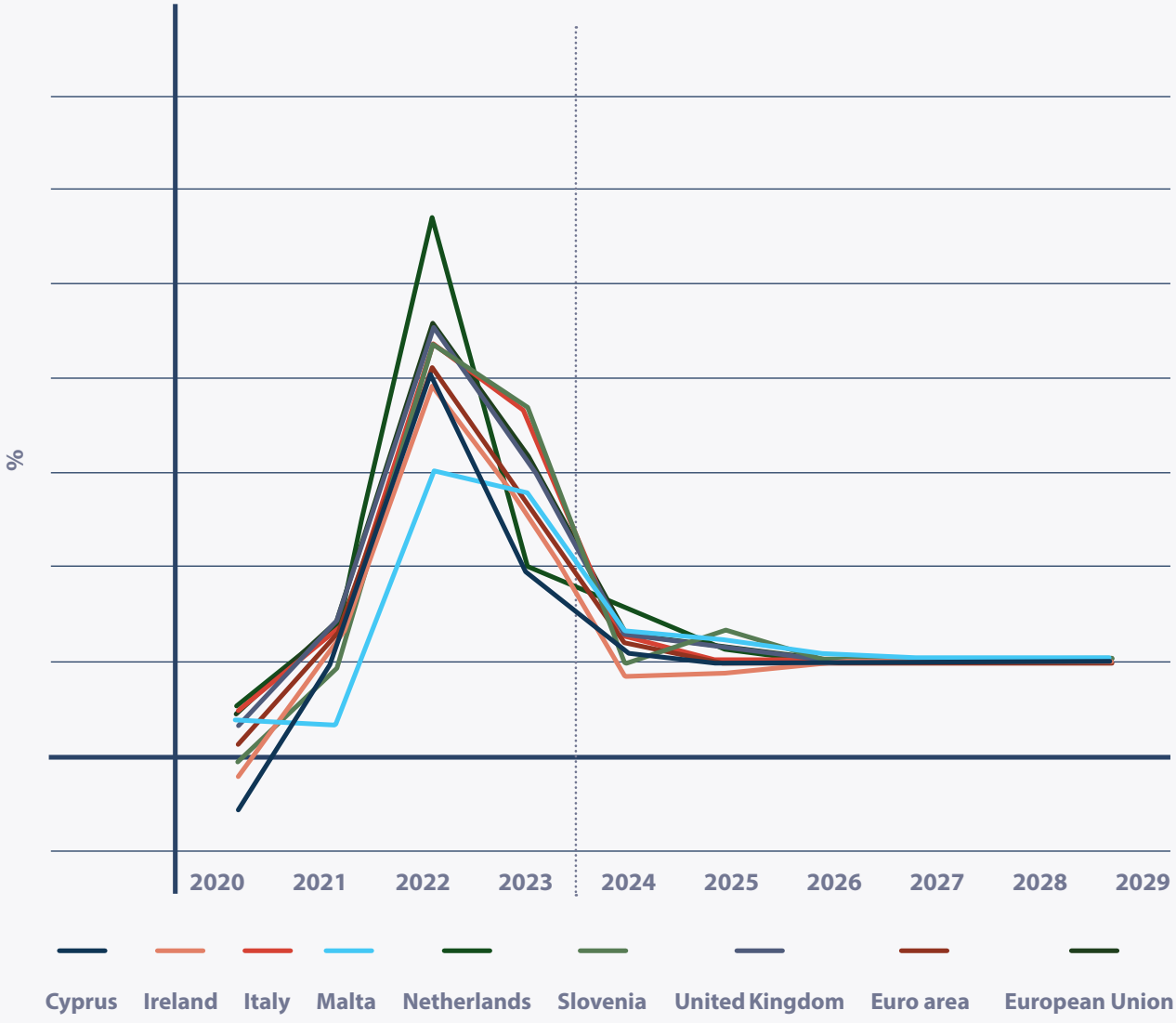


Figure 4 : Inflation Rate (Source: IMF)

2.1.3 Balance of Trade

Malta's trade balance has historically exhibited a persistent deficit, reflecting a higher volume of imports compared to exports. The latest data extracted from Eurostat confirms that Malta's trade deficit stood at an average of -€370.49 million per month between December 2023 and November 2024, a trend that aligns with past performance. Despite some fluctuations, the deficit remains a structural characteristic of Malta's trade dynamics. The annual trade balance data further reinforces this observation, with Malta registering a trade deficit of -€4.55 billion in 2023, a slight improvement from 2022's deficit of -€5.03 billion.

Malta's trade deficit is largely influenced by its dependence on imported goods, particularly energy, industrial equipment, and consumer products. While the country has strengths in service exports, particularly in financial services, tourism, and digital industries, these are not sufficient to offset the goods trade deficit. The balance of trade across the EU varies considerably, with large economies such as Germany (€19.73 billion monthly average surplus) and the Netherlands (€8.38 billion) consistently running significant surpluses, whereas France (-€8.80 billion) and Spain (-€3.52 billion) experience structural deficits similar to Malta.

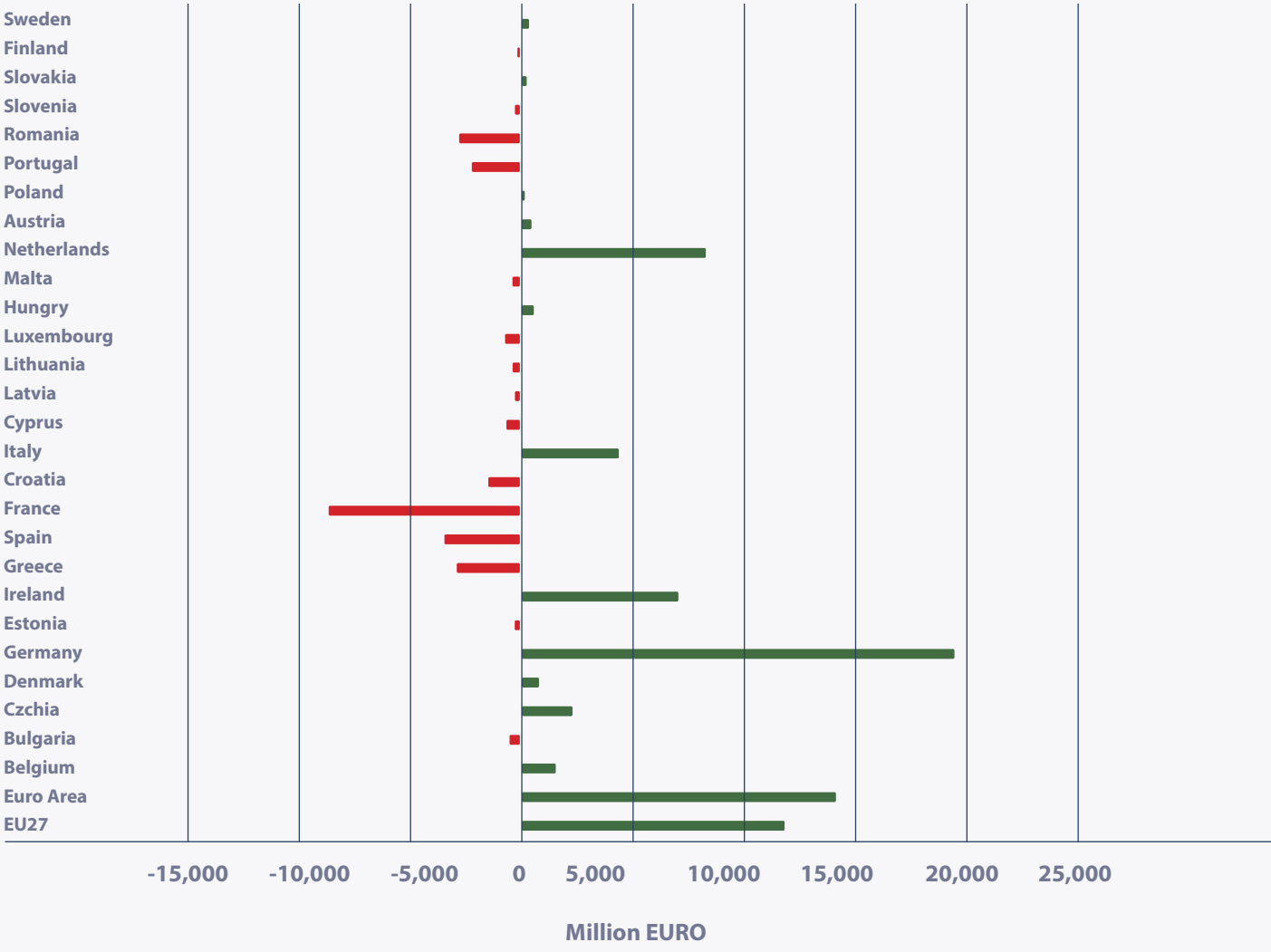


Figure 5 : Balance of Trade – Monthly Average (Nov-2023 to Dec-2024), (Source; Eurostat)

2.1.4 Current Account Balance (% of GDP)

Malta's current account saw a positive shift, from a slight deficit of -0.7% in 2020 to a surplus of 5.5% in 2021. However, Malta's balance fluctuated over the following years, mirroring trends seen in Cyprus, Slovenia, and Ireland, which also experienced volatility in external balances. Slovenia, for instance, recorded a high surplus of 7.7% in 2020, before declining to 3.8% in 2021 and turning negative at -1.1% in 2022, reflecting external trade pressures.

Conversely, Italy and the Netherlands demonstrate greater consistency, with the Netherlands maintaining a strong and stable surplus above 6% throughout the period, while Italy experienced moderate swings but remained close to balance. Ireland, on the other hand, maintained exceptionally high surpluses, peaking at 12.2% in 2021, reflecting its export-oriented economy and corporate tax-driven inflows.

Malta is projected to stabilise at a surplus of 2.5% by 2025, alongside a broader European trend of current account stabilisation. By 2029, Malta's external balance is expected to remain close to both the EU and Euro Area averages, reflecting a balanced trade position with controlled external deficits. Figure 3 illustrates how Malta's external position compares to that of its European counterparts.

Current account balance as a % of GDP (2020 - 2029)

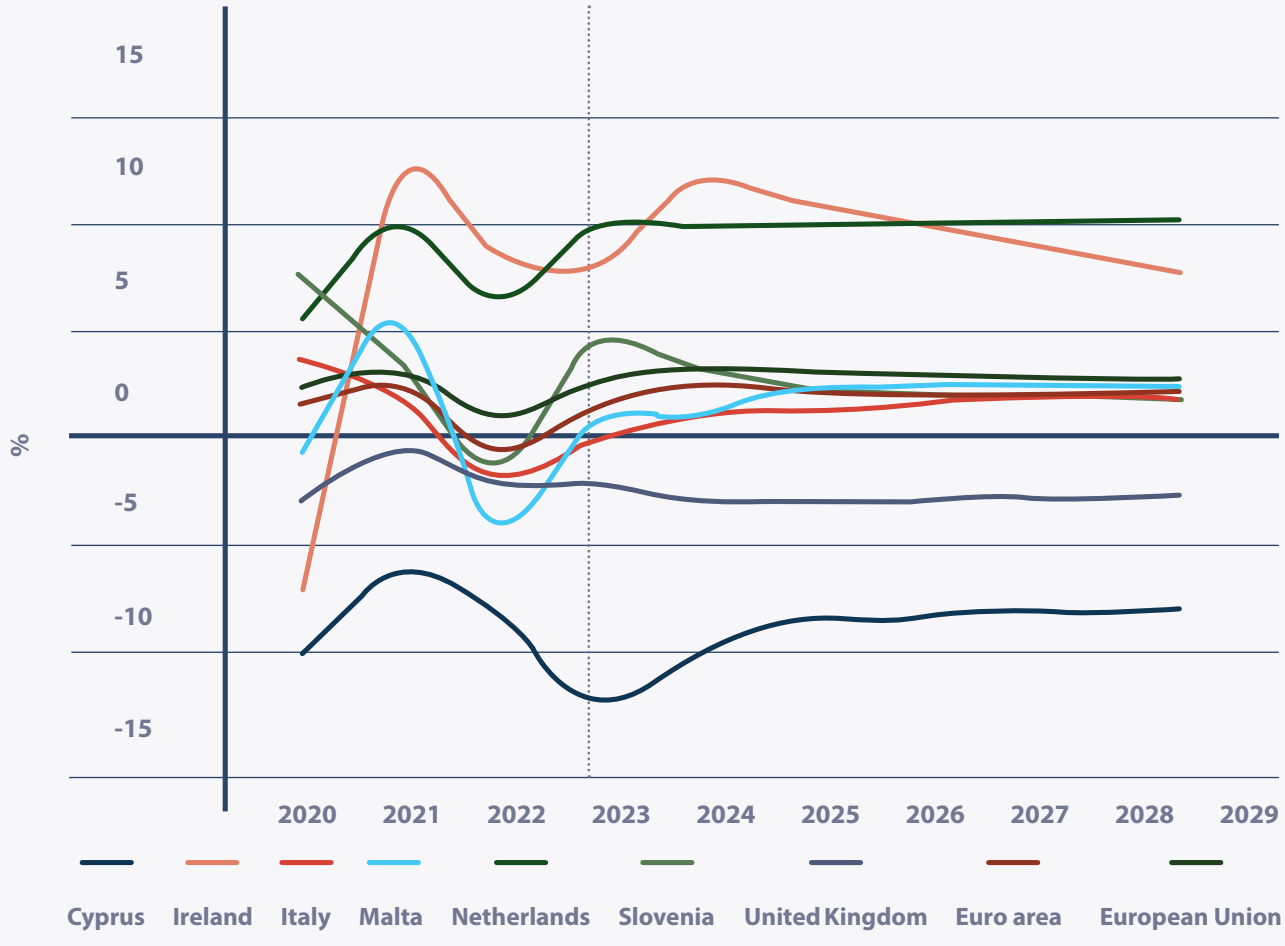


Figure 6 : Current account balance as a % of GDP (Source: IMF)

2.1.5 Employment and Labor Market Dynamics

Malta's labour market has shown remarkable resilience, with unemployment rates reaching historic lows of 3.5% in 2023. Malta's unemployment rate was already relatively low at 4.9% in 2020, during the pandemic period and decreased to 3.8% by 2021. This trend reflects Malta's resilient labour market recovery, in contrast to higher rates in Italy and the EU average, where unemployment remained above 7% throughout the period. Unemployment across smaller European economies followed a similar downward trajectory, but Malta consistently maintained one of the lowest rates.

Strong labour activation policies and moderate wage growth also largely fuelled low unemployment rates. Employment rates have continued to rise, particularly in high-skill sectors, reflecting the country's ongoing efforts to enhance workforce capabilities and attract foreign talent. Malta's labour market has remained robust despite several undercurrents.

However, this reliance on foreign workers has spotlighted domestic skill shortages in key sectors, particularly finance and technology, creating barriers to productivity improvements (European Commission, 2024; IMF, 2024). Policies to bridge these skill gaps through upskilling programs and incentives for high-skilled expatriates have not yet been sufficient to keep up the economic momentum and resulted in the influx of foreign workers.

Malta's unemployment rate is projected to stabilise at around 3.0%, a mark of economic stability and strong labour demand. The contrast with the Euro Area, further underlines Malta's strong labour market performance, though ensuring long-term skill development remains crucial.

Unemployment rates (2020-2029)

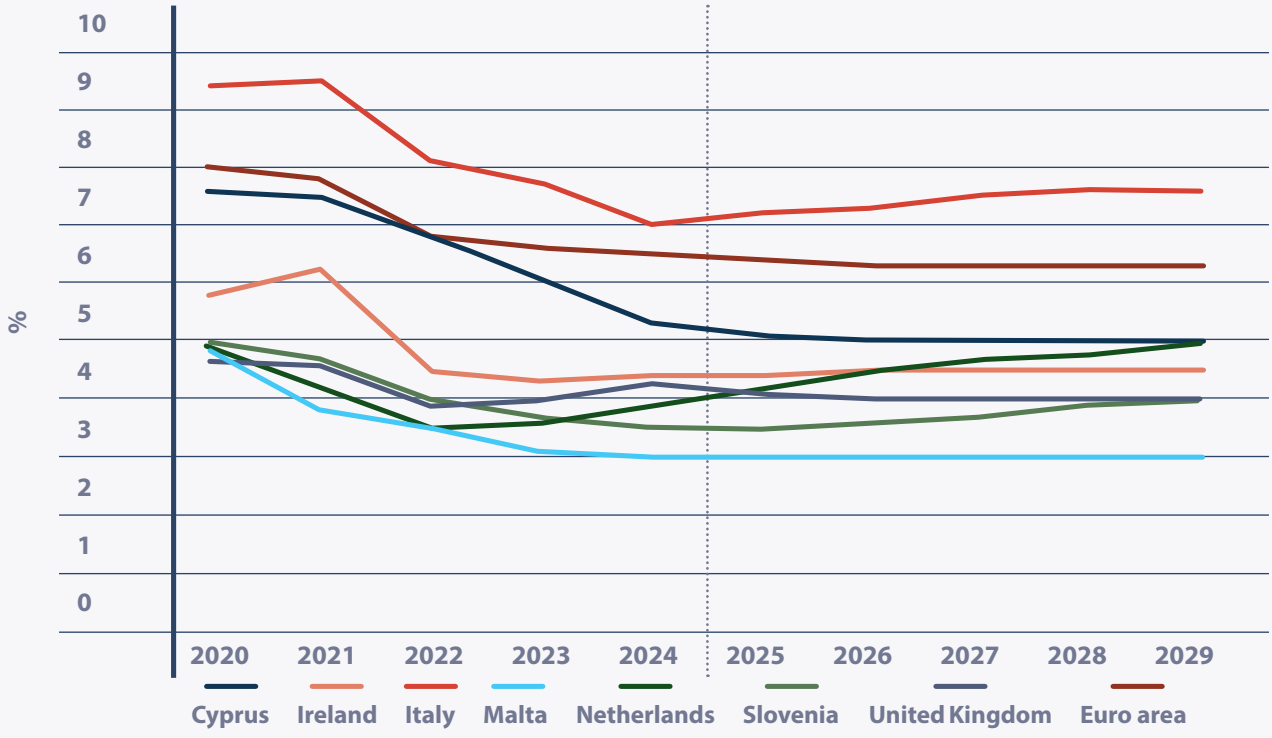


Figure 7 : Unemployment Rate (%), (Source: IMF)

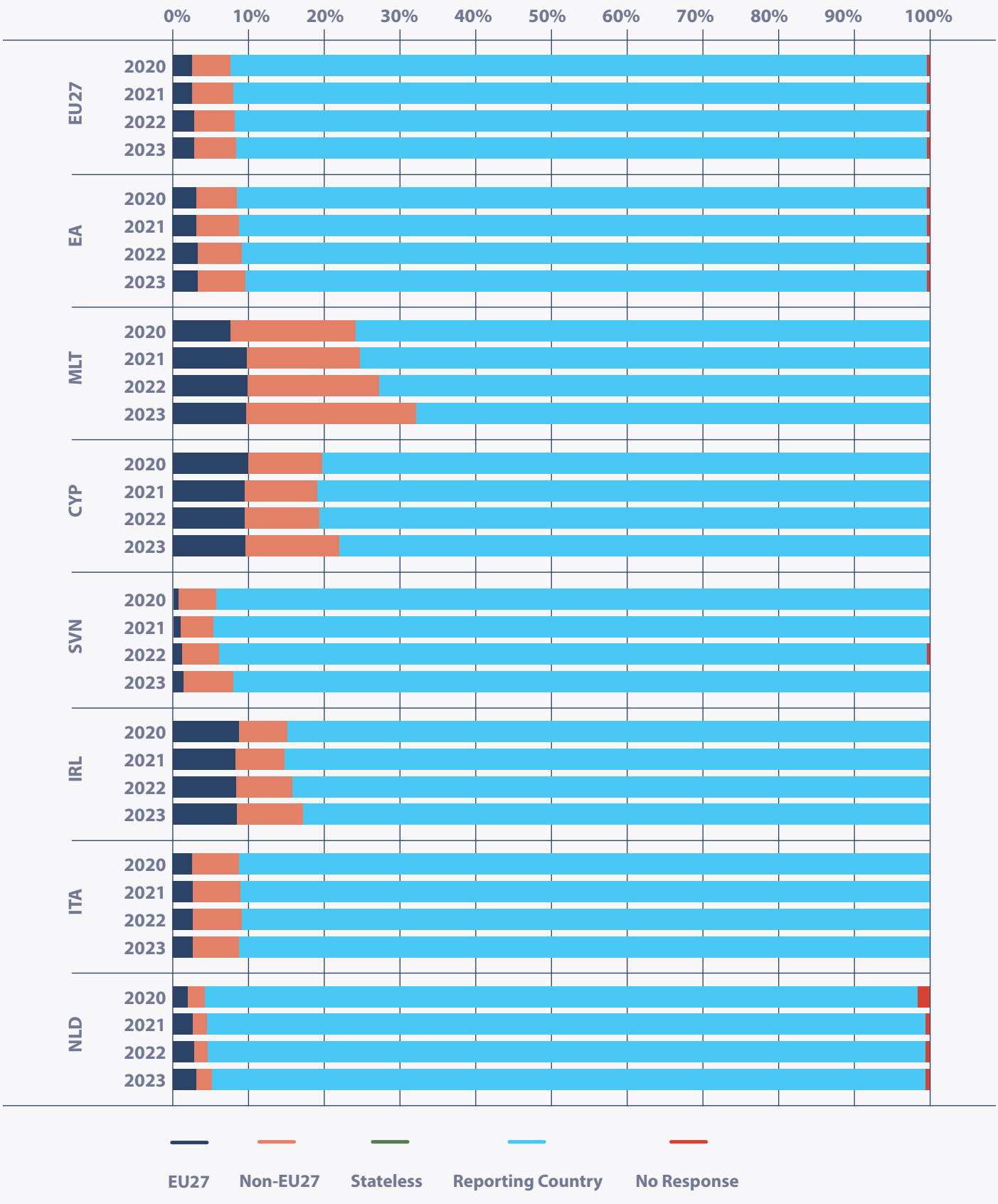


Figure 8 : Employment by Citizenship (% of total employment population, age 15 to 64), (Source: Eurostat)

Malta's labour market has undergone significant changes between 2020 and 2023, with a notable shift towards increasing reliance on non-EU workers. In 2020, 44.4 thousand non-EU workers were employed in Malta, compared to just 23.6 thousand from EU countries. By 2023, non-EU employment had surged to 72.7 thousand, marking an increase of 63.8%, while EU employment grew more moderately to 34 thousand (+44.1%). This trend highlights Malta's growing dependence on third-country nationals to meet its labour market needs, particularly in sectors facing acute labour shortages such as construction, hospitality, healthcare, and gaming.

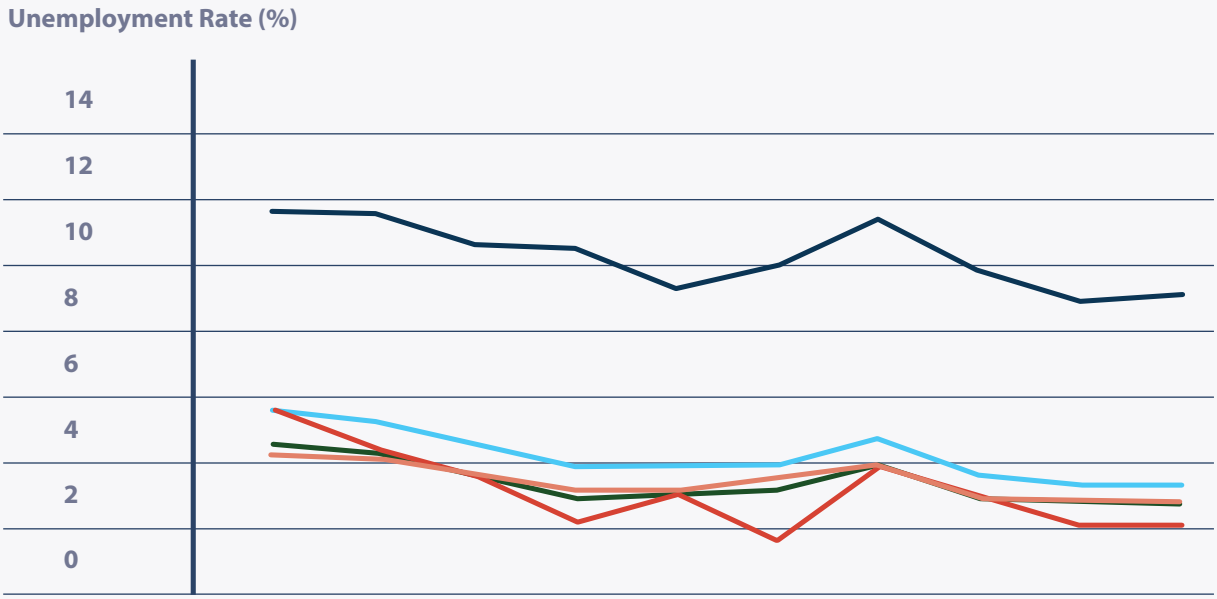
Comparing this to the broader Euro Area (EA) and EU27, similar trends emerge, though at different scales. Across the Euro Area, non-EU employment rose from 8.14 million in 2020 to 10.55 million in 2023, reflecting a 29.7% increase, significantly lower than Malta's growth rate. This suggests that Malta's demand for foreign labour has outpaced that of larger European economies, potentially due to its small domestic workforce and high labour market demand in service-oriented industries.

When contrasted with other small economies like Cyprus and Slovenia, Malta's reliance on non-EU labour is even more pronounced. In Cyprus, non-EU employment rose by 37.7% (from 48.7 thousand to 67 thousand), and in Slovenia, it jumped by 51.9% (from 52.7 thousand to 80.1 thousand). While both countries experienced growth in non-EU employment, Malta's increase was steeper, indicating that labour supply constraints and sectoral needs are more pressing in Malta than in other small EU economies.

Despite this surge, Malta's EU employment figures have also seen steady growth, increasing by 44.1% from 2020 to 2023. This contrasts with trends in larger economies such as Italy and the Netherlands, where EU employment has remained relatively stable. For instance, in Italy, EU employment fluctuated around 700 thousand, while in the Netherlands, it hovered between 220 thousand and 350 thousand, suggesting that larger economies have more stable domestic labour markets and rely less on intra-EU mobility compared to Malta.

Malta's rising non-EU employment levels is driven by sectoral demand exceeding the local labour supply, current migration policies, and the country's positioning as a financial and digital economy hub. However, the rapid increase in foreign workers also raises long-term policy questions, such as labour market integration, wage growth sustainability, and the social impact of an expanding foreign workforce. As non-EU employment now outpaces EU employment growth in Malta, labour policies will need to strike a balance between attracting skilled workers and ensuring economic inclusivity for local and EU nationals.

Malta's labour market has seen a steady decline in unemployment rates across all age cohorts over the past decade. The overall unemployment rate (15 to 74 years) decreased from 5.7% in 2014 to 3.5% in 2023, demonstrating the country's robust economic resilience. The most notable improvement has been among those aged 25 to 74, where unemployment dropped from 4.7% in 2014 to 2.9% in 2023, highlighting strong employment stability in the prime working-age group. Youth unemployment (15 to 24 years) remains relatively higher, fluctuating from 11.7% in 2014 to 9.2% in 2023, reflecting ongoing challenges in integrating younger workers into the labour force.



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
From 15 to 24 yrs	11.7	11.6	10.7	10.6	9.4	10.1	11.5	9.9	9.0	9.2
From 25 to 49 yrs	4.4	4.3	3.8	3.4	3.3	3.8	4.1	3.1	3.0	3.0
From 50 to 74 yrs	5.7	4.6	3.8	2.3	3.1	1.8	4.	3.1	2.3	2.3
From 15 to 74 yrs	5.7	5.4	4.7	4.0	4.0	4.1	4.9	3.8	3.5	3.5
From 25 to 74 yrs	4.7	4.4	3.8	3.1	3.2	3.3	4.1	3.1	2.9	2.9

Figure 9 : Unemployment rate (%) by age cohorts (Source: Eurostat)

A gender-based analysis indicates that male unemployment has been slightly higher than female unemployment in recent years, although the gap has narrowed. In 2014, male unemployment stood at 6.1%, while female unemployment was 5.1%. By 2023, male unemployment was at 3.7%, while female unemployment was 3.2%. These figures indicate that while overall unemployment has declined, females have experienced a slightly faster reduction in joblessness, likely due to increasing female labour force participation driven by employment incentives.

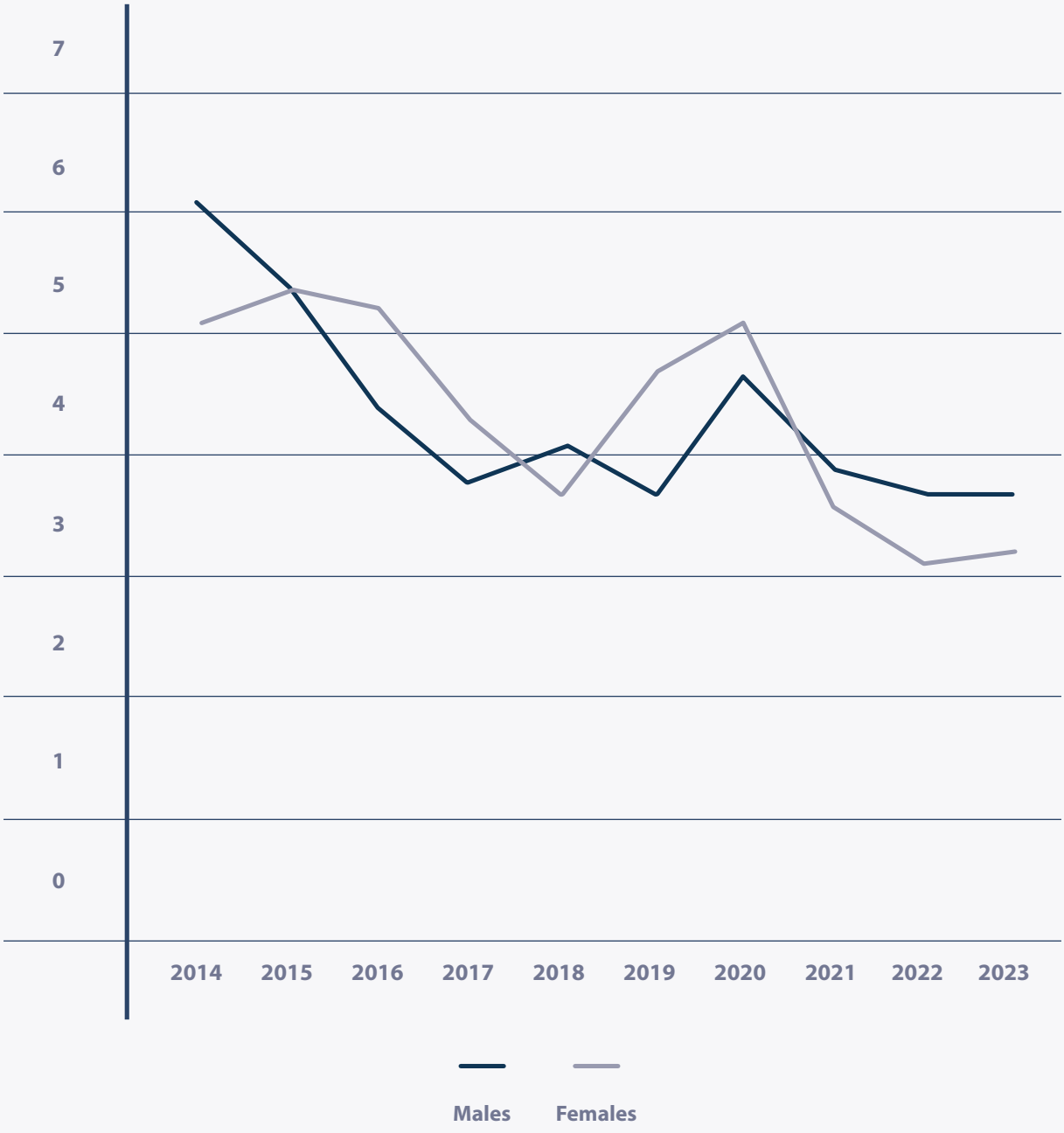
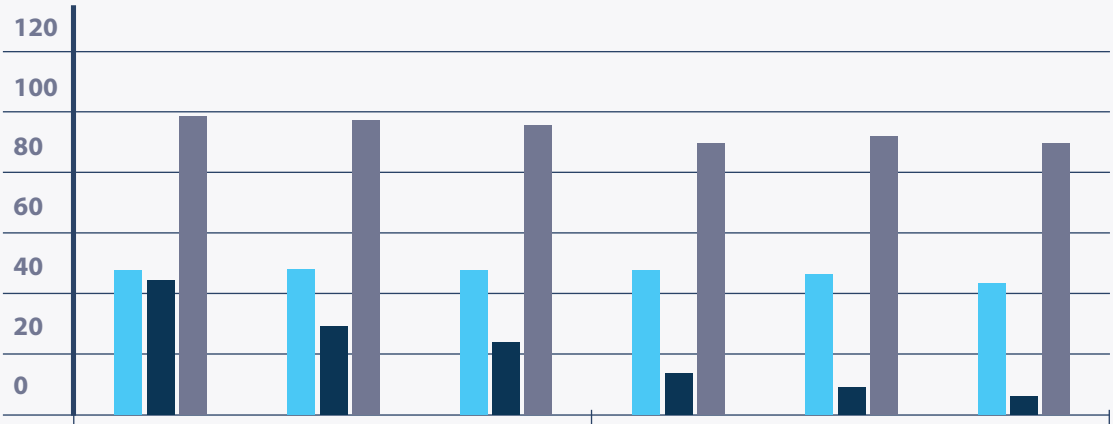


Figure 10 : Unemployment rate (%) by sex (Source: Eurostat)

Looking at the inactive population, there is a significant disparity between men and women, particularly in the 25 to 64 age group. In 2014, 45.2% of females in this age group were inactive, compared to just 12.8% of males. Over the years, female inactivity has declined, reaching 24.0% in 2023, showing improved labour force participation among women.

However, a notable proportion of inactive individuals remain outside the labour market due to personal preferences rather than job-seeking. In 2023, 13.5 thousand inactive males and 33.1 thousand inactive females in the 25 to 64-year category reported not wanting to work.

Inactive Population %



	2014	2020	2023	2014	2020	2023
		Females			Males	
From 15 to 24 yrs	47.7	49.1	47.7	46.6	45.4	41.7
From 25 to 64 yrs	45.2	31.1	24.0	12.8	9.8	8.1
65 years or over	98.4	97.1	96.3	90.1	91.2	89.6

Figure 11 : Inactive population as a % of the total population by age cohorts (Source: Eurostat)

Thousand Persons

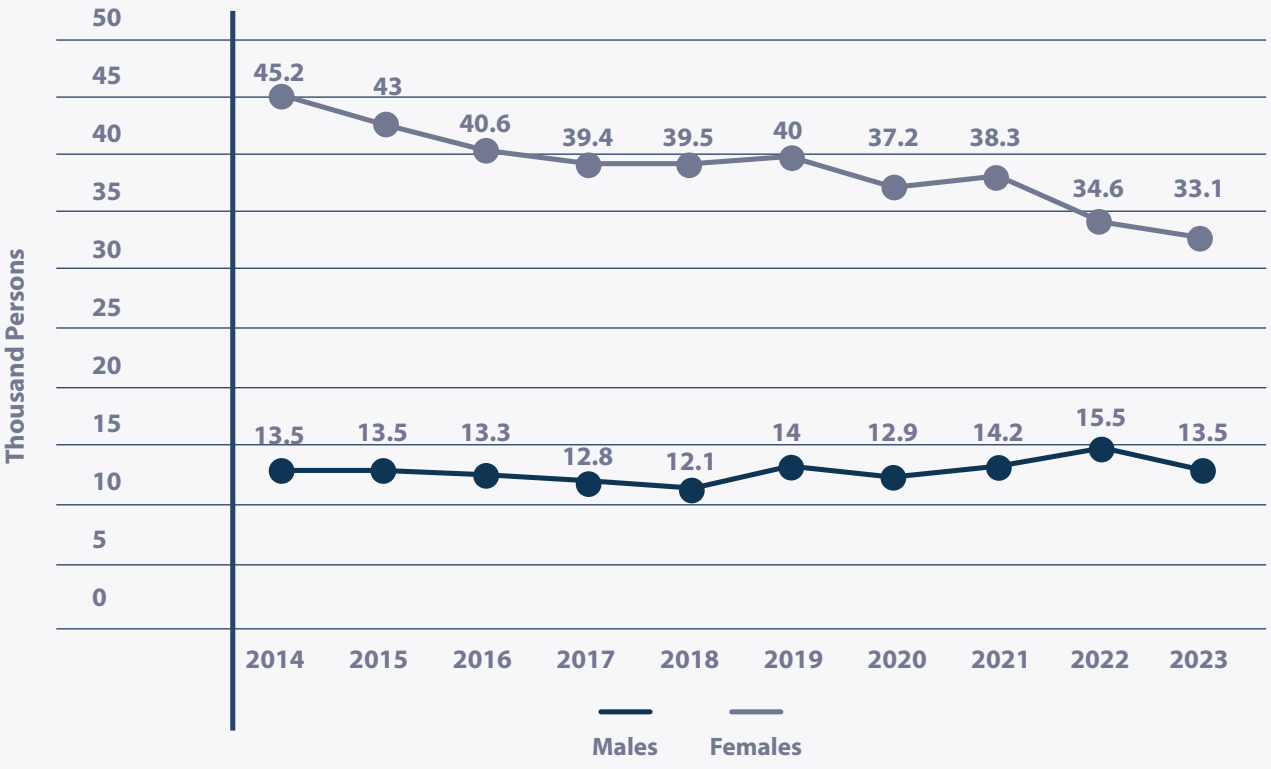


Figure 12 : Inactive population not seeking employment the age cohort 25 to 64 years and by sex (Source: Eurostat)

2.1.6 Productivity

Productivity is a crucial driver of economic growth, impacting both labour efficiency and capital utilisation. This section examines Malta's productivity trends by analysing labour productivity, unit labour costs, and capital investment as measured by Gross Fixed Capital Formation (GFCF).

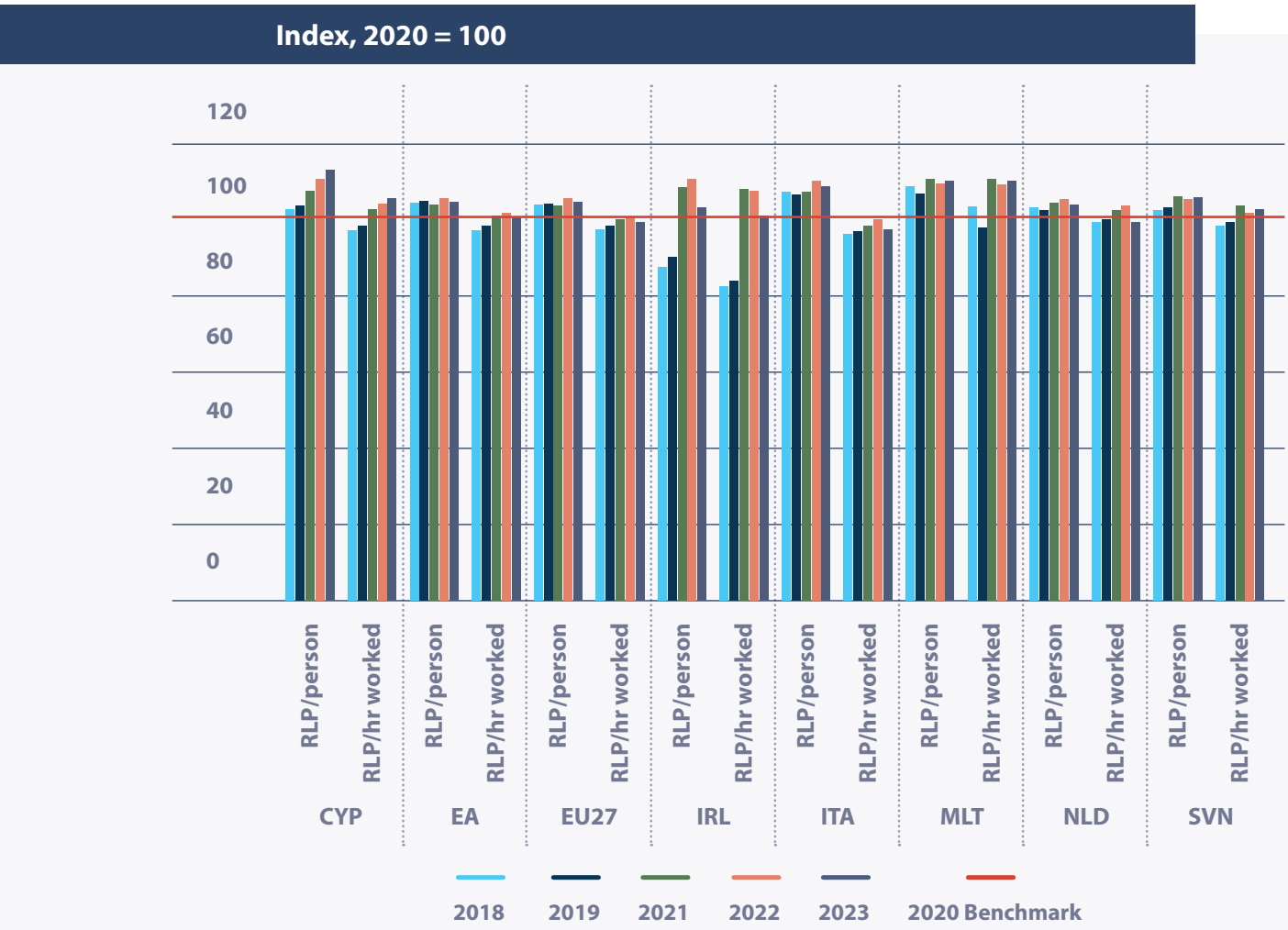


Figure 13 : Real labour productivity per person and per hr worked (Index, 2020 = 100), (Source: Eurostat)

Malta's real labour productivity per person has remained relatively stable, standing at 109.8 in 2023, a marginal increase from 109.5 in 2022 and comparable to 110.2 in 2021. While this level is higher than the EU27 average (105.2) and the Euro Area (104.7), it is below that of countries like Cyprus (112.9) and Italy (109.5). Nevertheless, this data suggests that Malta's workforce efficiency remains strong. Labour productivity per hour worked presents a similar trend, with Malta reaching 109.0 in 2023, closely matching 2022 levels (108.8). However, this figure is significantly higher than the Euro Area (99.2) and EU27 (100.5), indicating a high efficiency of labour input relative to hours worked. In terms of unit labour costs (ULC), one may observe that Malta's ULC rose to 101.3 in 2023, up from 100.3 in 2022 and 95.4 in 2021. This means that labour costs in Malta have grown post-pandemic, albeit at a lower rate than the EU27 (110.7) and Euro Area (110.0). This increase in costs could suggest wage pressures or a need for productivity improvements to counterbalance rising labour expenses.

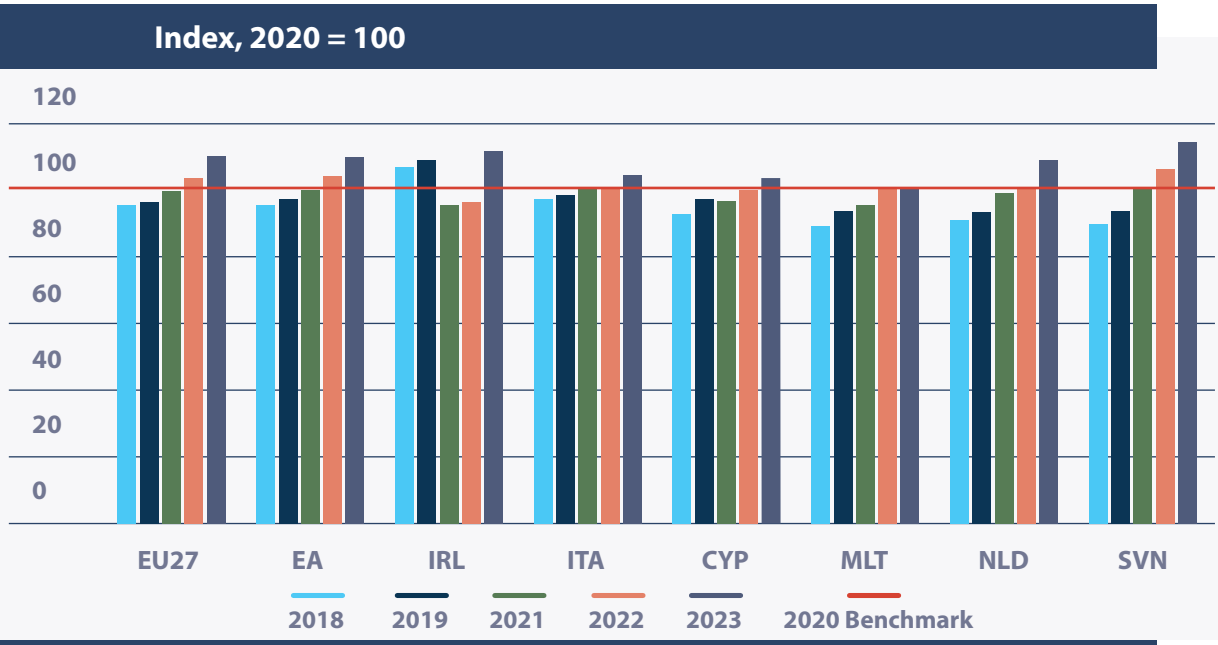


Figure 14 : Nominal unit labour costs on hours worked (Index, 2020 = 100), (Source: Eurostat)

Using chained-linked volumes (2020=100), Malta's GFCF has fluctuated significantly, peaking at 134.2 in 2022 before dropping to 111.2 in 2023. This decline suggests a slowdown in investment growth after a strong post-pandemic recovery. However, Malta's investment performance remains above the EU27 average of 108.1. The volatility of the indicator also indicates significant base effects making it hard to interpret in terms of trend analysis.

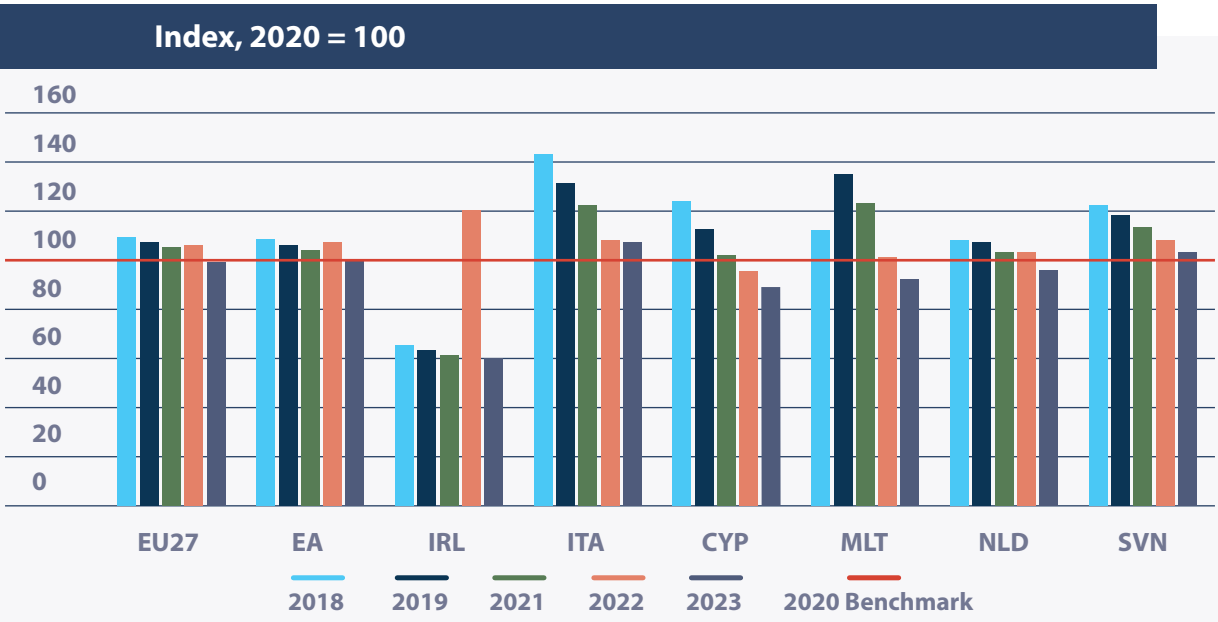
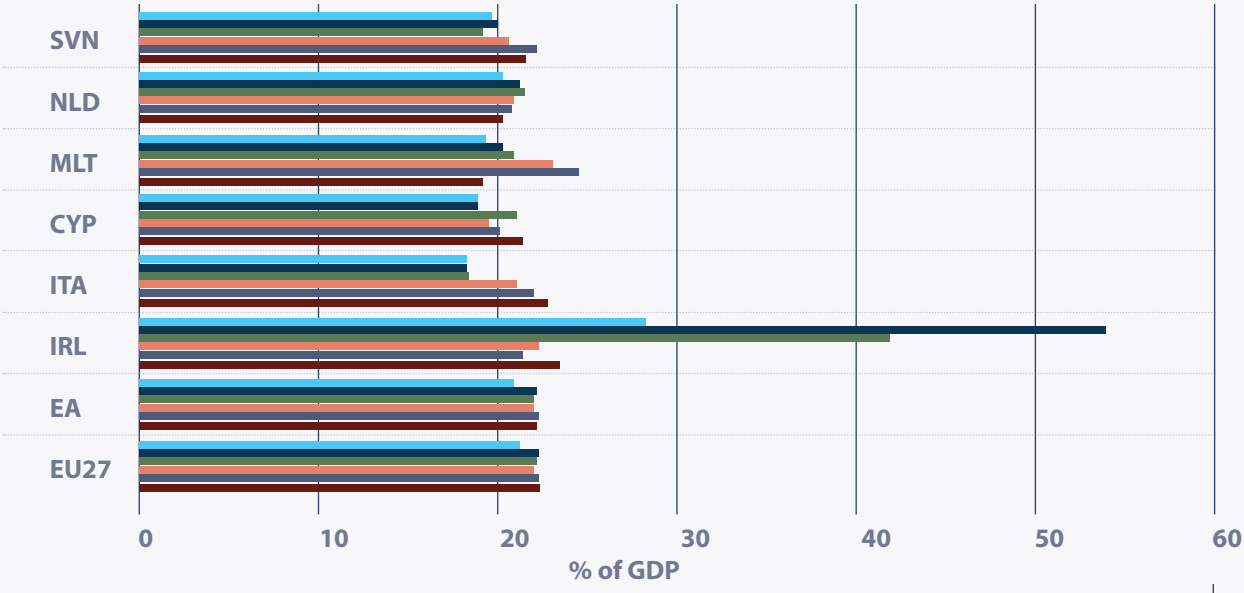


Figure 15 : Gross fixed capital formation (Chain linked volumes, index 2020 = 100), (Source: Eurostat)

Looking at GFCF as a percentage of GDP, Malta's investment intensity was 19.0% in 2023, which is a notable decline from 24.2% in 2022. This is below the EU average (22.0%), indicating that while Malta has seen high absolute investment growth, it still allocates a lower proportion of its GDP to fixed capital compared to EU peers.



	EU27	EA	IRL	ITA	CYP	MLT	NLD	SVN
2018	20.9	20.7	27.9	18.0	18.6	19.1	20.0	19.5
2019	22.0	21.9	53.2	18.1	18.7	20.1	20.9	19.8
2020	21.9	21.8	41.3	18.2	20.8	20.7	21.3	19.0
2021	21.8	21.7	22.0	20.8	19.2	22.9	20.7	20.3
2022	22.1	22.0	21.2	21.8	19.9	24.2	20.5	21.9
2023	22.0	22.0	23.2	22.5	21.2	19.0	20.1	21.3

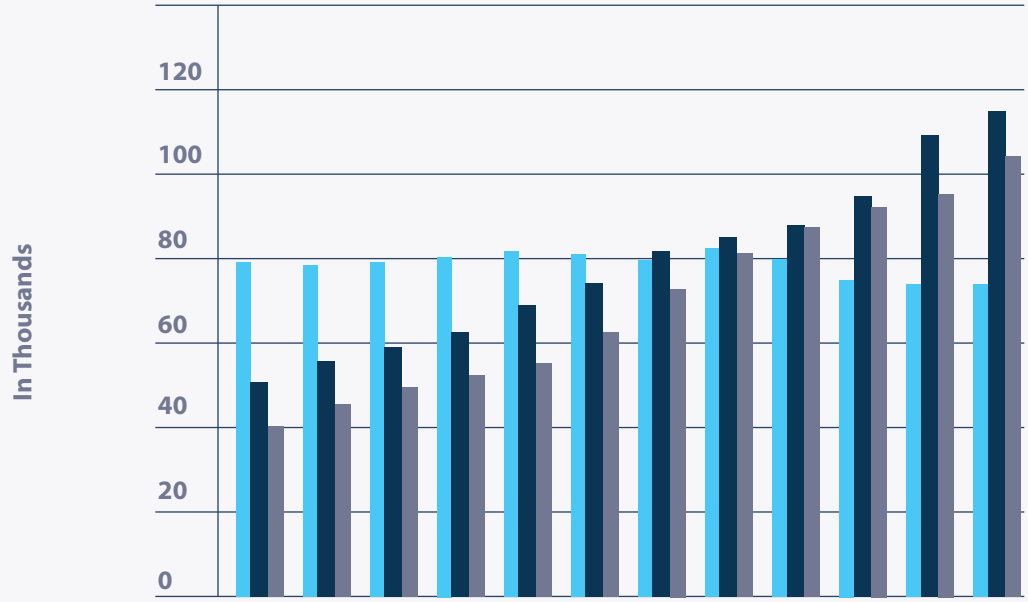
Figure 16 : Gross fixed capital formation as a % of GDP (Source: Eurostat)

2.1.7 Education

The flip side of the labour market is the education sector, which, despite improvements, continues to show underlying issues. Malta's education sector has seen notable developments in recent years. In the 2021/2022 academic year, 27,039 students were enrolled in primary education, with state schools accommodating 58.1% of these students. Secondary education had 21,994 students, with the majority attending institutions within their district of residence. Post-secondary general education enrolled 4,494 adolescents, 75.5% of whom attended state-run institutions. Tertiary education saw 24,151 students, marking a 4.3% increase from the previous year, with females comprising 55.7% of this cohort[13] .

Overall, in terms of absolute numbers, Malta has made gradual progress in improving its educational attainment levels among the labour force. Between 2012 and 2023, the number of individuals with only primary or lower secondary education remained relatively stable, declining slightly from 78.8 thousand in 2012 to 74.0 thousand in 2023. In contrast, the number of individuals with upper secondary and post-secondary non-tertiary education saw significant growth, rising from 50.9 thousand in 2012 to 114.7 thousand in 2023, nearly doubling over the decade. The tertiary-educated population also experienced substantial expansion, from 40.9 thousand in 2012 to 103.2 thousand in 2023, demonstrating Malta's increasing focus on higher education.

[13] NSO (2024) – Regional Statistics Malta 2024 EDITION - https://nso.gov.mt/themes_publications/regional-statistics-malta-2024-edition/



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Less than primary, primary and lower secondary (levels 0 - 2)	78.8	78.0	78.6	79.9	81.0	80.5	79.3	81.9	79.5	74.5	73.6	74.0
Upper secondary and post-secondary non-tertiary (levels 3 & 4)	50.9	55.4	58.6	62.0	68.5	73.9	80.9	84.6	87.6	94.5	108.5	114.7
Tertiary education (levels 5 - 8)	40.9	45.2	49.6	52.4	55.1	62.4	72.6	80.4	86.3	91.5	95.1	103.2

Figure 17 : Employment by ISCED level (2012 to 2023)

Despite these positive trends, challenges persist. According to Eurostat, 40.8% of Malta's population has less than upper secondary education attainment, placing it among EU countries with high rates of low education levels. This is concerning, especially given that Malta's expenditure on education and training in 2021 was 12.7% of total public expenditure, the third highest in the EU. This discrepancy suggests that despite significant investment, educational outcomes remain below the EU average, indicating a need for strategic reforms to enhance the effectiveness of educational spending. Improving educational outcomes and aligning skills with market demands are critical for sustaining long-term economic growth.

Malta has made significant strides in reducing its early school leaver rate over the past decade. In 2010, the rate stood at 21.4%, which decreased to 12.6% by 2020. By 2023, this figure further declined to 10.2%, approaching the EU average of 9.5%. However, challenges remain, particularly among males, who have a higher early school leaving rate of 12.5% compared to 7.6% for females[14]. Tertiary education attainment has also increased significantly from 17.8% in 2005 to 46.2% in 2023, now surpassing the EU average of 43.1%.

Despite improvements in educational attainment, Malta continues to face a high proportion of low-skilled workers. In 2022, 33.1% of adults aged 15-64 had low skill levels, significantly above the EU average. This situation contributes to labour and skill shortages, with 66% of

[14] Central Bank (2022) – Trends in educational attainment - https://www.centralbankmalta.org/site/Reports-Articles/2022/Trends-in-educational-attainment.pdf?revcount=8190

companies reporting difficulties in finding skilled workers. The employment rate for low-skilled individuals aged 20-64 was 68.7% in 2023, indicating that while many low-skilled individuals are employed, there is still a substantial portion of the workforce lacking higher qualifications. When compared with the EU27 and other selected countries, Malta continues to display a distinct pattern of educational attainment in its labour force (Figure 17). In 2023, 25.5% of Malta's workforce had a low level of education (ISCED 0-2), significantly higher than the EU27 average of 17.4%. This remains a persistent challenge, although it represents an improvement from previous years. In 2020, 31.9% of Malta's workforce fell into this category, indicating a steady decline over the past three years, in line with efforts to improve educational outcomes. Similarly, while Malta's upper secondary or post-secondary non-tertiary education (ISCED 3-4) increased from 34.5% in 2020 to 39.4% in 2023, it remains below the EU27 average. The proportion of individuals with tertiary education (ISCED 5-8) in Malta stood at 35.1% in 2023, showing only marginal improvements from 33.6% in 2020. In contrast, the EU27's share of tertiary-educated individuals rose slightly from 35.0% in 2020 to 37.0% in 2023, keeping Malta slightly below the EU benchmark.

When comparing Malta's progress to other European countries, we observe varied trends. Slovenia and Ireland consistently outperform in tertiary education, with Slovenia's tertiary education attainment fluctuating around 39-43% and Ireland's reaching 54% in 2023. In contrast, Italy continues to struggle, with tertiary attainment only increasing modestly from 22.9% in 2020 to 24.4% in 2023, while its low-education workforce (ISCED 0-2) declined marginally from 30.4% to 27.8%. Cyprus shows a strong performance in higher education, where the share of tertiary-educated individuals steadily increased from 47.6% in 2020 to 52.0% in 2023, reinforcing its focus on higher education policies. The netherlands also maintains a relatively high share of tertiary-educated individuals, though it has remained stable at around 40-41% over the past four years.

Compared to other European countries, Malta's educational attainment profile presents both progress and persistent gaps. While the share of individuals with only basic education (ISCED 0-2) in Malta has declined from 31.9% in 2020 to 25.5% in 2023, it remains notably higher than the EU27 average of 17.4%. This places Malta closer to Italy, which also struggles with a high proportion of low-educated individuals (27.8% in 2023), whereas countries like Ireland (9.7%) and Slovenia (8.7%) have significantly lower rates. On the other hand, Malta has made gradual improvements in upper secondary and post-secondary non-tertiary attainment (ISCED 3-4), rising from 34.5% in 2020 to 39.4% in 2023, narrowing the gap with the EU27 average of 45.6%, yet still lagging behind education-focused countries such as Slovenia (55.0%). In tertiary education (ISCED 5-8), Malta's progress has been modest, increasing from 33.6% in 2020 to 35.1% in 2023. This growth is slower than that observed in Cyprus, where tertiary attainment rose from 47.6% to 52.0% over the same period, and remains well below Ireland's 54.2%. While Malta's tertiary attainment now surpasses Italy's 24.4%, it still remains lower than the EU27 average.

A particularly important observation comes from the ISCED 3-8 category, which groups all education levels above basic education. This metric provides a broader picture of Malta's progress in higher education. The share of individuals with ISCED 3-8 qualifications increased from 68.1% in 2020 to 74.5% in 2023, signalling an overall improvement in educational attainment. However, the distribution within this group reveals that the primary driver of this growth is secondary education (ISCED 3-4), while tertiary education (ISCED 5-8) is expanding at a slower rate. This suggests that while more individuals are staying in education longer, the transition to higher academic qualifications beyond post-secondary remains a challenge. This differs from trends in Ireland and Slovenia, where tertiary education levels have seen steeper

increases. Meanwhile, the EU27's educational attainment composition has remained relatively stable, reflecting a slower but more consistent shift toward higher qualifications across Europe.

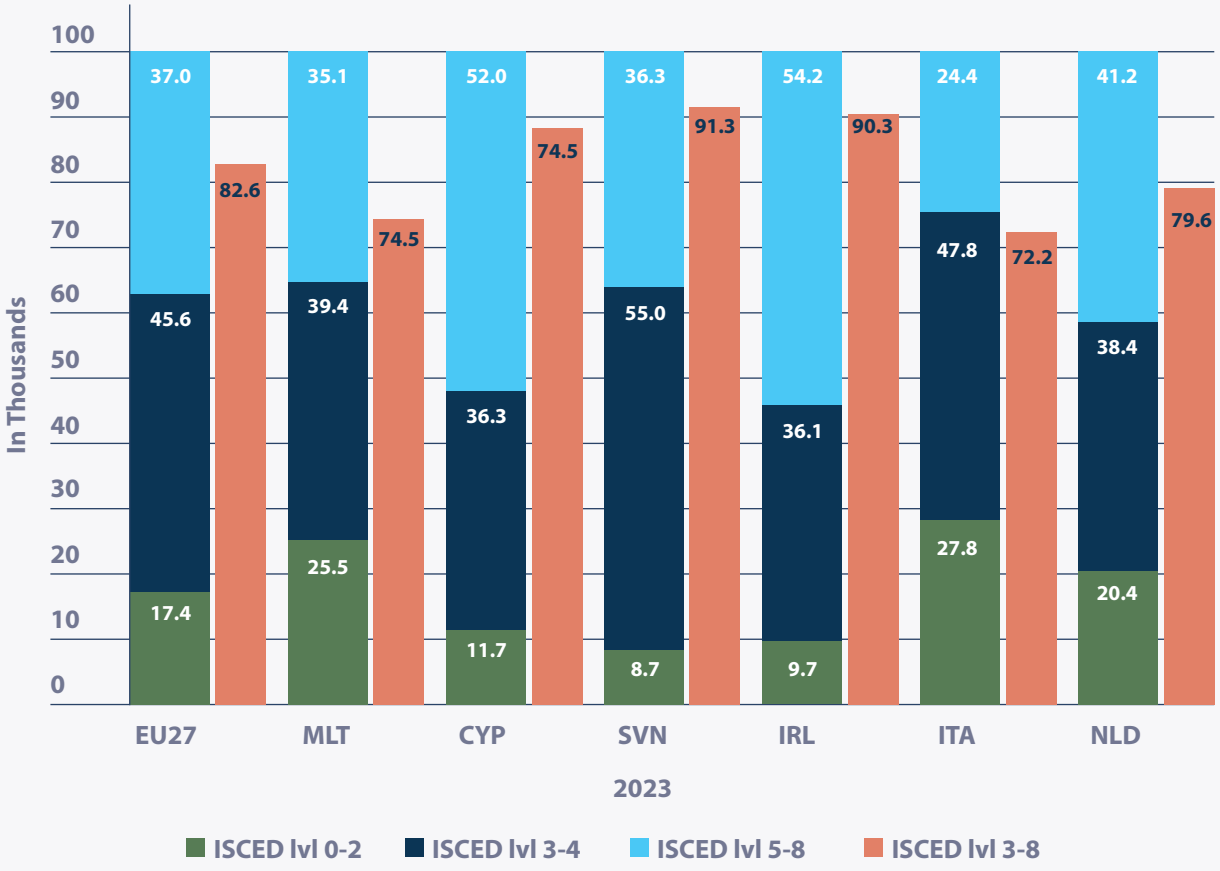


Figure 18 : Persons in the labour force (%) by educational attainment level (between 15 to 64 years)

2.1.8 Fiscal Sustainability and Public Finances

Malta's economic policy focuses on maintaining fiscal sustainability while driving growth through strategic investments. The government has pursued a balanced approach by combining targeted economic stimulus with prudent fiscal management. Leveraging EU recovery funds, Malta has invested in digital infrastructure, green initiatives, and social programs to boost long-term economic resilience. This careful balancing act is essential as Malta navigates global uncertainties, aiming to preserve fiscal stability for sustained economic health.

General Government Net Lending/Borrowing (% of GDP)

Malta's fiscal position has experienced notable shifts over the past decade, reflecting its ability to balance government revenues and expenditures. In 2009, Malta's general government net borrowing stood at -3.1% of GDP, gradually improving to a fiscal surplus of 3.1% by 2017, indicating strong economic growth and prudent fiscal management. This improvement starkly contrasts with many EU peers.

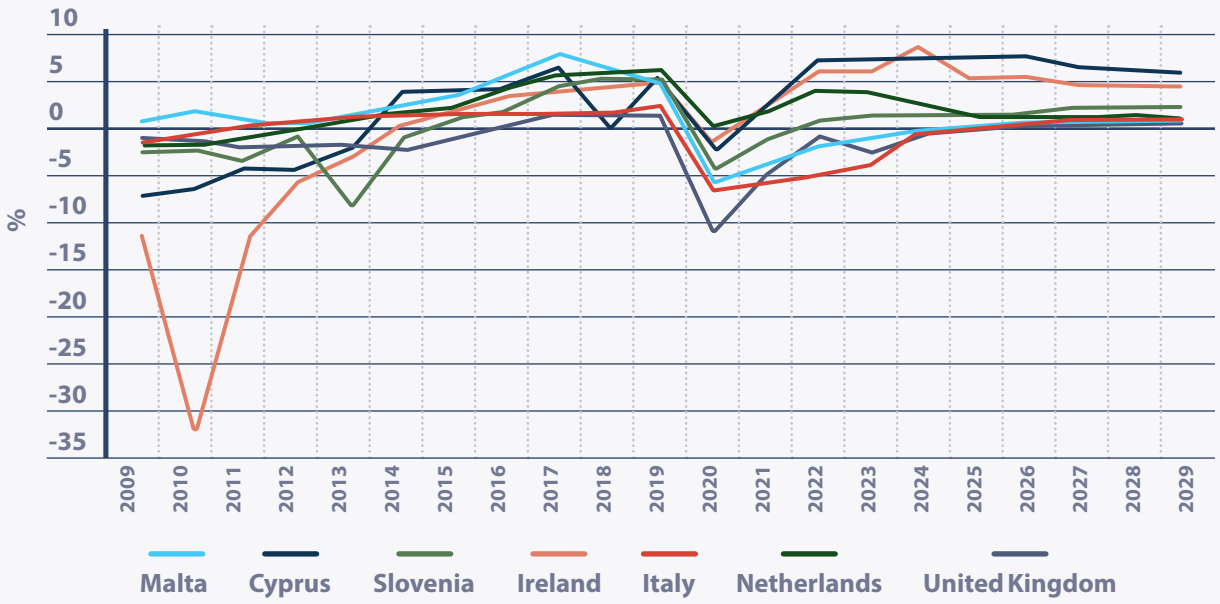


Figure 19 : General government net lending (% of GDP) amongst selected EU MS and the UK (Source: IMF)

However, and as one would expect, the COVID-19 pandemic reversed Malta's fiscal surplus, with the deficit sharply widening to -8.7% in 2020, reflecting the government's significant public spending to support businesses and households during the crisis. While the deficit improved to -7.0% in 2021, Malta remained in negative territory in 2022 (-5.3%) and 2023 (-4.6%), with a projected -4.0% deficit in 2024, highlighting the slow pace of fiscal recovery.

Comparing Malta's performance to other economies, Italy (-7.2%) and the UK (-6%) maintained wider deficits in 2023, while the Euro Area average (-3.6%) and EU (-3.5%) reported slightly better fiscal positions. Notably, Ireland (1.5%) and Cyprus (3.1%) recorded budget surpluses, reflecting their aggressive fiscal consolidation efforts.

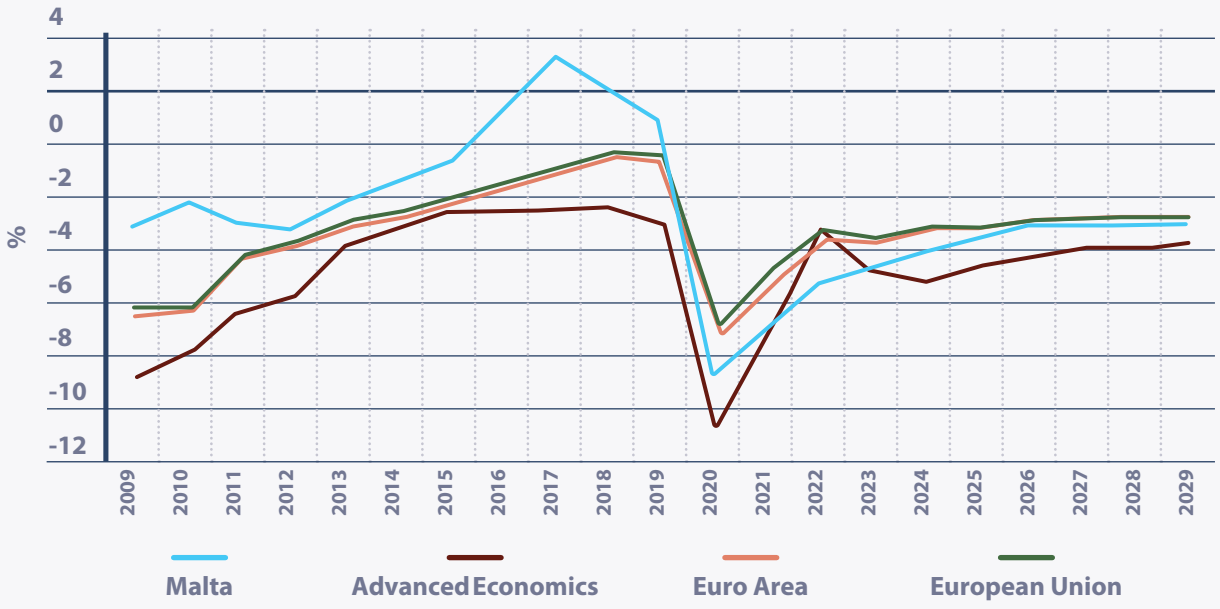


Figure 20 : General government net lending (% of GDP) Malta vs EU, EA and Advanced Economies (Source: IMF)

Looking forward, Malta's deficit is expected to stabilise around -3% from 2026 onwards, aligning with the projected fiscal paths of the Euro Area and EU averages (-2.7%). This suggests that while Malta is on a consolidation path, achieving a balanced budget remains a longer-term challenge. Structural reforms to enhance revenue generation and optimise public expenditure will be key to improving Malta's fiscal position further.

General Government Gross Debt (% of GDP)

Malta's general government gross debt has exhibited a distinct downward trend over the past decade, reflecting a period of fiscal consolidation. In 2009, Malta's debt-to-GDP ratio stood at 66%, peaking slightly in 2011 at 68.9% before beginning a steady decline. By 2017, it had fallen to 45.5%. This reduction contrasts with many EU countries that continued to experience rising debt burdens post-2010, particularly in response to the financial crisis. With COVID-19 pandemic Malta's fiscal progress reversed. The debt-to-GDP ratio jumped from 39.2% in 2019 to 48.6% in 2020, driven by increased public spending to support the economy during the crisis. Unlike some countries that saw a continued sharp rise in debt, Malta maintained relatively stable levels post-pandemic, with gross debt stabilising around 47-49% between 2021 and 2023. This stabilisation contrasts with economies like Italy (134.6% in 2023) and the United Kingdom (100% in 2023), where debt remained significantly elevated.

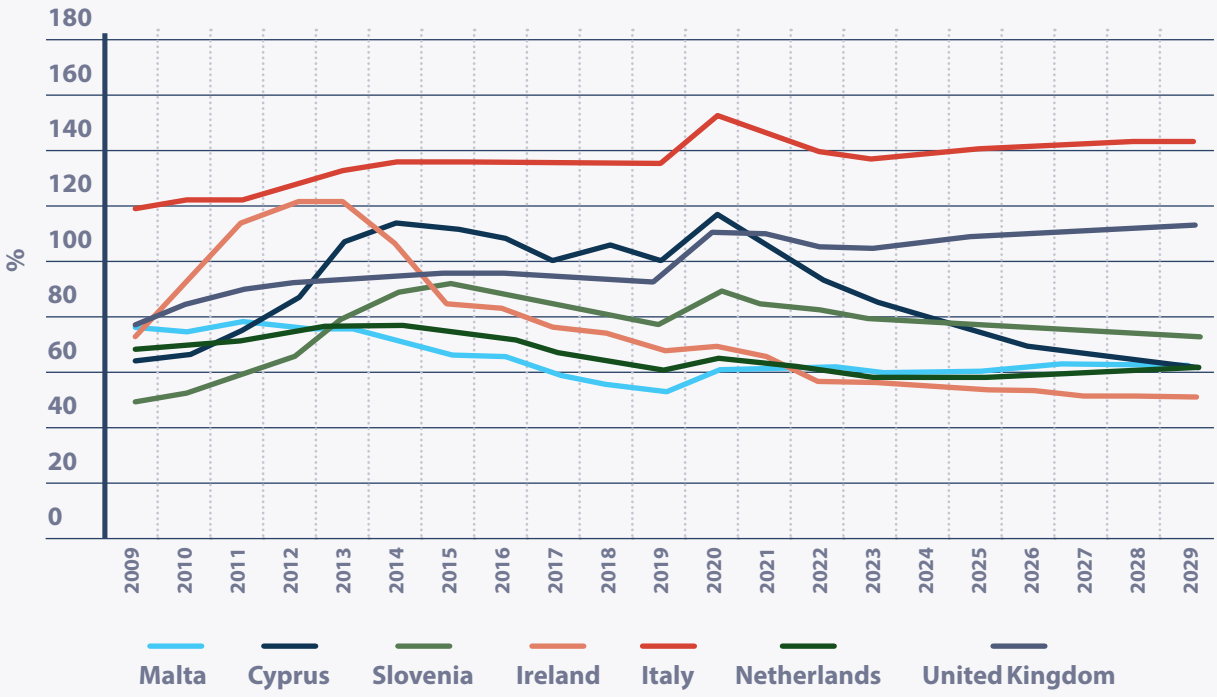


Figure 21 : General Government Gross Debt (% of GDP) amongst selected EU MS and the UK (Source: IMF)

In comparison to peer economies, Malta consistently maintained lower debt levels than Euro Area (87.8%), EU27 (82.1%) averages in 2023 and advanced economies globally (108.7%), reinforcing Malta's relative fiscal prudence. This resilience can be attributed to strong economic growth, prudent fiscal policies, and robust revenue generation.

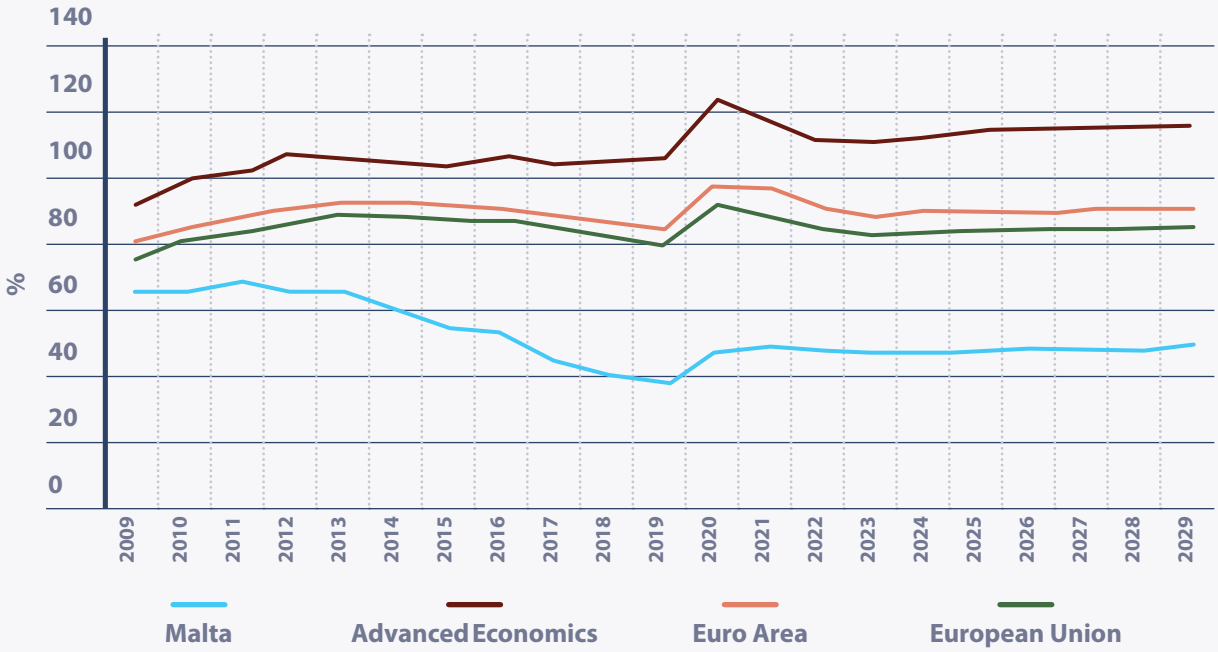


Figure 22 : General Government Gross Debt (% of GDP) Malta vs EU, EA and Advanced Economies (Source: IMF)

Looking ahead, Malta's gross debt is expected to remain stable indicating a controlled fiscal position. While this remains significantly below regional averages, it is still higher than its pre-pandemic levels. In contrast, countries such as Ireland (35.9%) and Cyprus (49.1%) are projected to see a sharper reduction in debt ratios over the same period.

2.2 Sectoral Analysis

Over the years, Malta has continued to successfully diversify its economic fabric, particularly in response to global economic shifts and recent challenges such as the COVID-19 pandemic. The establishment of new economic sectors, supported by robust regulatory frameworks and targeted incentives, has been a cornerstone of Malta's growth strategy. This has enabled the transition of Malta's economic structure towards a service-based economy with higher value-added activities.

Despite this progress, sectoral disparities persist, suggesting room for further enhancement. Targeted improvements in specific sectors could drive increased competitiveness, attract more investment, generate higher-quality job opportunities, and ultimately boost wealth creation. Recent developments have shown that while Malta's economic performance remains robust, it can be further strengthened through continued sectoral diversification.

The past few years have seen significant advancements in niche service sectors, including financial services, information and communication technologies (ICT), and professional services. This focus on intersectoral diversification has not only expanded existing sectors but has also fostered the development of new ecosystems and sub-sectors, such as digital gaming, blockchain, and AI-driven industries.

Malta's emphasis on a diversified economic base is critical, especially given its status as a small, open economy. The shift towards service-oriented industries has reduced some vulnerabilities associated with external shocks, yet it underscores the need to address ongoing sectoral imbalances. The latest data shows that service-based sectors, such as ICT and professional services, have seen substantial growth in both Gross Value Added (GVA) and employment rates.

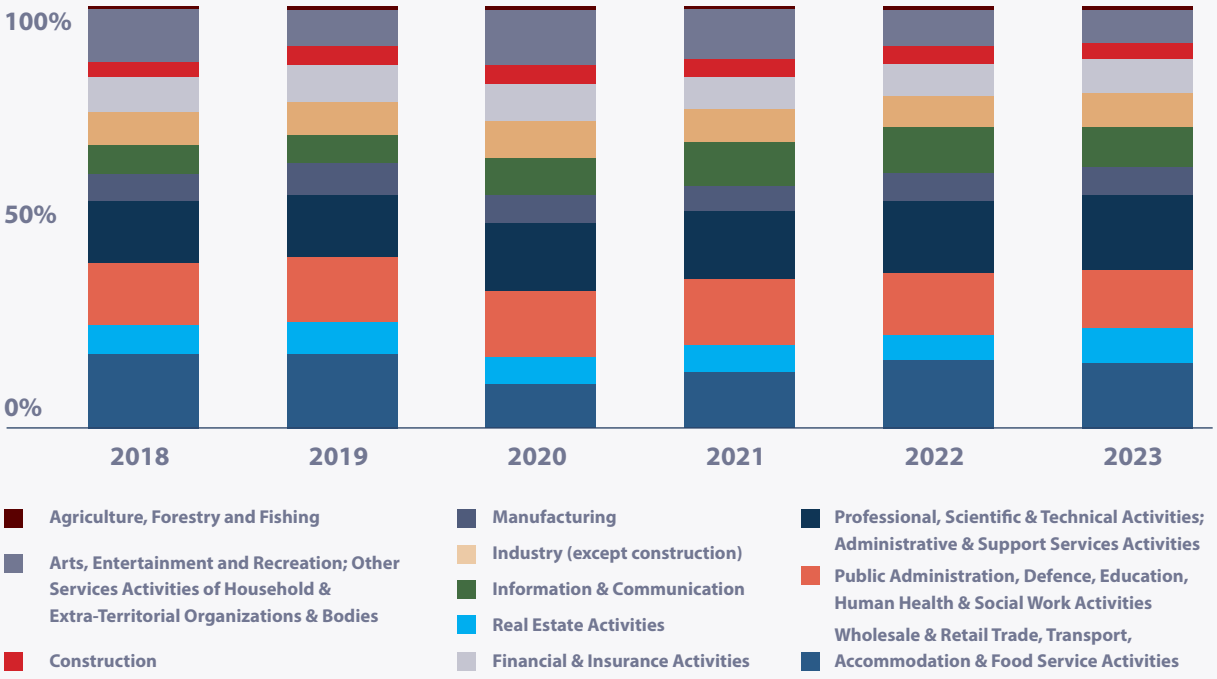


Figure 23 : Sectoral contribution (%) to total GVA generated (source: Eurostat)

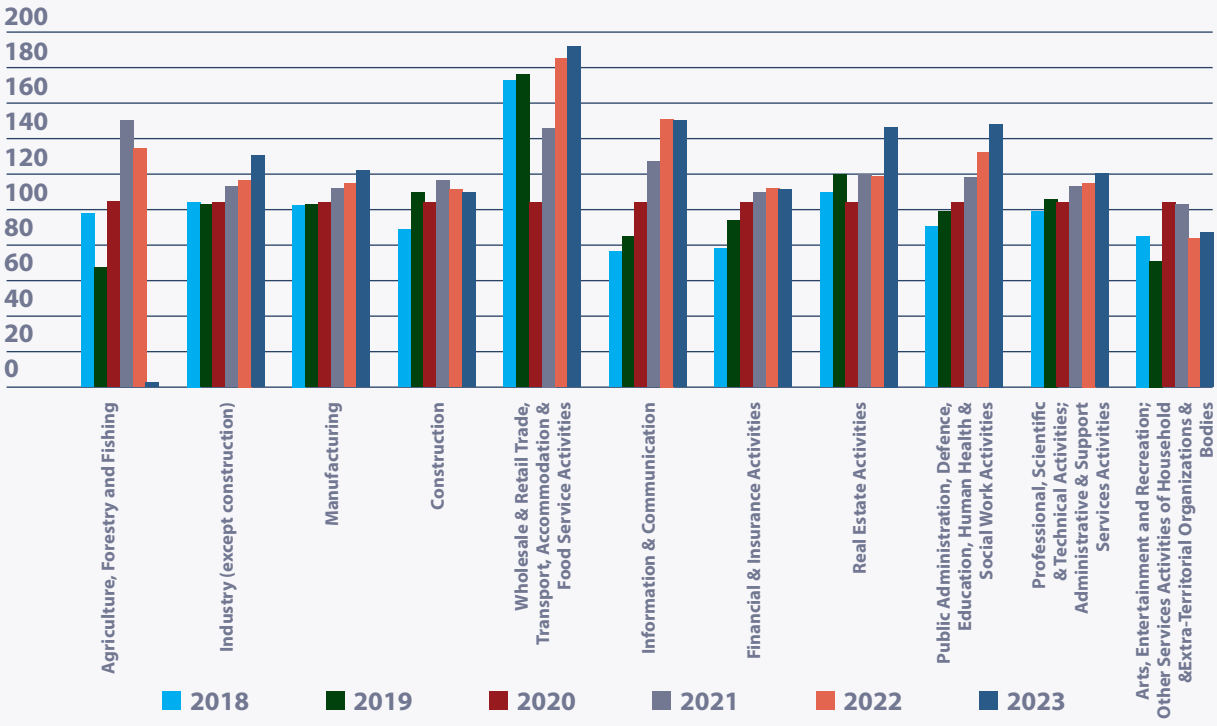


Figure 24 : Sectoral GVA generated in chain linked volumes, index 2020=100 (source: Eurostat)

However, traditional sectors like manufacturing, agriculture, and construction still face productivity challenges, highlighting the need for continued investment in skills and technology adoption. The data illustrated in figures 23 and 24 show sectoral share in GVA by sector and GVA generated in chained-linked volumes (index 2020=100)[15] respectively, between 2018 and 2023. This data highlights how different industries have evolved in their contribution to overall economic output, reflecting both structural changes and economic trends throughout the timeline analysed.

Two of Malta's fastest-growing industries—information and communication technology (ICT) and professional, scientific, and technical activities—have flourished, albeit in different ways. The ICT sector has seen its GVA share rise from 6.9% in 2018 to 10.4% in 2023, while its real GVA index nearly doubled from 73.67 to 144.00, making it one of the most dynamic sectors in the economy. Similarly, professional, scientific, and technical activities have expanded from 15.3% to 19.1% in GVA share, with real GVA soaring from 86.27 to 141.26. While both industries have grown substantially, their underlying drivers differ. ICT's expansion has been fuelled by fintech, iGaming, blockchain, and cloud-based services, reflecting Malta's aggressive push towards digital innovation and regulatory frameworks that attract global technology firms. Meanwhile, the professional services sector has benefited from the rise in financial services, business consultancy, legal services, and administrative outsourcing, reinforcing Malta's position as a regional hub for corporate support services. Likewise, the remote gaming industry captured by the 'arts, entertainment and recreation' sector contributed to expand and contribute positively to GVA and other economic indicators, including employment growth, further consolidating Malta's position as Europe's main hub when it comes to this niche economic sector. The complementary nature of these industries has created a reinforcing cycle, where ICT developments enhance operational efficiencies in business services, while the expansion of corporate activities fuels demand for digital solutions. The parallel growth of these sectors suggests that Malta's future economic strategy will likely continue to prioritise knowledge-based industries over traditional production sectors.

Manufacturing and industry (excluding construction) present a case of reduced contribution. Their GVA share has slowly declined, with industry dropping from 9.0% in 2018 to 8.4% in 2023 and manufacturing from 7.3% to 6.7%. However, real GVA in manufacturing has remained relatively stable with signs of real growth, fluctuating between 100 and 116, indicating that while the industry is shrinking in importance within the economy, production levels have not collapsed. This suggests that Malta's manufacturing sector is holding ground in absolute terms but is being outpaced by high-growth industries. Unlike services, which have benefited from policy-driven investments and digitalisation, manufacturing has faced constraints such as rising operational costs and shifting labour dynamics.

While ICT and professional services continue their upward trajectory, agriculture, forestry, and fishing stand in stark contrast, marking one of the most severe declines in Malta's economic landscape. The sector's GVA contribution has fallen from 0.7% in 2018 to effectively insignificant proportions in 2023, while its real GVA index has collapsed from 93.98 to just 2.45. This decline reflects deep-rooted structural challenges, including high production costs, limited land availability, increased reliance on food imports, and possibly, lack of modernisation in agricultural practices. Unlike sectors that have adapted to global economic trends, agriculture

[15] Chained-linked volumes (CLVs) measure real economic output by adjusting for inflation, providing a more accurate view of growth. The index 2020=100 sets 2020 as the baseline, meaning values above 100 indicate growth in real terms, while values below 100 show a decline. Unlike fixed-base methods, CLVs use year-to-year price adjustments, making them more precise for tracking structural economic changes. This metric helps assess sectoral performance without distortions from price fluctuations.

in Malta has struggled to compete, leading to these declines. Without targeted policy intervention, the sector risks complete obsolescence, further increasing Malta's dependence on imported food supplies.

While some sectors have shown steady, organic growth, others have experienced volatility, most notably wholesale, retail trade, transport, accommodation, and food services, which is heavily tied to tourism. Before the pandemic, its GVA share remained stable at 19.3% in 2018 and 2019, but it collapsed to 11.4% in 2020 due to the near-total shutdown of international travel. This contraction is mirrored in real GVA, which hit its baseline 100 in 2020. However, the speed of recovery has been remarkable—by 2023, the sector rebounded to 17.0% in GVA share, while its real output climbed to 183.6, exceeding pre-pandemic levels. The resurgence of tourism, combined with pent-up demand, government stimulus measures, and increased airline connectivity, has fuelled this strong recovery. Real estate and construction, two closely linked sectors, have followed different trajectories despite their interdependence. Construction's GVA share has remained stable between 4.3% and 4.8%, with real GVA output fluctuating around 105 and 116, indicating steady growth. In contrast, real estate activities have expanded in absolute terms, with chained-linked volumes rising from 105.07 to 139.63. This suggests that while construction remains active, the real economic gains are being realised in investment-driven real estate transactions rather than new development. This is likely fuelled by foreign direct investment, property speculation, and growing demand for high-value commercial and residential properties. While the construction industry remains essential for infrastructure and urban development, real estate's strong performance indicates that capital investment is playing a larger role in shaping the sector's economic impact.

Public administration, education, and health services, while still a key pillar of the economy, have seen their relative significance decline. Their GVA share has decreased from 15.9% in 2018 to 14.8% in 2023, even though real GVA has expanded from 94.94 to 114.36. This suggests that while the sector is growing in absolute terms, its rate of expansion has been slower than that of high-growth private sector industries. The implications of this are twofold: first, economic activity is increasingly being driven by the private sector, particularly in ICT and professional services; second, public sector expansion is likely being constrained by fiscal considerations and efficiency measures. While this does not indicate a decline in public services, it does suggest that Malta's economic model is becoming more reliant on private enterprise for growth and employment generation.

Looking ahead, sustaining growth will require further investment in skills development, digital transformation, and infrastructure while addressing vulnerabilities in sectors that are struggling to keep pace with economic shifts.

2.2.1 Sectoral productivity

Sectoral Labour Productivity

Labour productivity in Malta, as measured by real productivity per person employed, exhibits notable sectoral variations. The industry sector (excluding construction) has shown a steady improvement post-2020, increasing from 107.8 in 2021 to 117.9 in 2023, demonstrating resilience and strong recovery. Similarly, Manufacturing has followed an upward trajectory, rising from 105.5 in 2021 to 111.1 in 2023, reflecting higher efficiency in industrial processes. The Water supply, sewerage, waste management, and remediation activities sector has experienced the highest gains, reaching 121.9 in 2023, likely due to improvements in operational efficiencies and technological advancements. However, Construction has shown a consistent decline, falling from 105.9 in 2021 to 89.9 in 2023, indicating a slowdown in sectoral output relative to inputs.

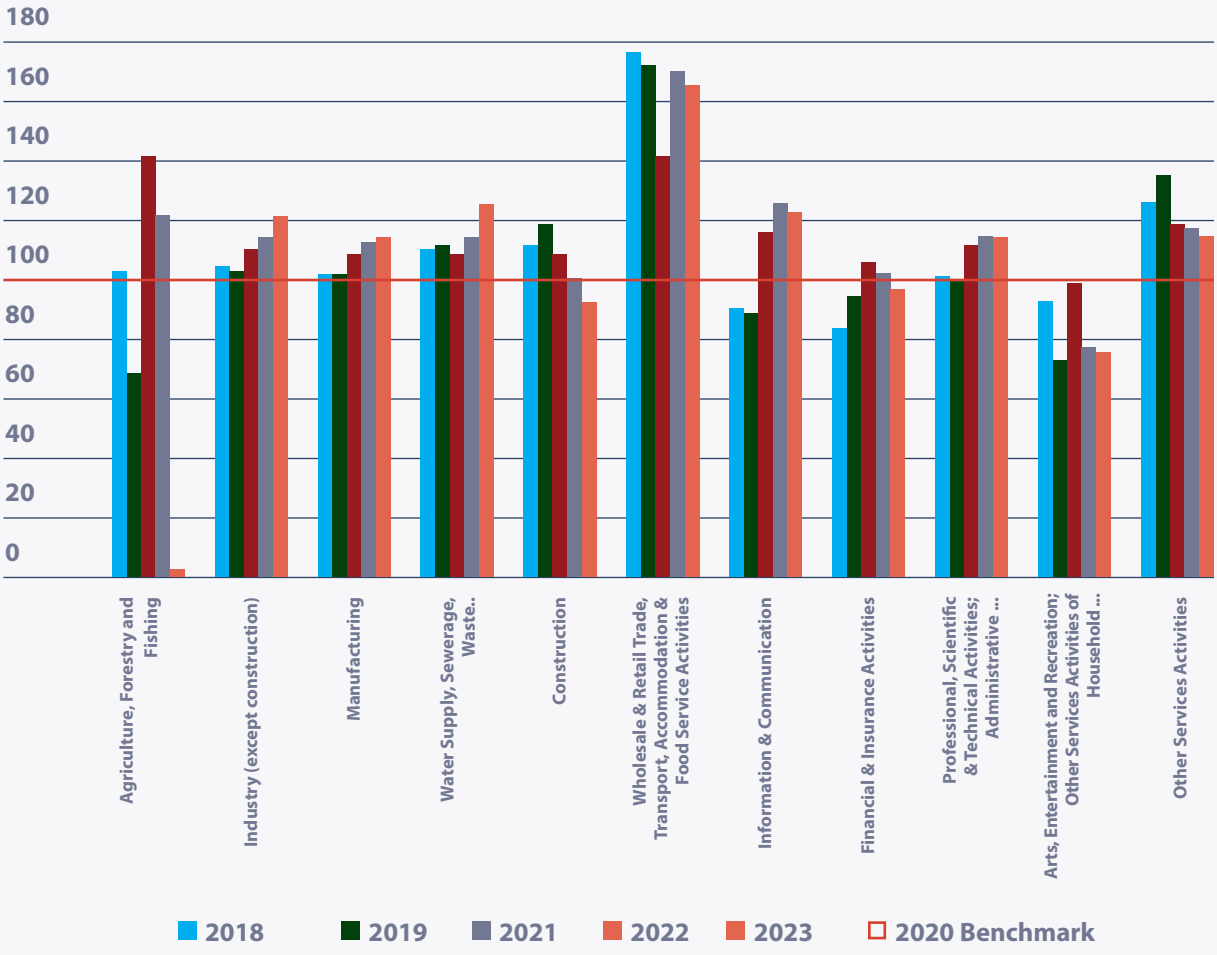


Figure 25 : Real labour productivity per person by sector (Source: Eurostat)

Looking at real labour productivity per hour worked, most sectors align with trends observed in productivity per person. Industry and Manufacturing continue their upward trajectory, while Information and Communication stands out with a sharp rise, reaching 125.9 in 2023, reflecting the sector's strong digital transformation and technological investment. The Construction sector again presents a concerning trend, declining from 112.9 in 2021 to 96.2 in 2023, reinforcing inefficiencies and potential structural weaknesses. Meanwhile, the wholesale, retail, transport, and accommodation sector, which suffered significant disruptions during the COVID-19 pandemic, rebounded strongly post-2020, peaking at 165.7 in 2022 before slightly decreasing to 161.3 in 2023, indicating that demand normalisation is stabilising.

Nominal unit labour costs based on hours worked reveal how wage pressures have evolved across industries. Financial and Insurance activities saw a notable increase in costs, rising from 101.1 in 2021 to 123.9 in 2023, suggesting a shift towards higher wages relative to productivity in this high-value-added sector. Information and communication, another sector with increasing labour demand, recorded an increase in unit labour costs from 90.7 in 2021 to 92.6 in 2023, reflecting competitive wage adjustments in a knowledge-intensive industry. Meanwhile, wholesale and retail trade, transport, and accommodation services maintained relatively stable labour costs, suggesting improved cost efficiency in these consumer-driven industries.

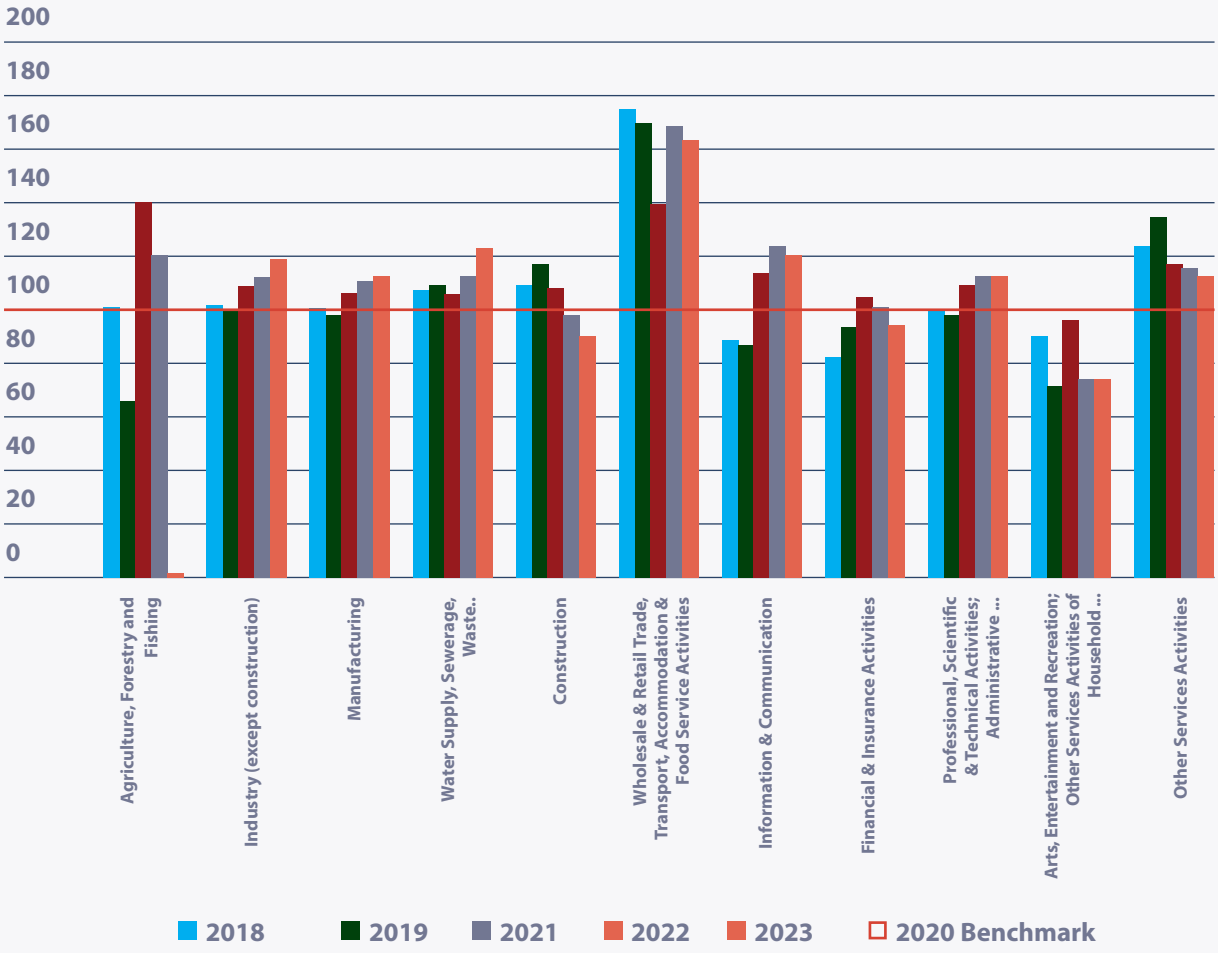


Figure 26 : Nominal unit labour cost based on hours worked by sector (Source: Eurostat)

Sectoral Capital Productivity

Capital stock-based productivity indicators show how investment in fixed assets translates into economic value. Net fixed assets per employed person, an indicator of capital intensity, varies significantly across sectors. The Financial and Insurance activities sector witnessed the highest increase, rising from 115.9 in 2021 to 146.5 in 2023, highlighting significant capital investments, potentially in digital and automation technologies. Meanwhile, Construction saw a decline from 94.6 in 2021 to 92.9 in 2023, mirroring the downward trend in labour productivity, which suggests stagnation in capital utilisation.

Examining net fixed assets per hour worked, a metric that captures capital intensity in relation to actual labour input, the Financial and Insurance sector again leads, reaching 147.1 in 2023, confirming that capital investments in this industry are shaping long-term efficiency gains. Information and communication, another capital-intensive industry, recorded substantial investment levels at 106.5 in 2023, reinforcing its role in Malta's economic transformation.

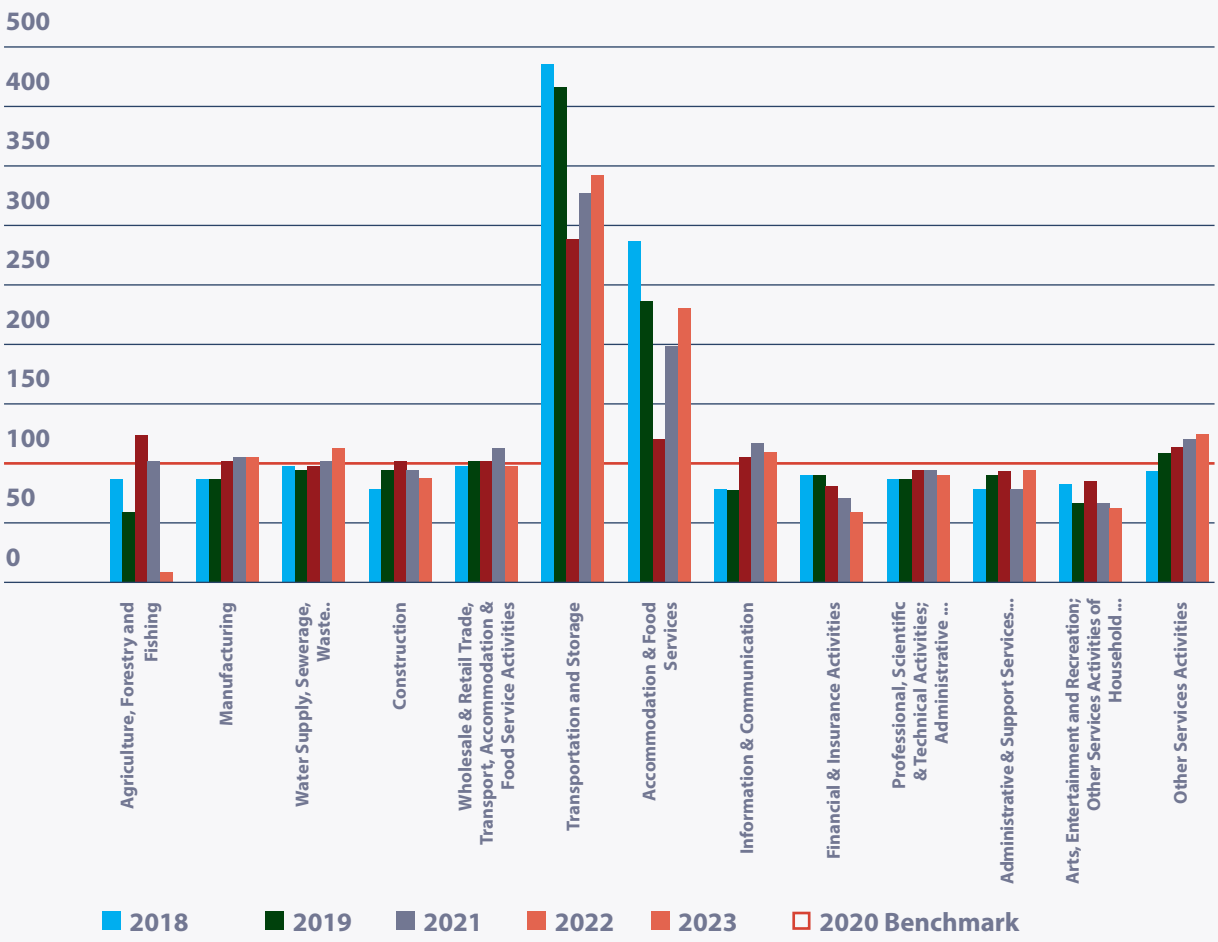


Figure 27 : GVA per unit of net fixed assets by sector (Source: Eurostat)

Gross value added per unit of net fixed assets, which indicates how efficiently capital stock generates output, reflects mixed trends. Manufacturing has improved from 110.5 in 2021 to 117.0 in 2023, suggesting enhanced capital efficiency, likely due to increased automation and productivity-focused investments. On the other hand, Financial and Insurance activities saw a sharp decline from 88.7 in 2021 to 64.6 in 2023, signalling diminishing returns on capital investment, which may indicate overinvestment or inefficiencies in deploying financial capital.

Finally, net fixed assets to gross value added, which measures the relative weight of capital stock in production, presents contrasting sectoral dynamics. While wholesale and retail trade has remained relatively stable, the accommodation and food services sector has improved efficiency, with its capital-to-output ratio decreasing from 74.4 in 2021 to 40.1 in 2023, indicating that businesses are generating higher output per unit of capital investment.

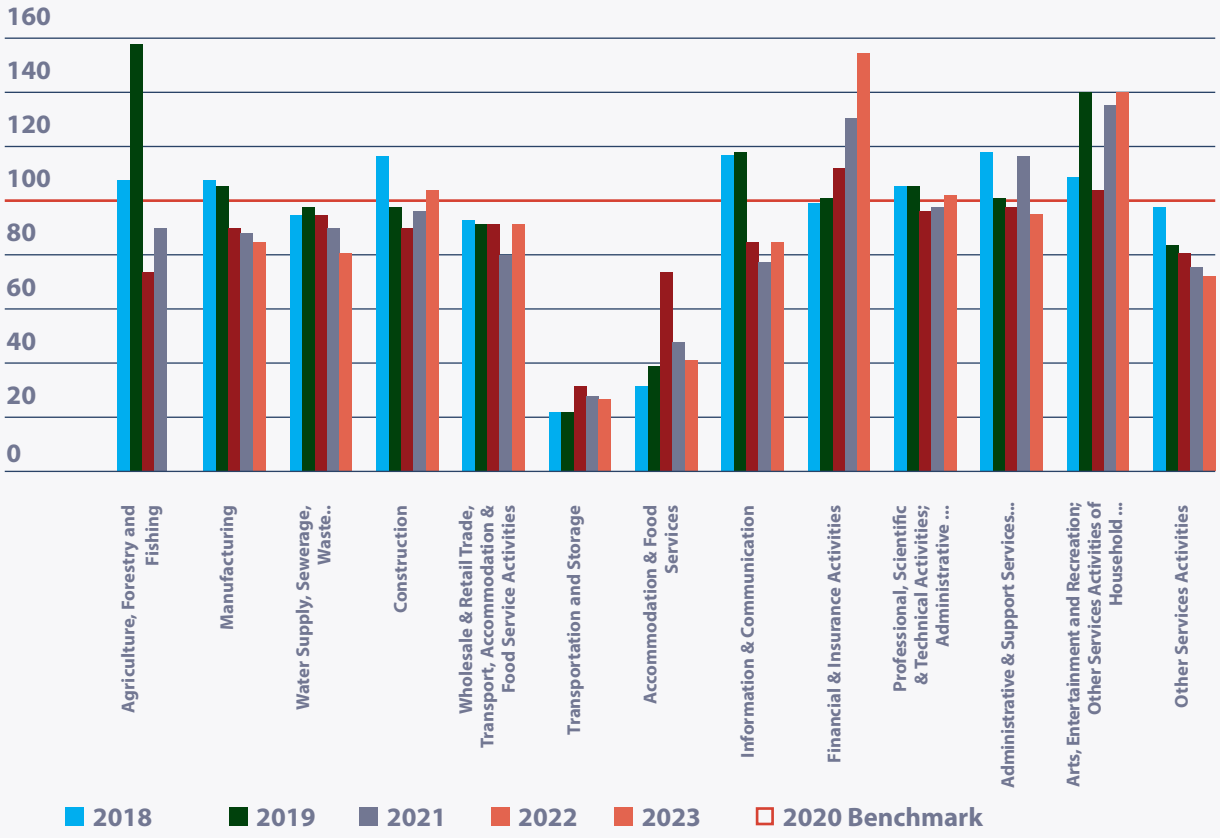


Figure 28 : Net fixed assets to GVA by sector

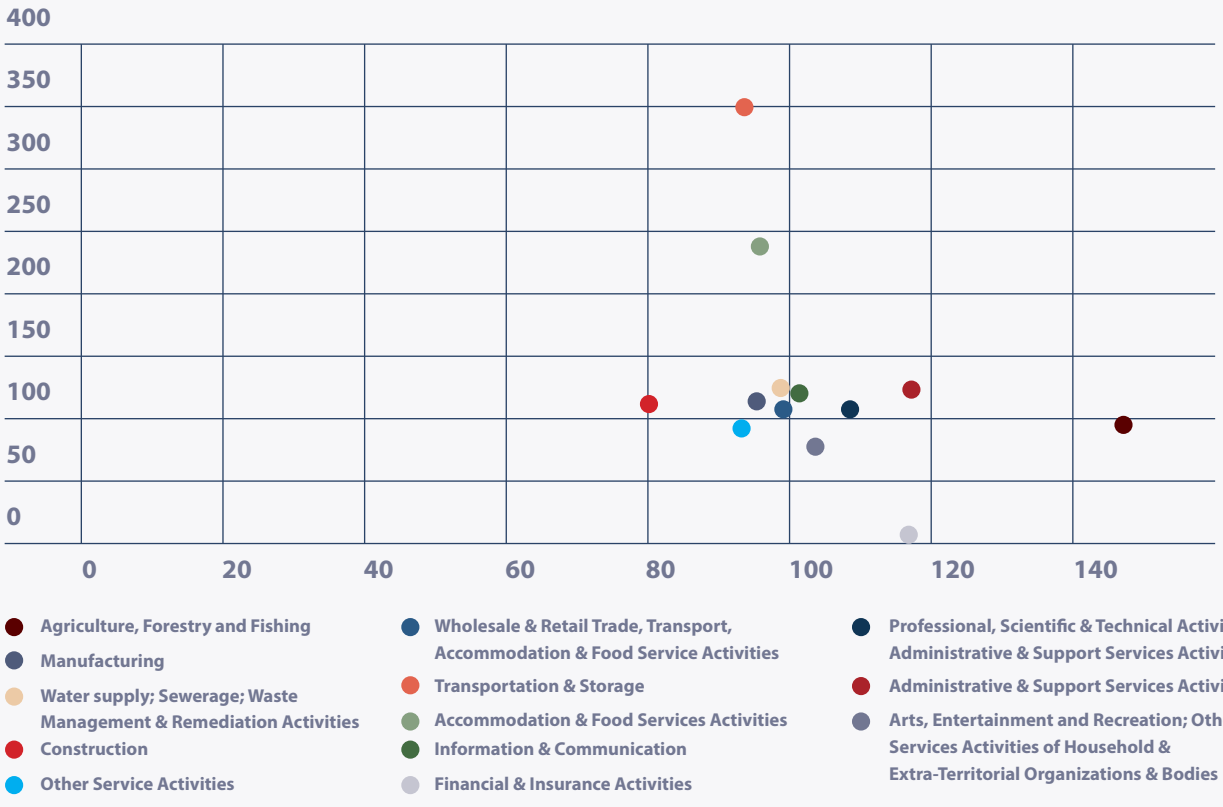


Figure 29 : Capital Intensity (Net fixed assets per employed person) vs Real labour productivity per person by sector (2023), (Source: Eurostat)

The relationship between capital intensity and labour productivity across Maltese industries reveals notable sectoral variations, reinforcing the importance of analysing productivity through both labour and capital lenses. While capital investment plays a crucial role in enhancing productivity, its impact is not uniform across sectors, suggesting that structural factors, technological adoption, and labour efficiency also play significant roles.

As one would expect higher capital intensity does not always translate into proportionally higher labour productivity. Some capital-intensive sectors, such as Financial & Insurance Activities and Information & Communication, exhibit strong labour productivity gains, likely driven by high-skilled employment and digital transformation rather than sheer physical capital accumulation. In contrast, Construction, despite its capital-intensive nature, demonstrates only moderate productivity improvements, reflecting potential inefficiencies, regulatory constraints, or reliance on lower-skilled labour.

Sectors such as Manufacturing, Wholesale & Retail Trade, and Accommodation & Food Services cluster around moderate capital intensity and productivity levels, suggesting a balance between human capital and investment in fixed assets. These industries rely heavily on both workforce efficiency and infrastructure improvements, making them more sensitive to technological advancements and workforce skill levels.

Notably, Agriculture, Forestry & Fishing stands out as an outlier with exceptionally high labour productivity relative to its capital intensity. This anomaly suggests that either labour input has become more efficient due to mechanisation, specialisation, or workforce reductions, or there may be data inconsistencies in the data reported. Similarly, Transportation & Storage, which historically exhibited high productivity levels, appears to be stabilising, reflecting evolving demand patterns and automation.

The interplay between labour and capital productivity in Malta underscores the importance of sector-specific dynamics. While investments in fixed assets contribute to productivity growth, their effectiveness is heavily influenced by technological integration, workforce adaptability, and operational efficiencies. This reinforces the need for a holistic approach to productivity analysis, where capital deepening is complemented by investments in workforce development, digitalisation, and process optimisation.

2.3 Challengers and Drivers of Productivity in Malta

2.3.1 Human Capital and Skills Gap

A skills gap hinders Malta's productivity in digital and high-skill service sectors. Initiatives to enhance technical education and attract highly skilled expatriates are central to addressing this challenge, as highlighted in Malta's 2024 policy initiatives (IMF, 2024). Programs for artificial intelligence (AI) training and STEM development are examples of Malta's commitment to bridging the skill gap (KPMG, 2024).

2.3.2 Technological Adoption and Innovation

Malta's "Vision 2030" strategy prioritises digital transformation and innovation to sustain productivity. The new national strategy for research and development, aligned with EU initiatives like Horizon Europe, underscores the importance of R&D in Malta's economic growth. These efforts support productivity by encouraging technological adoption across all sectors (European Commission, 2024; PwC, 2024).

2.3.3 Infrastructure and Investment

Investments in Malta's digital and physical infrastructure, such as green energy projects and improved Internet connectivity, are key productivity drivers. Infrastructure enhancements are critical in an economy vulnerable to external shocks, making ongoing investment in sustainable energy and transport a priority for the Maltese government (IMF, 2024; European Commission, 2024).

2.3.4 Regulatory Environment and Business Climate

Malta's regulatory framework has become increasingly business-friendly, with new incentives for sustainable investments and streamlined processes to attract foreign investment. Reducing administrative burdens, especially for SMEs, fosters productivity and attracts investment (KPMG, 2024; European Commission, 2024).

In summary, Malta demonstrates robust economic growth, a steady improvement in fiscal health, low unemployment, and rising per capita GDP and purchasing power. These metrics reflect Malta's resilience and alignment with high-performing EU economies, positioning it favourably within the broader European economic landscape.

2.4 Productivity Framework Decomposed

Malta's productivity and competitiveness framework may be permanently designed across four main pillars. The model shown in Figure 31 decomposes the main elements of productivity into various sub-elements, primarily foundational, direct, and indirect channels.

PRODUCTIVITY AND COMPETITIVENESS	
Policies aimed at Market and Resource Allocation: Financial, product, labour market regulation, competition policy	Policies at Internationalisation: Trade and FDI policies, Migration flows & Policies
Policies aimed at the accumulation of factors of production: Investment, human capital, natural resources	Policies aimed at Technological & Sociological Change: Technology & innovation policies, industrial policies, green transition
Foundations for Pro-Productivity Policies: Institutions & Frameworks, Government Capacity and Macro-Economic Policy	

Figure 30 : Malta's Productivity and Competitiveness Framework (Source: authors)

2.4.1 Indicators to Measure Market and Resource Allocation

The selected indicators reflect the policies that attract resources or condition their use, focusing primarily on financial resources and competition policy.

- **Market dominance** - as reported in the Global Competitiveness Report by the World Economic Forum, Market Dominance demonstrates whether markets are dominated by a few business groups or spread among many, showing a level of maturity and competition in markets. The higher the value, the higher the spread.

- **Regulatory Quality** - The Regulatory Quality indicator reflects the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. The estimate of governance ranges from -2.5 to 2.5 (=-2.5 being a weak governance performance and 2.5 a very strong governance performance). The percentile rank among all countries ranges from 0 to 100 (lowest and highest rank). This statistic is reported by the World Bank in its Worldwide Governance Indicators.

- **Financial System Index** – This index originates from the World Economic Forum's Executive Opinion Survey, whereby respondents are asked to rate aspects of financial services and infrastructure using a scale from 1 (lowest) to 7 (highest). These aspects include domestic credit to the private sector, financing of SMEs, venture capital availability, market capitalisation, insurance premiums, the soundness of banks, non-performing loans, credit gap and banks' regulatory capital ratio: Banks' regulatory capital ratio.

- **Bank non-performing loans to total gross loans** – the percentage of non-performing loans to total gross loans as reported by the World Bank.

- **Cost of borrowing for households and non-financial corporations** – a composite index reflecting the cost of borrowing as reported by the European Central Bank.

2.4.2 Indicators to Measure Accumulation of Factors of Production

The selected indicators reflect the policies related to the main factors of production, with a primary focus on human capital, capital and entrepreneurship.

- **Youth not in education, employment, or training (NEET)** - This indicator corresponds to the percentage of the population of a given age group and sex who is not employed (or inactive) and not involved in further education or training (formal or non-formal education or training in the four weeks preceding the survey).

- **Adult participation in learning** - This indicator measures the Participation rate in education and training of adults aged 25 to 64.

- **Early school leavers in the young population** - Refers to those aged 18 to 24 who are not in education and are deemed early leavers.

- **Tertiary Educational Attainment** - The share of the population attaining tertiary education serves as a crucial indicator of human capital accumulation, reflecting the economy's potential for innovation, skill development, and long-term productivity growth.

- **Gender Inequality Index** - This index measures gender inequalities in three essential aspects of human development: reproductive health, measured by maternal mortality ratio and adolescent birth rates; empowerment, measured by the proportion of parliamentary seats occupied by women and the proportion of adult women and men aged 25 years and older with at least some secondary education; and economic status, expressed as labour-market participation and measured by the labour force participation rate of women and men aged 15 years and older. The Index ranges between 0 and 1, with higher values indicating greater inequality. The UNDP publishes the index.

- **Ease of Doing Business sub-indicator scores** - The Ease of Doing Business Score indicates the performance of a sub-indicator using a scale from 0 to 100, where 0 represents the lowest performance, and 100 represents the best regulatory practice across all economies and across time. Higher scores show an absolute better ease of doing business (the best score is set at 100). The World Bank publishes this index in its Ease of Doing Business Report.

- **Business investment as a share of GDP** - This indicator represents, in percentage terms, the contribution of business investment to the country's GDP and thereby underscores the ease with which businesses can flow investments to the economy, as well as the appetite and the possibility to do so.

- **Public Investment in education and related infrastructure as a percentage of GDP** - This indicator measures the government's expenditure on infrastructure, education, research and development, and other capital investments as a share of GDP.

2.4.3 Indicators to Measure Internationalisation

The selected indices reflect the impact of current policies on enabling and facilitating internationalisation and trade flows.

- **FDI inflows and outflows** - Net values refer to the value of FDI flows (inflow or outflow) less the values of FDI disinvestments

- **Herfindahl-Hirschman Product Concentration Index** - The Index measures the dispersion of trade value across an exporter's products. The index ranges from 0 to 1, with a higher value indicating that trade is concentrated in fewer products, which may be interpreted as a greater potential vulnerability to trade shocks. Measured over time, a fall in the Index indicates increasing diversification in an exporter's trade profile and, hence, lower vulnerability.

- **Net International Investment Position (NIIP)** - The International Investment Position (IIP) is a statistical statement that provides an aggregate view of the net financial position (assets minus liabilities) of a country vis-à-vis the rest of the world. It allows for a stock-flow analysis of the external position of a country. The more negative the NIIP to GDP, the more the country becomes vulnerable to volatility in international financial markets.

- **Trade Openness** – This statistic reflects the total imports of goods and services compared to the level of GDP

- **Air connectivity ranking and efficiency of air transport services** - The Airport Industry Connectivity Index (AICI) measures the overall level to which an airport is connected to the rest of the World, either by direct flights or indirect connections via other airports. The index is a composite of the number of destinations, the frequency of services and the quality of connections (i.e. whether services are direct or via hubs).

2.4.4 Indicators to Measure Technological & Sociological Change

The indices were selected to provide an understanding of the impact of existing policies on technological and social change, with particular reference to poverty, digitisation, and innovation.

- **Business Dynamism Rankings**—This index assesses the factors and institutions identified by empirical and theoretical research as determining productivity improvements, which is, in turn, the main determinant of long-term growth and an essential factor in economic growth and prosperity.

- **Gini coefficient** - The Gini coefficient measures the extent to which income distribution within a country deviates from a perfectly equal distribution. A coefficient of 0 expresses perfect equality, where everyone has the same income, while a coefficient of 100 expresses full inequality, where only one person has all the income. The Gini coefficient of equalised disposable income measures the extent to which the distribution of equalised disposable income after social transfers deviates from a perfectly equal distribution.

- **Global Innovation Index (GII) business sophistication rankings** – this index assesses how conducive firms are to innovation activity and hence gauges the ability of businesses to foster their productivity, competitiveness, and innovation potential with the employment of highly qualified professionals and technicians.

- **European Innovation Scoreboard Index (EISI)**– This index categorises Member States into four innovation groups based on their scores: Innovation Leaders, Strong Innovators, Moderate Innovators and Emerging Innovators.

- **Private sector expenditure on R&D** – as a subset of the EISI

- **Innovative SMEs – as a subset of the EISI** – percentage of SMEs introducing product and process innovation

- **Digital Economy and Society Index** - The Digital Economy and Society Index (DESI) is based on about 30 indicators in five dimensions: connectivity, human capital, use of internet services, integration of digital technology, and digital public services

Table 2 reports the resulting dashboard for these indexes. This dashboard shows how the productivity framework's four elements are at different success and progress levels.

Regarding market and resource allocation, Malta is on the right trajectory with the financial system index and the bank non-performing loans to total gross loans, as Malta has registered improvements in the four-year and year-on-year trends. Conversely, in terms of regulatory quality, Malta is achieving year-on-year losses. In contrast, in terms of the composite index of the cost of borrowing, the cost of borrowing has increased over the past four-year period. Yet, the country still manages to remain in a relatively better position than the EU average.

Moving to the accumulation of factors of production, the indexes hereby address the accumulation of human capital and the free movement of capital resources for investment. This is one of the framework's strongest pillars where Malta is seen to achieve sustained improvements. Whilst the overall trend has been positive for the indexes reported under this element, except for 'business investment as a share of GDP,' four of six indexes fall below the EU average.

The internationalisation element of the productivity framework offers a mixed bag of outcomes, with two elements achieving short-term and long-term improvement: net FDI flows and trade openness. Malta registered stability on the HH product concentration index without improvements or deterioration. Malta's outcomes deteriorated regarding air connectivity ranking and the Net International Investment Position.

Technological and sociological change captures indexes relating to technological advancements, research and innovation, and dynamic societal changes, which influence future growth, particularly equality. This element of the productivity framework leaves Malta lagging behind its EU counterparts in most indexes, most notably in innovation and research expenditure indexes. It is further noted that Malta faces a negative trend in the European Innovation Scoreboard Index (EISI). SMEs are introducing business process innovations, a sub-part of the EISI index. We also note that the Gini coefficient for Malta continues to increase and depart further from the EU average, demonstrating further divergence between the rich and poor segments of society.

ELEMENT	DRIVER OF PRODUCTIVITY	RELATIVE TO EU AVERAGE	4YR AVERAGE	4YR TREND	YR & YR TREND
Market and Resource Allocation Direct Foundational	Regulatory Quality	N/A	0.9		
	Financial System Index	N/A	29.7		
	Bank non-performing loans to total gross loans	N/A	4.1		
	Cost of borrowing for households and non-financial corporations		3.9		
Accumulation of Factors of Production	Youth not in education, employment or training		8.9		
	Adult participation in learning		13.5		
	Early school leavers in the young population		11.1		
	Gender in equality index		65.5		
	Ease of Doing Business sub-indicator scores		65.8		
	Business investment, as a share of GDP		21.7		
Internationalisation	FDI in flows and outflows		3.7		
	Herfin dah I-Hirschman Product Concentration Index	N/A	0.0		
	Net international Investment Position	N/A	103.1		
	Trade Openness		151.9		
	Air connectivity ranking and efficiency of air transport services	N/A	1,757.0		
Technological & Socialogical Change	Business Dynamism Rankings	N/A	67.7		
	Gini coefficient		31.4		
	Global Innovation Index business sophistication rankings	N/A	14.3		
	European Innovation Scoreboard Index		101.9		
	R&D expenditure in the business sector		26.0		
	Innovation SMEs		110.1		
	Digital Economy and Society Index		55.6		

Table 2: Productivity dashboard (Source: authors)

Better than EU average
Worse than EU average
Improving trend
Worsening trend
No change in trend

2.5 Productivity Factors

MALTA	2020	2021	2022	2023	RELATIVE TO EU AVERAGE	4YR TREND	YR ON YR TREND
Gross Value Added (Current prices, Million EUR)	13,133.3	15,339.2	16,927.2	19,198.9			
Compensation per Employee (EUR)	27,956.2	29,346.3	30,500.6	31,080.4			
Compensation per Employee per Hour (EUR)	15.7	16.4	17.1	17.4			
Nominal Unit Labour Cost per Person (2015 = 100)	124.4	118.3	124.0	124.7			
Nominal Unit Labour Cost per Hour worked (2015 = 100)	122.4	116.6	122.9	122.8			
Real Labour Productivity per Hour Worked (2015 = 100)	99.5	109.5	108.3	109.6			
Real Labour Prodcutivity per Person (2015 = 100)	97.8	108.0	107.1	108.5			

CYPRUS	2020	2021	2022	2023
Gross Value Added (Current prices, Million EUR)	19,958.6	22,796.9	26,070.9	27,679.2
Compensation per Employee (EUR)	26,545.3	27,755.3	29,775.5	31,275.6
Compensation per Employee per Hour (EUR)	15.9	15.7	16.7	17.5
Nominal Unit Labour Cost per Person (2015 = 100)	108.1	104.5	108.6	112.8
Nominal Unit Labour Cost per Hour worked (2015 = 100)	107.3	103.1	107.1	111.2
Real Labour Productivity per Hour Worked (2015 = 100)	106.3	109.2	111.5	112.6
Real Labour Prodcutivity per Person (2015 = 100)	100.6	108.8	112.3	113.6

IRELAND	2020	2021	2022	2023
Gross Value Added (Current prices, Million EUR)	360,059.1	424,242.1	497,529.7	484,189.7
Compensation per Employee (EUR)	54,701.8	56,261.4	57,660.6	61,573.8
Compensation per Employee per Hour (EUR)	34.2	35.1	35.5	38.4
Nominal Unit Labour Cost per Person (2015 = 100)	95.3	89.8	90.6	106.0
Nominal Unit Labour Cost per Hour worked (2015 = 100)	92.7	88.0	89.0	103.8
Real Labour Productivity per Hour Worked (2015 = 100)	126.3	136.7	136.4	126.8
Real Labour Prodcutivity per Person (2015 = 100)	121.6	132.7	134.8	123.1

ITALY	2020	2021	2022	2023
Gross Value Added (Current prices, Million EUR)	1,496,321.9	1,644,106.4	1,792,583.9	1,910,056.4
Compensation per Employee (EUR)	36,102.5	38,553.6	39,991.5	41,226.5
Compensation per Employee per Hour (EUR)	25.0	24.7	25.1	25.6
Nominal Unit Labour Cost per Person (2015 = 100)	107.2	106.1	107.2	111.8
Nominal Unit Labour Cost per Hour worked (2015 = 100)	104.9	105.0	106.1	110.2
Real Labour Productivity per Hour Worked (2015 = 100)	103.6	102.4	102.7	101.0
Real Labour Prodcutivity per Person (2015 = 100)	92.9	100.2	102.9	101.7

NETHERLANDS	2020	2021	2022	2023
Gross Value Added (Current prices, Million EUR)	726,149.0	791,173.0	888,174.0	962,084.0
Compensation per Employee (EUR)	51,200.9	52,606.6	54,515.6	57,926.3
Compensation per Employee per Hour (EUR)	38.5	38.6	40.0	42.7
Nominal Unit Labour Cost per Person (2015 = 100)	115.7	113.8	116.7	125.9
Nominal Unit Labour Cost per Hour worked (2015 = 100)	122.4	116.6	122.9	122.8
Real Labour Productivity per Hour Worked (2015 = 100)	100.1	101.6	102.7	101.4
Real Labour Prodcutivity per Person (2015 = 100)	97.6	101.9	103.0	101.4

EUROPEAN UNION	2020	2021	2022	2023
Gross Value Added (Current prices, Million EUR)	12,148,869.6	13,177,369.4	14,497,241.4	15,538,230.4
Compensation per Employee (EUR)	37,443.5	39,131.11	41,016.2	43,463.5
Compensation per Employee per Hour (EUR)	25.4	25.6	26.6	28.2
Nominal Unit Labour Cost per Person (2015 = 100)	110.2	110.1	113.9	121.6
Nominal Unit Labour Cost per Hour worked (2015 = 100)	109.0	109.3	113.2	120.6
Real Labour Productivity per Hour Worked (2015 = 100)	105.0	105.6	106.1	105.6
Real Labour Prodcutivity per Person (2015 = 100)	98.6	103.2	104.5	103.8

EURO AREA	2020	2021	2022	2023
Gross Value Added (Current prices, Million EUR)	10,369,270.3	11,205,327.0	12,283,412.1	13,203,588.3
Compensation per Employee (EUR)	41,882.5	43,694.0	45,650.5	47,834.1
Compensation per Employee per Hour (EUR)	30.1	30.2	31.2	32.5
Nominal Unit Labour Cost per Person (2015 = 100)	110.5	110.2	113.9	121.2
Nominal Unit Labour Cost per Hour worked (2015 = 100)	109.0	109.1	112.8	119.9
Real Labour Productivity per Hour Worked (2015 = 100)	104.7	104.8	104.7	..
Real Labour Prodcutivity per Person (2015 = 100)	97.0	101.6	102.7	..

Table 2: Productivity indicators across countries (source: various)

Table 2 provides a summary of the main indicators which highlight productivity in Malta and selected countries, against which Malta is being benchmarked.

Compensation per Employee (EUR)
Malta's compensation per employee increased from approximately €27,956 in 2020 to €31,080 in 2023. This rise reflects positive wage growth, though Malta's compensation levels are below those of countries like Ireland and the Netherlands, where wages per employee were over €50,000. The year-on-year increase in compensation indicates Malta's alignment with regional wage growth trends, albeit at a lower absolute level compared to wealthier EU economies.

Compensation per Employee per Hour (EUR)
Malta's compensation per hour worked rose from €15.7 in 2020 to €17.4 in 2023, showing steady improvement in hourly wages. Malta's rate is modest compared to Ireland and the Netherlands, which have hourly compensation above €30. However, the year-over-year increase in Malta's hourly compensation is consistent with trends in these higher-income countries, indicating Malta's progression towards higher labour productivity and compensation.

Nominal Unit Labour Cost per Person (Indexed to 2015)
In Malta, the nominal unit labour cost per person fluctuated, starting at an index of 124.4 in 2020, dipping slightly to 118.3 in 2021, and stabilising around 124.7 by 2023. This pattern suggests moderate cost control in labour relative to output. Other countries, particularly Italy and the EU average, show similar fluctuation levels, reflecting attempts to manage labour costs in line with productivity. However, countries like Ireland and Cyprus experience different dynamics due to their unique labour market structures and productivity levels.

Nominal Unit Labour Cost per Hour Worked (Indexed to 2015)
Malta's nominal unit labour cost per hour followed a pattern similar to the cost per person, with values around 122.4 in 2020, increasing to 122.8 in 2023. This suggests steady labour cost control at an hourly level. Comparable countries in the EU, such as Italy and the Netherlands, also exhibit stable or slightly rising costs per hour, reflecting efforts to maintain labour efficiency. Malta's alignment with these trends highlights the country's effective labour cost management.

Real Labour Productivity per Hour Worked (Indexed to 2015)
Malta's real labour productivity per hour was indexed at 99.5 in 2020, with modest gains to around 109.6 by 2023. This growth reflects Malta's improving productivity levels, although it trails behind high-productivity countries like Ireland, where productivity per hour is indexed much higher. Ireland's high productivity is a notable outlier due to its strong tech and pharmaceutical sectors. Though slower than Malta's, the EU and Netherlands also demonstrate productivity growth.

Real Labour Productivity per Person (Indexed to 2015)
Real labour productivity per person in Malta started at 97.8 in 2020 and rose to approximately 108.5 by 2023. This growth rate indicates increasing overall productivity, albeit lower than countries like Ireland and the Netherlands, where productivity per person indices are higher due to robust economic structures and advanced industries. Malta's improvement aligns with EU averages, reflecting the region's collective push for productivity gains.

2.6 Conclusion

Malta's economic and productivity outlook is promising, with strong growth prospects driven by service exports, robust labour market conditions, and strategic investments in technology and infrastructure. However, addressing educational challenges and enhancing innovation capabilities are critical for sustaining long-term competitiveness.

The comprehensive analysis presented in this report highlights the critical framework for enhancing productivity and competitiveness in Malta. Built upon four main pillars—market and resource allocation, internationalisation, accumulation of factors of production, and technological and sociological change—this multifaceted approach provides a robust foundation for policymaking to foster economic growth and improve living standards.

Each element of the productivity framework elucidates the importance of sound economic policies. The market and resource allocation assessment underscores the necessity of fostering competition and ensuring regulatory quality to create a resilient financial environment. It is evident that enhancing market dynamics through effective competition policies and a strong regulatory framework will nurture entrepreneurship and investment, thereby promoting sustainable economic growth.

Simultaneously, the focus on the accumulation of factors of production reveals the necessity for investments in human capital and skills development. Indicators related to education and workforce participation showcase the current status of Malta's labour force and highlight areas where targeted interventions could bridge existing gaps. Addressing gender inequality and enhancing adult learning opportunities are critical steps in harnessing the full potential of the workforce, ultimately leading to a more inclusive economic landscape.

Moreover, the interrelationship between technological advancement and sociological change emerges as pivotal in elevating Malta's competitive stance. By prioritising innovation, implementing industrial policies, and supporting green transitions, Malta can position itself as a proactive player in the global economy. This necessitates a collaborative effort across government, industry, and the academic sector to achieve the desired technological integration.

Establishing robust institutions and effective government capacity is foundational to all these efforts. Macroeconomic policies must be thoughtfully calibrated to support the aforementioned strategies, ensuring that Malta remains adaptive and resilient in a rapidly changing global environment.

A strong institutional framework will provide the necessary backing for policies aimed at promoting productivity and competitiveness, facilitating the continuous improvement of the overall economic ecosystem.

In summary, Malta's path to sustainable productivity and competitiveness is contingent upon the strategic alignment of its policies and practices across all pillars of the productivity framework.

3

INTRODUCING THE TWIN TRANSITION

Climate change and rapid technological advancement are two global megatrends that are impacting business and public policy at every level in advanced and developing countries alike.

The digital transformation of societies and economies worldwide is ongoing and picking up pace, changing every aspect of how people live and do business. At the same time, the effects of climate change and biodiversity loss are also accelerating in rate and intensity in every region, driving sustainability and climate neutrality to the top of the global policy agenda. Climate action, that is the migration from fossil fuels to clean energy, lies at the core of this fundamental shift, within a wider transition of social and economic activities towards more environmentally sustainable models.

Previously largely addressed as two parallel transformations – green and digital – there is increasing consensus that 'twinning' the digital and sustainability agendas together is the most effective and efficient strategy to gain traction and secure results.

This twinning approach is based on designing and delivering the transitions as two potentially complementary and mutually reinforcing processes, rather than two parallel policy challenges.

It also directly addresses and mitigates the high environmental impact of digitalisation, which is a fundamental conflict that can at times threaten the coherence of the two agendas.[16] At the heart of this rationale therefore lie two fundamental principles to manage this conflict while simultaneously building much-needed progress and momentum in sustainability and climate action:

- Making digitalisation trends climate-compatible
- Making full use of digital tools and trends for climate action

This chapter will therefore examine the latest policy developments in the twin transition, highlighting the emerging trends which are shaping this strategy. This identifies the main policy intersections between the two agendas and their relationship with productivity and competitiveness. Finally, this policy context will be applied to Malta's own green and digital transition.

> ***"Digital and sustainable strategies can, and should, be developed in tandem. By following a defined twin transition road map, organisations can reduce their environmental impact, enhance their digital offering, and meet their moral obligation to future generations by contributing to a more sustainable world" (World Economic Forum, 2023)***

[16] Ministry for Economic Cooperation and Development. (2022). Twin Transition: Digital Transformation and Climate Policy in Development Cooperation.

3.1 Digital Transition – Global and EU Policy Perspectives

3.1.1 Global Snapshot – Current State of Play

A near-immediate effect of the social and economic shocks of the COVID-19 pandemic was a worldwide acceleration and amplification of digitalisation. As soon as the pandemic took hold, it was very clear that digitalisation was proving critical to the resilience of firms, sectors and countries in adjusting swiftly to the crisis, reducing losses in productivity and hours worked and strengthening subsequent recovery.

The experience of the pandemic continued to ramp up digitalisation in advanced economies and prompted countries and industries with lower pre-crisis levels of digitalisation to prioritise digital transformation in their recovery. This has also been evident at supranational level, with international organisations pushing a digital transformation agenda as an enabler for sustainable growth and innovation. In the EU, the digital transition is now a core pillar of the Union's NextGenerationEU Plan and the Recovery and Resilience Facility.

Where does this global process currently stand, four years on from the start of the pandemic, and what are the trends and drivers influencing its course?

In May 2024, the World Bank issued a comprehensive report tracking the global progress of digitalisation and countries' production and use of digital technologies.[17]

Its evidence-based findings report a faster rate of digital adoption since 2020, with a widening digital gap between high-and-middle income countries and low-income countries.

In terms of global digital progress, the key changes are:

- **Faster uptake of digital connectivity:** The world gained 1.5 billion new internet users from 2018 to 2022, with accelerated growth in high and middle-income countries amplified by the COVID-19 pandemic.
- **Durable changes in consumer habits:** Time spent on business, education, finance, medical, health, and shopping apps increased significantly during and after the COVID-19 pandemic.
- **Steep rise in e-commerce:** The pandemic accelerated digital payments and online shopping globally, creating a major shift in the finance and commerce sectors. These behavioural changes have persisted as total time spent on these apps remained 60-70% above pre-pandemic levels by the end of 2022.
- **Higher digital investment at enterprise level:** Firms with greater digital readiness before the pandemic and firms that invested in digital solutions during the pandemic showed greater resilience in productivity and hours worked. This investment has persisted since 2020, with digital investment more than doubling for SMEs and tripling for large firms.

[17] World Bank Group. (2024). Digital Progress and Trends Report 2023.

The World Bank report also confirms that the digital sector 'continues to be an engine of innovation and growth.'

- The IT services segment was the fastest-growing segment of the global economy over the past two decades with the annual growth rate of global value-added rising to 8% between 2000 and 2022, far higher than the 5.1% growth of the global economy over this same period.

- IT services are increasingly used as intermediate inputs in other sectors with the input intensity of IT services almost doubling in high-income and upper-middle-income countries during 2000–20

- Global employment in IT services has quadrupled from 8 million in 2000 to 32 million in 2022.

These trends are also driving competitiveness through internationalisation, with the report finding that the diversification of the global value chain and a surging demand in IT and IT-enabled services are creating new opportunities for countries to pursue export-led growth.

- Intensifying geopolitical tensions are prompting multinational corporations to accelerate the diversification of their global value chain, creating opportunities for other countries close to major markets and suppliers.

- The IT services segment is the most dynamic segment of international trade creating an export-led growth pathway for countries to expand and diversify their economies. By 2022, IT services emerged as the third largest category of service exports, exceeded only by transport and travel.

3.1.2 Global Snapshot – Emerging Trends

The World Bank report cites two emerging megatrends that it identifies as critical to future digitalisation.

The importance of digital public infrastructure as a foundational enabler of digital transformation

Digital economic growth requires robust data infrastructure to transmit, store, and exchange data (internet exchange points, data centres, and cloud computing). This brings with it significant challenges. Rising levels of public and private investment are required, generating a need for innovative solutions, such as new PPP models, private investment incentives, and infrastructure sharing. Liberalisation and regulatory systems must also keep pace with these rapid changes.

This is also driving the emergence of the digital public infrastructure (DPI) concept, described by the World Bank as a "paradigm shift from using siloed vertical approaches for digitalisation to building cross-cutting horizontal enablers." DPI rose in importance during the COVID-19 pandemic, when countries with good DPI in place were able to keep government services, commerce, hospitals, schools, and other operations functioning

through online channels. 'DPI' refers to the basic capabilities that are fundamental to developing digital services at a societal scale, acting as an intermediate layer between physical infrastructure (for example, broadband and data centres) and sectoral applications (for example, social protection and e-commerce). The most common types of DPI are platforms and systems for digital identification, digital payments, and data sharing.

Building fit-for-purpose DPI is likely to become a key determinant of national competitiveness and essential for enterprises, industries and citizens to participate fully in a digital economy within a digital society. There is growing agreement that, as an essential service, DPI should be guaranteed by public institutions to be inclusive, foundational, interoperable, and accountable.[18]

> ***"DPI is a set of shared digital systems that are secure and interoperable, built on open technologies, to deliver equitable access to public and/or private services at a societal scale" (G20 New Delhi Leaders' Declaration, September 2023)***

As touched upon in the introduction above, given the growing policy position to link digital and green priorities, the sustainability of digital infrastructure is increasingly a focus of planning and implementation in this area. This calls for reducing the energy consumption of the digital solutions themselves, including their underlying infrastructures, bypassing or replacing energy from non-renewable sources. This is another area where research and innovation is key[19].

The transformative emergence of artificial intelligence (AI)

Based on global data collated from various sources, the World Bank report concludes that AI development has arrived at a new and unanticipated level of sophistication which may not have been adequately factored into digital roadmaps. This is also being rolled out at a very fast pace: in the first half of 2023, content generation and generative infrastructure received US$14.1 billion in equity funding, more than five times the amount received in all of 2022 (World Bank, 2024). This global trend further emphasises the importance of having robust DPI strategies as referred to above to ensure equitable and effective access to AI tools.

AI has vast potential to drive productivity growth and is fast becoming a competitiveness differentiator at firm level, where it can boost performance through product and process innovation, as well as in reducing operating costs. At national level it can be used to tackle issues in crucial areas, such as climate adaptation and mitigation, health and education, food security, energy, and others.

Beyond the clear benefits, AI carries significant risks and challenges, particularly in terms of widening the digital divide both within and between countries, as well as in labour market disruption. AI can create new and better jobs, but it can also cause worker displacement and alienation.

This fast-evolving situation requires decisive policy responses at national and international level to accelerate safe and inclusive AI adoption, supported by balanced yet effective regulation and close coordination across stakeholders and jurisdictions.

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[18] Deloitte Global. (2023). Digital Public Infrastructure (DPI) playbook for nations.

[19] Dæhlen, M. (2023). The Twin Transition Century: The role of digital research for a successful green transition of society? The Guild of European Research-Intensive Universities, Insight Paper No. 5.

> ***"Countries are adopting divergent approaches and priorities in AI governance. Regulatory strategies must navigate the complexities and potential biases inherent in AI, addressing the juxtaposition of economic growth, efficiency, transparency, privacy, national security, and societal impacts. Regulatory fragmentation may hinder AI innovation and development, create enforcement gaps and trade barriers, lead to regulatory arbitrage, and diminish the effectiveness of such regulations. (World Bank, 2024).***

3.1.3 EU Snapshot – Current State of Play

At the start of this decade the EU launched its Digital Decade initiative working towards four key targets by 2030:

- A digitally skilled population
- Secure and sustainable digital infrastructures
- Digital transformation of businesses
- Digitalisation of public services.

The economic shocks of the pandemic right after the launch of this strategy, exacerbated by Russia's aggression in Ukraine, pushed digitalisation to the top of the Union's policy agenda. Retaining but amplifying the original four targets, the digital transition is now embedded in every aspect of EU strategy, with the stated aim of supporting the EU's recovery and transition towards resilience and sustainability up to 2030.

This has translated into a generally joined-up and coherent raft of policies driving the EU's Digital Decade[20]. Under the 2021-2027 Multiannual Financial Framework (MFF), the EU's digital initiatives are clustered under five core thematic areas.

What	Digital economy, research and innovation	Digital Public Administration	Digitalisation of Healthcare	Digitalisation of revenue authorities	Digital skills, education and training
Why	To increase productivity sustainably through a systematic and forward-looking research and innovation strategy	To provide faster, cheaper and better public services, improving efficiency, ease of doing business and accessibility	To provide citizens with access to safe and high-quality digital services in health and care	To increase the efficiency and revenue collection capability of revenue authorities	To narrow the digital skills gap through inclusive access to digital education and training
How	Increase the capacity of Member States to face digitalisation challenges and secure the benefits of a digitalised society	Support the implementation of sound e-governance systems to drive e-government	Promote the large-scale deployment of digital solutions in person-centred integrated care	Build the digitalisation capacity of revenue authorities, particularly in dealing with big data and detecting risks	Promote projects and strategies to improve the level of digital skills in Europe

[20] CEPS Policy Brief. (2022). Enabler and Challenges of the Digital Transition in the EU.

3.1.4 EU Snapshot - Emerging Trends

This is nearly the mid-point of the Digital Decade, the first half of which has been disrupted by the COVID-19 pandemic, the war in Ukraine, and the acceleration of climate change. This has led to significant recalibration of the Union's digital policy framework.

Under the Recovery and Resilience umbrella, the framework has been closely assessed in terms of its contribution to the collective and individual efforts of Member States towards stronger productivity and competitiveness.

Strong action has been taken in the last four years to establish an enabling legislative environment for this effort at European level, setting in place the necessary regulatory frameworks to mitigate risk and improve governance. Major measures include:

- the Artificial Intelligence Act (AI Act) – a world-first in regulating the specific uses of artificial intelligence based on the level of potential risk
- a series of 'Data Acts' to establish standards for data sharing by users of all types of connected devices
- a Cyber Resilience Act setting high cybersecurity standards for all connected devices sold in the EU
- A Digital Services Act and a Digital Markets Act to set standards for the accountability of online platforms

In an interim evaluation issued in June 2024, the Commission pointed to persistent gaps which will limit the Union's capacity to reach its intended 2030 digital targets. It calls for additional investments, both at EU and national levels, to address them.[21]

These gaps are highly relevant to the productivity and competitiveness of enterprises and mainly affect the following areas:

- Digital skills
- High-quality connectivity
- Uptake of AI by enterprises
- Uptake of data analytics by enterprises
- Uptake of cloud by enterprises
- Production of semiconductors
- Creation of start-up ecosystems

[21] European Commission. (2024). Report on the state of the Digital Decade 2024.

Describing this as a 'wake up call,' the Commission's 2024 report points to this slow pace of digital adoption and innovation at enterprise level as a major challenge to maintaining European productivity and competitiveness. Policy and funding initiatives, and the post-2027 MFF, are therefore expected to directly address the gaps highlighted above.

> ***"With limited annual progress, businesses' uptake of digital technologies remains a key challenge. Cloud adoption has increased by only 7%, falling short of the 9% needed to meet the target. There has been no noticeable improvement in AI take-up, and merely 32% of European companies have adopted data analytics. The digitalisation of SMEs is also progressing too slowly and unevenly across the EU, with an annual increase of only 2,5%, which is half of the growth rate required to achieve the target. The startup ecosystem, despite some progress – 5,6% growth in the number of unicorns – remains underdeveloped. The EU is home only to 263 unicorns (13% of the total), compared to 387 in China, and 1 539 in the USA, partly due to a lack of private capital." (European Commission, 2024)***

3.2 Green Transition – Global and EU Policy Perspectives

3.2.1 Global Snapshot – Current Trends

Sustainability issues, and climate change in particular, are at the very forefront of global concerns. Consensus on the importance of these issues - to the extent that that the world is described as facing an 'existential threat' - has grown significantly across multiple stakeholders, from institutions and governments to civil society and academia. This trend is also driven by extreme climate events experienced in all global regions with increasing intensity and frequency. A focus of global sustainability action is therefore decarbonisation, migrating from the extraction of non-renewable resources and related greenhouse gas emissions (GHGs) to renewable energy sources (RES).

Two core agendas form the global policy framework for sustainability action:

The 2030 Agenda for Sustainable Development

A United Nations global action plan that incorporates 17 Sustainable Development Goals (SDGs) targeting 'people, planet and prosperity.' In terms of a green transition this Agenda focuses on *"protecting the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations."*

This Agenda is referred to as 'the blueprint for global sustainable development' (European Union, 2016).

2015 Paris Agreement on Climate Change (PACC)

A legally binding international treaty adopted by 196 countries in December 2015. Its overarching goals is to limit global warming to 1.5°C above pre-industrial levels by the end of this century. The process involves five-year cycles of climate action implemented at national level based on documented Nationally Determined Contributions (NDCs). More recently, actions to build resilience to the impacts of climate change have also been highlighted in NDCs in addition to decarbonisation measures. The PACC has established a global framework to provide financial, technical, and capacity building support, particularly to developing countries.

A 'technology mechanism' is a key pillar of this framework, which aims to use technology development and transfer as a key driver and enabler of climate action, globally and nationally.

3.2.2 Global Snapshot – Emerging Trends

The green transition is a major disruption for industry. Climate neutrality objectives require a radical shift in the processes and technologies used for production and consumption across all sectors of the economy. At the same time, these sectors are dealing with fast-moving structural changes, including shifts in consumer habits and behaviour, new service and business models and heightened regulation and compliance. All these factors can very directly determine productivity and competitiveness.

As climate change accelerates, demanding stronger action, decarbonisation targets have increased accordingly. For most if not all industries, this triggers several energy-related issues and costs.

International organisations have therefore reinforced their calls for public institutions to prioritise effective green strategies within a robust and consistent framework that is aligned with a country's specific economic structure.

The key pillars of a national framework include renewable energy deployment; increased energy efficiency in buildings and industry; electrification of the transport and manufacturing sectors; carbon capture, utilisation, and storage; and investment in alternative fuels, such as hydrogen and hydrogen-based fuels and bioenergy.[22]

Coherence, consistency and multi-stakeholder collaboration are seen as key to this effort, optimising resource allocation and minimising inefficiencies.

[22] OECD. (2023). Driving Low-Carbon Innovations for Climate Neutrality. OECD Science, Technology and Industry Policy Paper No. 143.

3.2.3 EU Snapshot – Current Trends

The EU's green policy is built on a sustainable development platform, and this has characterised Union policy and action since 2000.[23] Focused climate policy was also introduced relatively early in global terms, with the EU Emissions Trading Scheme being introduced in 2005. The Europe 2020 strategy cemented this commitment, aligning fully with the UN's 2030 Agenda for Sustainable Development and the 17 SDGs by 2015 to guide its sustainable development efforts until 2030. At this point circular economy actions also came into focus, promoting a transition to circular economic activities within the 'green transition' framework. All these initiatives were gathered within a holistic Europe 2020 strategy, which integrated social targets in areas such as employment, education, and poverty reduction with green targets, including energy efficiency and emission reduction.

The next major policy framework has been the Green Deal, launched in 2019 with the aim of *"transforming the EU into a clean, resource-efficient, and competitive economy, in line with the goals of the Paris Agreement"* (European Commission, 2023). This was followed by the first European Climate Law, which set legal obligations for carbon-neutrality by 2050, as well as a target of 55% less emissions by 2030 (in comparison with 1990). In February 2024, the Commission also recommended an additional intermediate target of 90% less emissions by 2040.

KEY ENABLERS UNDER THE EU'S GREEN DEAL AND CLIMATE POLICY				
A socially just transition	**Investment in Green Energy**	**Updated EU Emissions Trading System**	**Important Projects of European Interest**	**Protecting biodiversity and ecosystems**
Measures to ensure a fair and just transition are factored into policy. The Just Transition Fund supports workers affected by the transition while the Social Climate Fund supports persons and small businesses negatively impacted by energy transition.	Mobilisation of green finance to fund decarbonisation and shift to clean energy. This also includes generating private and public funding. Primary funding instruments are NextGenerationEU and REPowerEU and Cohesion Policy	This system now covers more activities, motivating more economic sectors to implement clear energy reforms. This generates more revenues to be reinvested in innovation, climate action, and social support.	Designed as Union-wide initiatives directly targeting areas of common green or climate action. This deploys a specific state-aid mechanism to channel funds into green industries.	Actions aimed at achieving climate neutrality through restoring biodiversity, reducing pollution, and reducing waste. Measures will also target producers and businesses to make products and services more sustainable.

[23] A Sustainable Europe for a Better World: An EU Strategy for Sustainable Development (2001); EU Sustainable Development Strategy (2006)

3.2.4 EU Snapshot – Emerging Trends

3.2.4.1 A Focus on Industry

A recent study by the Boston Consulting Group identified four main trends driving the green transition:

- Rising regulation
- Falling costs of renewable energy
- Falling costs of cleantech
- Growing consumer interest in green products[24]

At a minimum, regulatory and consumer changes will create pressures on enterprises and sectors which are unwilling or unable to transition, negatively impacting their competitiveness. These pressures include:

- Shifting market demand toward "greener" alternatives
- Green legislation which may disrupt established inputs, processes, or supply chains
- Reduced access to capital as financial institutions decarbonise their investments

On the other hand, enterprises or sectors opting to green their products and processes opportunities can respond to the market and financing opportunities that this allows to increase their productivity and competitiveness.

Against this backdrop, in 2023 the EU issued the Green Deal Industrial Plan which works as a comprehensive package to support the transition of European economic sectors to climate neutrality. The core objective is to facilitate and support this transition through targeted measures.[25]

[24] Boston Consulting Group. (2024). Are Economic Clusters Ready for the Green Transition?
[25] Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions: A Green Deal Industrial Plan for the Net-Zero Age. 1 February 2023. COM/2023/62 final

A predictable and simplified regulatory environment	Faster access to funding	Enhancing skills	Open trade for resilient supply chains
Create a simpler, faster and more predictable framework, securing the volumes needed for raw materials, and ensuring users can benefit from the low costs of renewables.	Guarantee a level playing field within the Single Market under Competition Policy to speed up investment and financing for the green transition	Ensure a people-centred and inclusive transition to generate just outcomes and quality jobs. This will focus on a large-scale reskilling and upskilling of the workforce.	Enhance global cooperation to consolidate international trade that works within climate neutrality and environmental sustainability.
Main Initiatives			
Net-Zero Industry Act – aims to scale up the manufacturing of clean technologies in the EU Critical Raw Material Act - aims to ensure secure and sustainable supply of critical raw materials for Europe's industry and significantly lower the EU's dependency on imports from single country suppliers	Facilitate the use of existing EU funds for financing clean tech innovation, manufacturing, and deployment, with a focus on: – REPowerEU – InvestEU – Innovation Fund	– European Skills Agenda – European Education Area – European Pact for Skills	Critical Raw Materials Club – works towards a secure, sustainable and affordable global supply of raw materials essential to our green and digital transition Clean Tech/Net-zero Industrial Partnerships - supports the role of EU industrial capabilities in paving the way for the global clean energy transition.

3.2.4.2 Twinning the Transitions- EU Strategy

It is now widely acknowledged at international level that the green and digital transitions are converging. This consensus ranges from the United Nations and the OECD to the World Bank and the International Labour Organisation.

This report will focus on the EU's perspective, which has embedded the twin transition concept in its policy framework to form the central driving concept of the European Green Deal. It is also a key component of the Union's post-pandemic recovery and resilience financial instruments and interventions.

The twinning concept, now translated into tangible policy measures, amplifies the capacity of the green and digital transitions to reinforce each other. In this context, technology and innovation at scale are critical contributors to achieving climate neutrality and reducing environmental degradation within the targeted timeframes; at the same time there is some tension with the carbon footprint of digitalisation – until recently sustainability was not a prime consideration in the digital transition. This carries risks, such as pollution, high energy consumption, and overextraction of natural resources, which must be addressed and mitigated in policy terms.

This has been factored into the latest policy initiatives, including the Digital Compass and Fit for 55.[26] One of three core principles of the Fit for 55 package is in fact a support framework for the ICT sector to migrate to sustainable digitalisation, particularly through the use of renewable energy sources, and reduce the sector's own carbon footprint.

Overall, as market and regulatory pressures ramp up the need for digitalisation and sustainability, the twin transition continues to create challenges for all business sectors. Given the rapid pace of change, compounded by additional pressures caused by rising costs and geopolitical instability, these need to be decisively addressed across EU and national economic and industrial policy.

Twin Transition – Opportunities and Challenges for SMEs

The twin transition carries business-critical implications for all enterprises, particularly SMEs which may have less capacity and liquidity to identify the optimal strategy for greening or digitalising their processes. Given that SMEs make up to around 99% of all businesses in the EU, and make up over half the Union's added value, addressing the challenges they face at policy, legislative and regulatory levels is vital to achieving a twin transition that is truly just and fit for purpose.[27]

The digital and green transitions can substantially help SMEs increase their efficiency, revenues, and market share. Some emerging possibilities are assessed in the latest OECD report on SMEs.[28] On the digital front, new tech applications offer opportunities for SMEs to narrow the digital gap that has often dented their competitiveness and growth relative to large firms. One key example is cloud computing, which provides smaller businesses with targeted access to digital services over the Internet without incurring the 'traditional' investment costs in hardware and software development and maintenance. It also supports on-line and hybrid trading, which supports resilience and competitiveness.

In terms of the green transition, the circular economy and increased energy efficiency can bring multiple benefits for SMEs, including reduced intermediary costs, raised product quality, closer alignment with consumer expectations, and improved work environments. Better green infrastructure and credentials also supports access to new markets, reduces vulnerability to energy price volatility and supports internationalisation by ensuring compliance with international environmental standards.[29]

However, although the potential benefits of digitalisation and sustainability for SMEs are clear, across the EU they continue to face

[26] Communication from the Commission to the European Parliament and the Council. 2022 Strategic Foresight Report: Twinning the green and digital transitions in the new geopolitical context. Brussels, 29.6.2022 COM(2022) 289 final
[27] European Commission. (2023). Annual Report on European SMEs 2022/2023.
[28] OECD. (2024). SME and Entrepreneurship Outlook.
[29] OECD. (2021). OECD SME and Entrepreneurship Papers No. 30. No net zero without SMEs: Exploring the key issues for greening SMEs and green entrepreneurship.

several barriers to their ability to engage fully in the twin transition.

A number of these are common to both:

- Lack of information and awareness
- Lack of skilled resources
- Lack of innovation capacity
- Lack of capital.

An additional and significant challenge lies in ability of SMEs to navigate the legislative environment, not least the complex regulatory process and the costs and difficulty of compliance. A September 2024 study by the European Parliament on the impact of green and digital EU legislation on SMEs identified the following legislation as having the most impact on SMEs:

- Digital: General Data Protection Regulation (GDPR) and the Directive on measures for a high common level of cybersecurity across the Union (NIS 2 Directive).
- Green: The Corporate Sustainability Reporting Directive and the Packaging and Packaging Waste Directive. The new Ecodesign for Sustainable Products Regulation, and the Directive on common rules promoting the repair of goods are also likely to create costs.[30]

Given these legislative and capacity challenges, the study emphasises that the robust application of the 'Think Small First' principle and SME tests is essential if SMEs are to fully engage with the twin transitions. This is echoed by SMEunited, which stresses the need for simplicity and 'less is more' in the EU's approach, stating that " an SME-adapted and proportional EU legislation is key to ensure that SMEs are able to grasp the complexity of the texts and thereby to enable legislation to develop the intended legal and practical effects." [31]

SMEunited is also highlighting the need for:

- Targeted Information
- Technical assistance at local level
- Easier and better access to finance
- Targeted financial incentives to undertake the necessary investments
- Assistance in upskilling and reskilling of the workforce

As well as actions at local level that could significantly improve the landscape for SMEs, such as:

- Increasing capacity building for SME organisations at local level since these tend to be the first line of support for SMEs engaged in their digital or green transition.
- Setting up one-stop-shops to guide SMEs that are not members of any association.

[30] European Parliament. (2024). The Impact of EU Legislation in the Area of Digital and Green Transition, particularly on SMEs. Internal Market and Consumer Protection Committee.
[31] SMEunited. (2024). Shaping Europe for Crafts and SMEs: Priorities for Crafts and SMEs in EU Policy.

- Fostering the cooperation of politicians/social partners/schools and training institutes to anticipate SMEs' skills needs, avoid mismatching between businesses' requirements and actual skills available in the market, ensuring that teachers are qualified and that schools have the necessary tools to provide upskilling and reskilling.

This brief review will now focus on the policy implications of the twinning of the digital and green transitions on productivity and competitiveness. This is done through the lens of two landmark reports issued earlier this year: Antonio Draghi's 'The future of European Competitiveness,' and Enrico Letta's 'Much More than a Market.' Finally, reflecting the very latest developments at EU level, this review will conclude by glancing at the Competitiveness Compass, the initial framework for the implementation of the Draghi report launched by the European Commission on 29 January 2025

The Future of European Competitiveness

On September 9, Draghi presented his report 'The Future of European Competitiveness,' a 400-page document commissioned by the President of the European Commission, Ursula von der Leyen.

The report takes as its starting point the overwhelming challenges to European competitiveness, not least slowing world trade, fractured geopolitics, and accelerating technological change. All this compounded by the growing climate threat and the pressures to achieve climate neutrality by 2050. In industry terms this is disrupting long-established business models, raising costs, and threatening key economic dependencies in terms of supply chains and access to raw materials. European competitiveness is lagging behind other regions in innovation; its security is threatened by the geopolitical tensions within and beyond the continent.

Draghi flags the EU's slowing productivity, particularly relative to the U.S. and China, which is a major concern considering the high investment levels needed to advance the twin transitions. He states that 'raising competitiveness is necessary to reignite productivity and sustain growth.'

Urging a strong and decisive response to this finding, Draghi proposes a unified Industrial Strategy to 'reignite productivity growth and sustain economic opportunity.' He puts forward three major transformations to achieve this aim:

- Accelerating innovation and finding new growth engines
- Bringing down energy prices while continuing to decarbonise and shift to a circular economy
- Managing a world of less stable geopolitics where 'dependencies are becoming vulnerabilities'

A general stagnation in the EU's innovation activities and capacity is highlighted by Draghi as a core factor in the decline in Europe's competitive edge - in his speech presenting the report to the President of the European Commission he in fact stated that "the innovation gap is at the root of Europe's slowing productivity growth." He frames research and innovation as critical components in driving productivity growth, as well as in developing and bringing to market solutions that secure this growth sustainably, furthering decarbonisation and other green imperatives. Asserting that this innovation slowdown has bee

an incremental threat to competitiveness, he notes that the EU's "failure to meet the 3% target for R&D expenditure set by EU leaders over two decades ago is a fundamental reason why the EU lags behind the US and China."

Taking a closer look at Draghi's conclusions on why Europe's innovation is faltering, these centre on systemic flaws in the current innovation ecosystem that will require wide-scale reform to close the productivity and competitiveness gap. Key reforms include:

- Starting with the academic arm of innovation, strengthen universities capacity to operate as research 'centres of excellence' and ensure better commercialisation pathways for research outcomes.

- Make it easier for innovative start-ups to scale up in Europe by easing regulatory hurdles, achieving a better balance 'caution and innovation,' One recommendation put forward in this regard is the creation of an EU-wide legal status for such companies, in the form of a single digital identity, with access to harmonised regulation and legislation. This proposal chimes with the Single Market recommendations put forward by Enrico Letta in his report on the subject.

- Simplify the Horizon Europe funding programme to optimise participation and scale up funding accordingly.

- Work towards a more targeted use of public funds to take on 'breakthrough technologies' that would otherwise be too risky or costly for private investment.

Given the wide investment gap, however, which he estimates to be around €8 billion annually, Draghi is clear in stating that private finance is indispensable to achieving the EU's aims. He cites the better integration of Europe's capital markets as being key to this, as well as mobilising venture capital investing, particularly in higher-risk projects. The aim here is to reduce the reliance of start-ups on bank loans which may not be accessible financing for such ventures.

In terms of priority areas for digital innovation, Draghi highlights the potential of AI as a sector where the EU can compete strongly. More specifically, he concludes that Europe should focus on AI applications that will increase productivity sustainably yet competitively, targeting growth sectors in which the EU has the right capacity and track-record to compete globally. On this basis he calls for robust integration between tech and industrial policy, promoting "cross-industry coordination and data-sharing to accelerate the integration of AI into European industry."

Looking at industry beyond tech, the Draghi report acknowledges the tensions that can arise between the EU's environmental and industrial agendas, creating competitiveness constraints particularly in the short and medium term.

He therefore calls for lowering energy costs, acknowledging the role of fossil fuels and natural gas to do so, while decoupling the price of renewable-based generation to ensure the benefits of decarbonisation are transferred to end users. In the digitalisation sphere, he pushes for clean tech innovation, in addition to the more established mature technologies that the EU is known for, on the basis that the global demand for this will grow exponentially, heightening European competitiveness. In this context the report advocates that financial and non-financial support to enterprises and sectors should be highly targeted and strategic.

In terms of the strategic way forward, the Draghi report highlights policy coordination and simplification at the centre of its recommendations, citing a to date fragmented EU industrial strategy as a major limitation for sustainable growth.

Finally, Draghi reiterates that the success of the green and digital transitions depends on a socially just implementation, with a focus on securing quality jobs and ensuring enough skilled workers are available to perform them. He states that given the existing shortages in terms of both occupations and skills, the reskilling and upskilling of the EU labour force is vital.

More than a Single Market

The Single Market has been the foundation of EU economic growth and cooperation for over 30 years- this currently serves 449 million consumers and 31 million active companies, most of which are small and medium-sized enterprises (SMEs). Spurred by the same productivity and competitiveness concerns which triggered the Draghi report, the Commission also requested an independent report from Enrico Letta on the future of the Single Market in the light of new technological developments and changing geopolitical realities. The brief also highlighted the need to work towards a well-functioning single market which would drive and enable the green and digital transitions.

The Letta report was published shortly before the Draghi report and the analysis presented in both reports converge on many key points:

- Both authors conclude that the single market remains highly fragmented, stressing the urgent need for change.
- They both identify finance, energy, telecom, defence and space as key sectors where the single market needs to be deepened as a priority.
- The EU's weaknesses in innovation, prominent in the Draghi report, are also cited by Letta as a major barrier to productivity growth.
- Both reports express deep concern about shortages of workers and the skills needed to transform the EU economy.
- They stress the need to improve coordination and simplify EU rules, reducing the administrative burden for companies.

Addressing the innovation gap, a key Letta recommendation is to add a fifth freedom to the existing four as a top priority, with the aim of removing existing barriers to harmonising research, innovation, data and knowledge.

It also proposes enhanced financial integration within the single market to meet the EU's considerable investment needs to address its strategic goals, with proposals such as a savings and investments union, the creation of a new governance framework for State aid to promote a more European approach, as well as making more strategic use of public procurement.

To encourage greater dynamism in the single market, the Letta report also proposes reducing regulatory complexities by improving the design of EU law and its adoption process and the simplification of existing EU rules.

Finally, in line with Draghi's recommendations, the Letta report emphasises the need to ensure an inclusive path forward: changes triggered by single market reform should promote fair working conditions. He concludes with a strong call for robust social dialogue drive change effectively and inclusively:

> ***"Social dialogue and collective bargaining remain unique tools for governments and social partners to find targeted and fair solutions. It is essential to acknowledge the important role played by social partners in addressing today's challenges, such as climate change and digitalisation, in the context of revitalising the EU Single Market."***

An EU Compass to regain competitiveness and secure sustainable prosperity

Issued on 29 January 2025, this communication launched the Competitiveness Compass as a strategic roadmap for moving forward with the key recommendations of the Antonio Draghi report. This roadmap outlines flagship measures that will be taken to address the three transformational imperatives identified in the report.

Transformational Imperative: Proposed Flagship Measures

Close the innovation gap: Establish 'AI Gigafactories' and 'Apply AI' initiatives to drive development and industrial adoption of AI in key sectors. Design action plans for advanced materials, quantum, biotech, robotics and space technologies. Finalise dedicated EU Start-up and Scale-up Strategy to target the obstacles that are preventing new companies from emerging and scaling up.

Establish joint roadmap for decarbonisation and competitiveness: Finalise Clean Industrial Deal to set out competitiveness-driven approach to decarbonisation. Launch Affordable Energy Action Plan to bring down energy prices. Work towards tailor-made decarbonisation action plans for energy intensive sectors.

Reduce excessive dependencies and increase security: Establish Clean Trade and Investment Partnerships to secure critical supply chains. Review Public Procurement rules to favour European suppliers for critical sectors and technologies.

In addition, it identifies action that will be taken to consolidate five horizontal enablers that are essential to underpin competitiveness across all sectors.

Simplification: Drastic reduction in the regulatory and administrative burden; streamlined funding processes; simplified reporting; reduction in administrative burden for SMEs by 35%.

Reduced barriers to the Single Market: Comprehensive overhaul of the Single Market to remove intra-EU barriers; faster and more accessible standard-setting processes, particularly for SMEs and start-ups.

Financing Competitiveness: Strengthen the European capital market, including through the creation of a European Savings and Investment Union.

Promoting skills and quality jobs: Build a Union of Skills focusing on investment, adult and lifelong learning, futureproof skills creation, skill retention, fair mobility, attracting and integrating qualified talent from abroad and the recognition of different types of training to enable people to work across the Union.

Better coordination of policies at EU and national level: Introduce a Competitiveness Coordination Tool to focus on policy coherence across Member States; consolidate relevant financial instruments under a single Competitiveness Fund.

3.3 Malta – Digital and Green Policy Overview

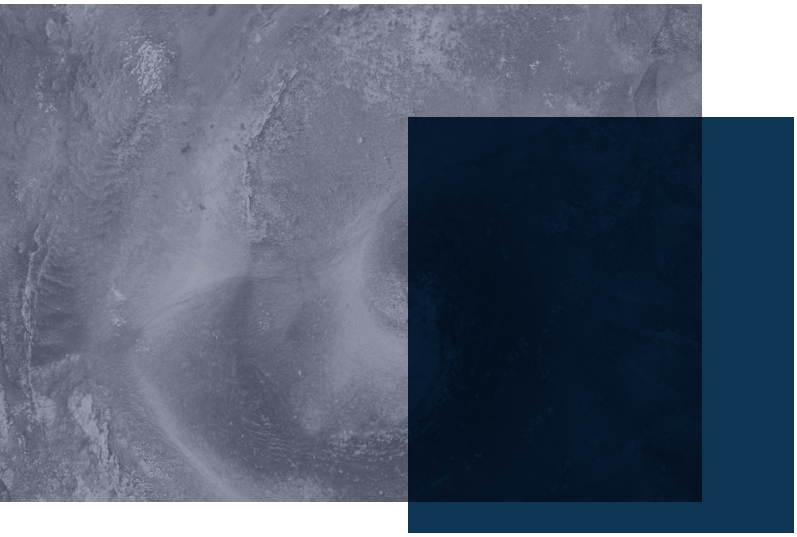
Over the last decade Malta developed a robust national digital transition policy framework that is largely in line with the EU's Digital Decade initiative.[32] The green transition has become a policy focus more recently, with a platform of strategy documents issued since 2020 dealing with different aspects of environment and climate policy. [33] Over this period each transition has generally been addressed as two parallel processes however their convergence is increasingly entering the discussion. The twinning approach is being referenced in government policy amid growing calls from social partners and other stakeholders to take an integrated and holistic approach to their implementation.

This final section of the chapter will briefly discuss the current trends in Malta's digital and green policy frameworks particularly as they relate to productivity and competitiveness, identifying key milestones and challenges, and concluding with an assessment of how far, if at all, the twinning concept is being applied.

3.3.1 Malta Snapshot – Digital Transition

As indicated in the 2021 National Productivity Report, Malta ranks above EU27 averages across the headline Digital Economy and Society Index (DESI) indicators. This pointed to a positive level of digital readiness and preparedness which could facilitate an effective digital transition. However, deeper sectoral analysis at firm level conducted for the purposes of that report suggested a more complex situation, with some significant barriers to achieving the potential productivity gains resulting from effective digitalisation.

These barriers varied from one sector to another, however a set of common gaps and challenges across sectors was identified which could limit the digital transition. These were clustered under the core enablers needed to drive digitalisation and recommendations were put forward to address them.



[32] Malta Digitali 2022-2027; Digital Decade Strategic Roadmap 2023-2030; Smart Specialisation Strategy 2022-2027
[33] National Strategy for the Environment 2050; National Energy and Climate Plan 2021-2030; Towards a Circular Economy 2020-2030.

Enabler	Challenge	2021 NPR Recommendation
Talent & Skills	Major skills and resources gap could limit digital take-up by enterprises and cause displacement of workers and loss of productivity and competitiveness. Failure to reform education system could also affect the emerging workforce and the further roll-out of the digital transition	Provide support to firms that upskill their existing employees at all levels, Support industry-led training to ensure that courses are in line with industry requirements. Introduce a sectoral digital skills audit across firms and employees as part of the announced skills census. Incentivise students to follow STEM paths. Leverage European funds to help employers and employees in their digital skill training requirements.

Enabler	Challenge	2021 NPR Recommendation
Research & Innovation	Higher intensity research and innovation is required to drive quality digitalisation. The 2021 analysis indicated a significant lack of awareness in many sectors of the digital innovation opportunities that could improve their productivity and competitiveness. The core importance of innovation in a digital age is emphasised in both the Draghi and Letta reports.	Raise awareness of sector-specific technologies through targeted information and demonstration events at enterprise level Support firms to develop technology-driven pilot projects such as automation processes, robotics, and artificial intelligence in collaboration with educational institutes that would also act as incentives for other firms. Develop more collaboration between academia and private sector especially through traineeships and dissertation projects which can serve as pilot transformation projects.

Enabler	Challenge	2021 NPR Recommendation
Finance & Incentives	The 2021 analysis identified cost as a major barrier to digital investment at enterprise level. Beyond some government support schemes in place, Maltese firms were usually constrained to use internal funds or bank facilities for such investment. Particularly given the liquidity pressures following the pandemic, these limited options need to expanded and other sources of funding made available. Although EU funds are available to support transformation, some firms (especially SMEs) lack the capacity to access them.	Develop a Digital Transformation Loan Scheme together with the Malta Development Bank to ensure access to financing for transformation projects. Launch a multi-annual EU-funded grant scheme targeting digital transformation for companies to implement specific projects across several sectors. Continue the current support packages aimed at providing technical advisory and expertise to organisations on digital transformation. Support the Gozitan economy and enterprises through additional support packages as digital transformation can allow companies to enhance their resilience to double insularity.

Enabler	Challenge	2021 NPR Recommendation
Infrastructure & Security	Fit-for-purpose national digital infrastructure is needed to support transition. This is aligned with the DPI concept highlighted by the World Bank as a critical driver for digital transformation (see above). Sector-specific digital infrastructure, particularly in high-value sectors, also needs to be in place to drive digitalisation within that sector. Finally, effective cybersecurity at national and firm level is required to mitigate the risks of handling large volumes of data.	As operators continue to roll-out 5G networks across the island to tap into the potential of national digital transformation, Government should support the creation of testing environments for IoT technologies especially around the concept of smart localities. Prioritise cyber security on a national level and treat it as a national security risk. Create awareness at firm level on cybersecurity and launch schemes to support security audits and capacity enhancement in firms and industries. Government needs to engage with economic operators to understand whether any sector-specific infrastructure is needed to facilitate digital transformation in specific sectors. Facilitate digital infrastructure audits for industry to assess their infrastructural capacity to embark on digital transformation.

Enabler	Challenge	2021 NPR Recommendation
Policy & Governance	Enterprises and sectors investing in digitalisation need the comfort of a robust and coherent policy framework that can guide their decision-making. An integrated and holistic approach is required, as opposed to piecemeal measures, which also allows space for industry-specific concerns.	Launch a national industry 4.0 strategy to truly leverage Malta's potential as a value-added manufacturing centre of excellence Together with the Local Council Association start a process to develop a smart city vision for Malta's villages and launch pilot projects. Develop an open data portal on a national level to support evidence-based analysis and innovation. Digital public services are often a foundational element for broader digital transformation and Government needs to continue with the design and delivery of digital public services. Continually review government's legal framework and enforcement mechanisms to ensure that data governance is given the needed priority and focus by all public and private entities and authorities.

3.3.2 Digital Transition – Current State of Play

Although some of the strategic actions recommended in the 2021 NPR have been initiated to some degree, the challenges highlighted then continue to affect the pace of Malta's digital transition.

Since 2021 Malta has secured access to significant EU funds targeted for the digital transition, these are sourced mainly from the implementation of its Recovery and Resilience Plan – this allocates 26% (EUR 67.6 million) of its total Recovery and Resilience Facility budget to digital transformation. This is supplemented by an additional EUR 129 million (17% of the country's total funding) under Cohesion Policy.

The EU's Digital Decade policy programme sets a coherent policy framework to drive the transition, with Malta's national roadmap setting country-specific actions and targets in line with the EU's collective objectives. This is complemented by the Malta Digitali Strategy 2022-2027 which has been assessed by the European Commission as being aligned with the Digital Decade strategy, providing an important measure of policy coherence. [34]

In its 2024 Country Report on Malta, the European Commission assesses the progress of Malta's digital transition against the Digital Decade targets.

This assessment highlights the following:

- Although Malta performs above the EU average on digital skills, shortages in the labour market persist. Incentives have been introduced to attract students to STEM subjects, however the Commission states that **"there is room for more targeted measures to ensure that skilled talent can support the increasing uptake of advanced technologies and facilitate more research and innovation by Maltese enterprises."**

- There has been progress on 5G and fibre coverage which strengthens Malta's connectivity. Nationwide overall 5G coverage was achieved in 2022 and, at 70%, fibre coverage in 2023 surpasses the EU27 average of 64%. The next priority is to improve coverage on essential spectrum bands for advanced applications requiring large spectrum bandwidth. At 20%, 5G coverage on the 3.4-3.8 GHz pioneer band is significantly below the EU average of 41%. Spectrum in the 700 MHz and 26 GHz bands remains unassigned.

- Maltese enterprises, including SMEs, have a high level of digitalisation. The use of advanced digital technologies is significantly above EU27 averages among Maltese enterprises, specifically the use of big data analytics, cloud computing and artificial intelligence is above EU average. However, despite this level of penetration, the full productivity potential of digitalisation is not being fully realised, mainly due to a gap in skills and innovation.

3.3.3 Malta Snapshot – Green Transition

Malta is committed to a green transition, not only within the framework of the European Green Deal and the Fit for 55 targets but also within the sustainable development principles which frame national social and economic policy. At EU level, Malta's commitments are set out in the recently updated National Energy and Climate Plan which was finalised with the European Commission in January 2025; this Plan works towards a total reduction of 41% in emissions by 2030 compared to 2005 levels.

National sustainability policy is then articulated in the Malta's Sustainable Development Strategy for 2050 published in April 2024, which lays out five strategic goals which the Government states form an overarching ***'strategic policy direction for the environmental protection and socio-economic development of the Maltese Islands.'***

[34] European Commission. (2024). Report on the State of the Digital Decade: Malta.
[35] European Commission. (2024). 2024 Country Report – Malta. COM(2024) 618 final
[36] The Ministry for the Environment, Energy and Public Cleanliness. (2024). Malta's National Energy and Climate Plan. https://commission.europa.eu/publications/malta-final-updated-necp-2021-2030-submitted-2025_en?prefLang=da

3.3.4 Green Transition – Current State of Play

Whereas Malta has a stable foundation and relatively coherent policy framework for digitalisation, the conditions for its green transition towards EU and national climate and sustainability objectives are more complex and challenging. This is highlighted in the European Commission's 2024 Country Report on Malta which states that ***"Malta faces difficulties to balance strong economic growth with environmental sustainability."*** The same report registers some improvement in green capacities, although these remain below EU27 averages across a number of key areas. It concludes that ***"the policies and measures currently in place are not sufficient to reach Malta's 2030 effort sharing target."*** Policy and action gaps are highlighted in terms of:

- concrete measures to advance Malta's climate targets
- effective institutional frameworks for climate adaptation
- addressing emissions from road transport and buildings
- climate adaptation strategies
- sustainable water management
- the ircular economy.

These are the key sustainability challenges flagged in the 2024 Country Report on Malta, based on relevant data indicators captured in the same report

- **Continued dominance of fossil fuels:** renewables currently generate only 13.4% of Malta's energy, one of the lowest shares in the EU and well below the indicative 2030 target of 28%.

[37] Ministry for the Environment, Energy and Regeneration of the Grand Harbour. (2024). Malta's Sustainable Development Strategy for 2050.

- **Steep increase in final energy consumption and a slowdown in energy efficiency gains:** Malta's final energy consumption in 2022 increased by 19.3% compared to 2021; buildings (41%) and transport (43%) are by far the largest consumers, with industry accounting for only 12% of demand.

- **Increasing traffic congestion and emissions:** greenhouse gas emissions from road transport have increased by 23.3% compared to 2005 levels.

- **Slow adoption of electric vehicles:** electric vehicles made up only 0.8% of the passenger car fleet in 2022. A lack of publicly accessible charging points is a factor in this low demand.

- **Lack of sustainable water management systems:** this is a growing concern due to rising demand and increased water scarcity. Only 37% of Malta's surface water bodies are in a good ecological status and 53% in a good chemical status. Groundwater is under strain from municipal water supply, agriculture, tourism, and population growth.

- **Deficiencies in waste management systems:** Malta generates a very large amount of municipal waste and most of it is landfilled. Municipal waste generation stood at 618 kg per capita in 2022, among the highest in the EU. The recycling rate for municipal waste was only 13.6% in 2021, far below both the EU27 average of 48.6% and the 2020 target of 50%. Construction and demolition waste is a further issue.

- **Continued threats to biodiversity and nature protection:** Overdevelopment, lack of effective enforcement of Natura 2000 land and marine sites, and unsustainable agricultural practices continue to threaten Malta's natural assets.

- **High rates of construction and lack of green infrastructure:** Rapid growth in construction is having major environmental impacts, including land sealing, construction waste, and poorer air quality. High levels of soil sealing (19.4% of the total country area compared to the EU27 average of 2.23%) and limited green spaces in urban environments is decreasing resilience to heat waves and negatively impacting the quality of life of residents.

Access to Green Funds

As with the digital dimension, Malta has access to high levels of external funding for its green transition. 68.8% (EUR 226 million) of Recovery and Resilience funds are allocated to measures that support climate objectives. Cohesion policy funds are also available for sustainability investment; in the current programming period significant funds have in fact been allocated particularly to the energy sector to increase efficiency and improve the energy mix. Major upcoming projects are the development of the second electricity connector linking Malta to Italy and investment in energy storage solutions.

3.4 Malta's Digital and Green Transitions – Horizontal Challenges Impacting Competitiveness

As discussed above the specific issues and challenges facing Malta's delivery of the two transitions varies from one to the other. The starting point for each also differs: a firmer framework holds for digitalisation and a number of basic readiness and preparedness factors are in place; the policy and action framework for the green dimension is less mature while the climate and sustainability vulnerabilities remain high.

However, taking a twin transition approach, two fundamental barriers can be identified which are common to both. In each case, these barriers can directly decrease Malta's productivity and competitiveness, limiting the capacity of enterprises and sectors to navigate either transition effectively or cost-efficiently.

A lack of green and digital skills

Skills shortages and mismatches, and low education outcomes are a significant barrier to both transitions. This persistent gap limits the capacity of enterprises and sectors to invest in the necessary digital or green solutions to transition their operations and processes effectively, while also discouraging the necessary investment. A number of government policies have been deployed to address this issue, including the National Employment Policy 2030, and high levels of EU funding are being allocated to address this gap, however the issue remains pressing.

Low levels of research and innovation

Malta's research and innovation activity has been consistently lower than the EU27 average, due largely to a lack of specialised skills as well as low levels of public expenditure in the sector. Both factors have limited both private and public innovation capacity. Public investment has in fact remained largely static over the past decade, out of step with the economy's growth and diversification over the same period. A further issue for enterprises is the difficulty in accessing finance. Potential solutions lie in increasing public investment, facilitating access to finance for the private sector, and redesigning linkages between the academic and business sectors. Comprehensive reforms in the education and training systems to realign these with green and digital skills needs will also generate more STEM skills and boost innovation capacity.

3.5 Conclusion

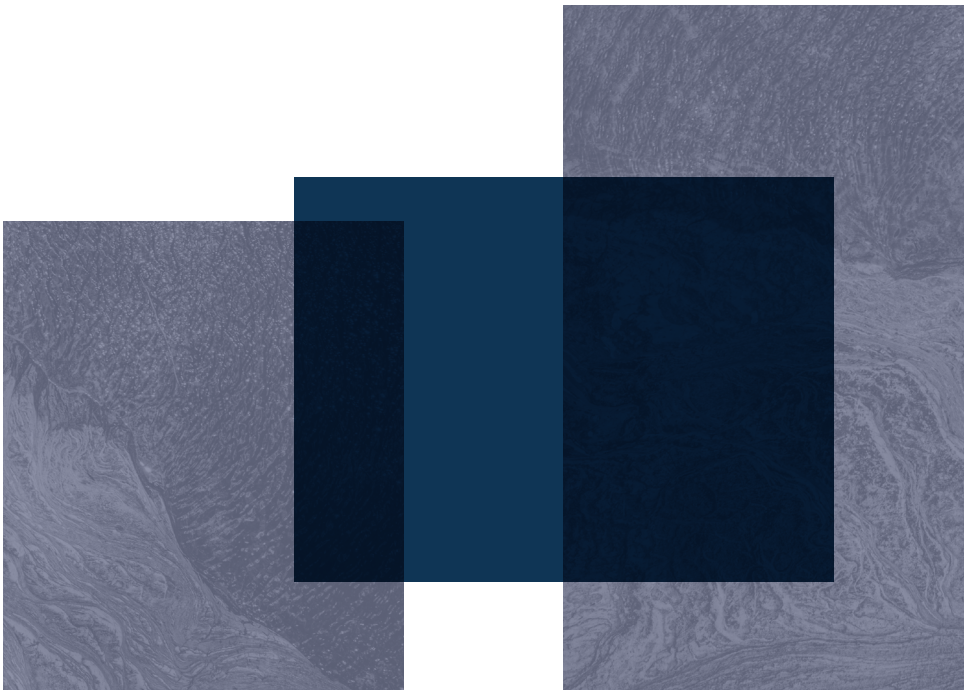
This chapter has explored the global and European frameworks that define the twin transition, emphasising how digital and green transformations are mutually reinforcing and critical to addressing contemporary challenges. The chapter highlighted the twin transition's capacity to enhance productivity through improved investment efficiency, better resource allocation, and innovative practices, while also noting the environmental risks associated with digitalisation and the complexity of aligning these dual priorities.

From the global perspective, the chapter outlined how digital and green investments can mitigate investment inefficiencies, foster resilience, and open pathways for sustainable growth. Case studies from advanced economies such as Germany, Denmark, Singapore, and the Netherlands underscored the tangible productivity benefits achieved when digital and green strategies are pursued in tandem. The transformative potential of digital public infrastructure, artificial intelligence, and circular economy initiatives stood out as central themes, showing how these tools can optimise industrial operations, improve energy efficiency, and create competitive advantages.

At the European level, the EU's Digital Decade and Green Deal policies have set ambitious targets for sustainability and digital transformation, aiming to drive competitiveness while addressing climate change. However, challenges such as uneven SME digitalisation, regulatory fragmentation, and underinvestment in advanced technologies remain significant barriers. For Malta, these insights are especially relevant, as the country must navigate similar constraints within its unique socio-economic and geographic context.

Malta's journey toward the twin transition is already underway, supported by access to significant EU funding and guided by national strategies such as Malta Digitali and the Sustainable Development Strategy for 2050. While the country has made progress in digital infrastructure and renewable energy adoption, key gaps persist in areas such as SME capacity, waste management, and green infrastructure. These challenges call for more integrated and targeted interventions to fully leverage the twin transition's potential to boost productivity and sustainability.

Chapter 4 will build on these findings by delving into the specific impacts of the twin transition on productivity and competitiveness in Malta. By linking the policy frameworks and trends discussed in Chapter 3 with local realities, the next chapter will explore how Malta can adopt tailored solutions to harness the opportunities of digital and green transformations while addressing its structural constraints. The analysis will provide actionable insights into how the twin transition can become a cornerstone of Malta's strategy for sustainable growth.



4

THE TWIN TRANSITION AND PRODUCTIVITY IN MALTA

The twin transition is not merely a theoretical concept; it is a practical strategy with profound implications for economic growth, resource management, and environmental sustainability. For Malta, this dual transformation offers a unique opportunity to redefine its productivity landscape, leveraging the synergies between digital and green advancements to address long-standing challenges and secure a competitive edge in the global market.

Chapter 4 examines how the twin transition directly influences productivity through multiple dimensions, including market efficiency, innovation, resource optimisation, and workforce development. By integrating digital tools such as artificial intelligence, big data analytics, and IoT with green practices like renewable energy adoption and circular economy principles, Malta can unlock significant productivity gains.

These gains, however, are contingent on addressing existing barriers such as skill mismatches, limited infrastructure, and regulatory complexities.

Drawing on data and case studies presented in earlier chapters, this chapter contextualises the twin transition within Malta's socio-economic reality. It explores how digitalisation can reduce transaction costs, enhance decision-making, and enable data-driven strategies across sectors. Simultaneously, it highlights how green investments can lower energy costs, improve resource efficiency, and create resilient supply chains, positioning Malta as a leader in sustainable economic practices.

The chapter also considers the unique challenges Malta faces as a small island state, including its reliance on imported energy, limited natural resources, and the need for scalable solutions that align with its constrained geographic and economic context. Tailored interventions will be critical, particularly in sectors where digital and green technologies can deliver the greatest impact, such as manufacturing, tourism, and public services.

Ultimately, this chapter aims to demonstrate how the twin transition can become a catalyst for sustainable productivity in Malta. By fostering innovation, improving investment efficiency, and aligning policy priorities, Malta can position itself as a model for other small economies navigating the complexities of digital and green transformations. The discussion will provide a roadmap for policymakers, businesses, and stakeholders, emphasising actionable strategies to harness the twin transition's full potential.

4.1 The Twin Transition and Productivity

The twin transition has become a focal point in contemporary research due to its profound implications for productivity across various sectors.

By addressing climate risks and reducing greenhouse gas emissions, green investments align firms with long-term environmental sustainability goals. This reduces risks associated with regulatory compliance and increases operational efficiency, particularly in energy-intensive industries. Additionally, the adoption of digital technologies reduces transaction costs, enhances data-driven decision-making, and minimises over-investment by improving monitoring and forecasting capabilities. These benefits are critical in ensuring resource optimisation and improved marginal returns on investment.

The impact of the twin transition on investment efficiency has been the topic of analysis in a recent working paper by the European Investment Bank (2024).[38]

[38] European Investment Bank (2024), The impact of the digital and green transitions on investment inefficiency, Economics – Working Papers 2024/04

The paper primarily investigates the impact of the twin on corporate investment efficiency of 4,892 European firms, using data from 2021–2023. From the data analysed, the EIB found that 64% of firms under-invest (defined as when firms forgo projects that have a Net Present Value and hence fail to pursue investment opportunities that would add value to the firms). It reveals the following key points, including quantified impacts where applicable:

Reduction in Investment Inefficiency

Green investments are found to significantly reduce investment inefficiency, particularly for under-investing firms.

Digital investments also correlate strongly with reduced investment inefficiency with statistically significant results both for the whole sample and particularly for under-investing firms.

Moderating Effect of Digital on Green Investments

The study identifies a statistically significant moderating effect of digital investments on green investments for over-investing firms. Specifically, digital technologies amplify the positive impacts of green investments on investment efficiency, though this effect is observed primarily in over-investing firms.

Industry and Regional Variances

The construction and transportation industries exhibit the highest levels of investment inefficiency while manufacturing firms perform significantly better in terms of resource allocation efficiency. Regional differences are also notable, with firms in Central and Eastern Europe experiencing higher inefficiency than their Western and Northern European counterparts. Western and Northern Europe show the highest adoption rates for both green (around 50%) and digital investments.

The study concludes that the twin transition holds immense potential to enhance investment efficiency across sectors and regions in the European Union. Policymakers are encouraged to support firms' adoption of green and digital technologies through subsidies or tax incentives and to promote integrated strategies where digital technologies complement green initiatives, particularly for firms prone to inefficiencies.

These findings underscore the broader economic benefits of the twin transition, advocating for simultaneous advancements in digitalisation and sustainability to achieve optimal productivity outcomes.

4.2 Case Studies

There are several international examples on the implementation of the twin transition and the subsequent impacts on productivity. The following section shall outline some of these cases.

Country: Germany
Investment: Industry 4.0 for Manufacturing Industry
Focus: Green and Digital Transition

Overview: Germany's Industry 4.0 initiative exemplifies the twin transition by integrating advanced digital technologies like robotics, IoT, and artificial intelligence into manufacturing processes while prioritising sustainability. The initiative aims to enhance productivity and reduce environmental impact, making Germany a global leader in green and digital manufacturing.

Why it Impacts Productivity: Industry 4.0 improves allocative and technical efficiency by minimising idle capacity and reducing waste throughout the production process. Furthermore, the integration of energy-efficient machinery reduces energy costs as a proportion of gross value added (GVA), enabling firms to achieve economies of scale. Germany's leadership in sustainable digital manufacturing strengthens its comparative advantage in high-tech exports, fostering growth in gross domestic product (GDP).

Source: Federal Ministry for Economic Affairs and Energy. (2020). Germany's Industry 4.0 Strategy. Retrieved from **https://bmwi.de.**

Country: Denmark
Investment: Smart Energy and Digital Grid Systems
Focus: Green and Digital Transition

Overview: Denmark is recognised globally for its leadership in integrating digital and green technologies to optimise energy systems. The country's **Smart Grid Strategy** integrates RES like wind power with digital technologies, including IoT-enabled smart meters and real-time data analytics. These systems allow for dynamic electricity demand and supply monitoring, ensuring more efficient energy consumption across sectors.

Why it Impacts Productivity: By improving energy efficiency, Denmark has reduced production overheads for energy-intensive sectors, enhancing factor productivity. The reduced marginal cost of electricity lowers operational expenses for firms, allowing reinvestment into core activities or technological upgrades. Additionally, the stability of renewable energy supply mitigates volatility in energy inputs, improving output predictability across industries. Denmark's energy strategy positions its economy to benefit from productivity gains without sacrificing long-term sustainability.

Source: Danish Energy Agency. (2020). Smart Grid in Denmark. Retrieved from h**ttps://ens.dk.**

Country: Singapore
Investment: Sustainable Smart City Development
Focus: Green and Digital Transition

Overview: Singapore's Smart Nation Initiative integrates digital technologies with sustainability to enhance urban productivity. Key projects include IoT-enabled smart water systems that detect leaks and optimise water usage, as well as green building technologies designed to improve energy efficiency. These innovations have placed Singapore at the forefront of sustainable urban development.

Why it Impacts Productivity: The optimisation of water and energy systems contributes to cost-efficiency and improves Singapore's capital productivity. Businesses operating in smart buildings benefit from reduced overhead costs due to lower energy consumption, translating into increased net operating margins. Moreover, Singapore's focus on sustainable infrastructure attracts foreign direct investment (FDI) in green technologies, boosting its capital stock. The improved liveability of urban spaces also enhances human capital productivity as workers experience healthier living environments.

Source: Urban Redevelopment Authority. (2022). Singapore Smart Nation Report. Retrieved from **https://ura.gov.sg**.

Country: The Netherlands
Investment: Circular Economy through Digital Platforms
Focus: Green and Digital Transition

Overview: The Netherlands is a global leader in promoting a circular economy, integrating digital platforms to enhance resource reuse and recycling. Digital marketplaces such as Excess Materials Exchange (EME) connect companies to trade excess materials, reducing waste and supporting sustainability.

Why it Impacts Productivity: The circular economy improves cost efficiency by lowering input costs and optimising supply chain operations. Firms experience higher productivity due to reduced reliance on virgin raw materials, which are often subject to price volatility. By integrating blockchain technologies to track material flows, Dutch companies enhance supply chain transparency, mitigating delays and reducing transaction costs. This results in greater allocative efficiency and strengthens the Netherlands' position as a global leader in sustainable logistics, increasing export competitiveness and aggregate economic output.

Source: Dutch Ministry of Infrastructure and Water Management. (2021). Circular Economy Report. Retrieved from **https://government.nl.**

4.3 EU Progress Towards the Twin Transition

The European Monitor of Industrial Ecosystems (EMI), a project launched in 2022, provides information on the evolution of 14 industrial ecosystems and Member States towards the twin transition, notably by examining some of its key enablers. The 14 industrial ecosystems include aerospace and defence, agri-food, construction, cultural and creative industries, digital, electronics, energy-intensive industries, energy-renewables, health, mobility – transport – automotive, proximity, social economy and civil security, retail, textile and tourism.

The 2024 report[39] provides the following key trends, as highlighted in Figure 31. This comprehensive analysis underscores the EU's advancements and challenges in industrial ecosystems transitioning towards green and digital futures. A continued focus on innovation, investments, and skills development is critical for maintaining global competitiveness and achieving sustainability goals.

KEY EU TRENDS IN ACHIEVING A TWIN TRANSITION

Uptake of Digital and Green Technologies

69% of SMEs achieved basic digitalisation by 2022, below the EU's 90% target for 2030.

Significant investments were reported: 49% of SMEs increased digital technology spending, while 42% focused on green technologies.

Ecosystems such as aerospace, defence, and cultural industries lead in digital investments, with high adoption of IoT, AI, and robotics in areas like healthcare and mobility.

Energy-saving technologies are prevalent in agri-food and textiles, with 20% adoption across ecosystems.

Circular business models, such as leasing, are gaining traction but remain limited due to complexity and costs.

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[39] European Commission (2024), COMMISSION STAFF WORKING DOCUMENT, First annual report on key findings from the European Monitor of Industrial Ecosystems (EMI), Accompanying the document Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions "The 2024 Annual Single Market and Competitiveness Report", (COM (2024) 77 final)

Environmental Impacts of Industrial Ecosystems	Net greenhouse gas emissions decreased by 0.3% from 2010 to 2021, with energy-intensive industries and agri-food sectors lagging. Material extraction declined slightly, driven by reductions in construction, although energy and agri-food sectors saw increases. Land and water usage grew at a compound annual rate of 1%, primarily driven by agri-food and tourism.
Venture Capital & Equity Trends	Investments in digital and green tech peaked in 2021 and 2022 but dropped in early 2023. Sectors attracting the most investment: Digital: Retail, electronics, and mobility Green: Mobility, agri-food, and retail.
Foreign Direct Investment	The EU has negative FDI balances in renewables and agri-food, driven by outflows to the US and UK. Electronics and energy-intensive industries maintained positive FDI balances, with Germany leading intra-EU investments.
Skills Supply and Demand	Green Skills—Construction and energy-intensive industries have the highest prevalence of green skills, though demand for such skills remains below 3% of total job postings, except in renewables. Digital Skills - Cultural and creative industries, aerospace, and defence lead in digital skill adoption. AI and advanced IT skills are increasingly in demand, but supply remains limited in tourism and textiles.

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Innovation Capacity	The EU excels in green technologies, particularly wind power, but trails China and the US in digital technologies like AI and robotics. The EU retains strong positions in renewable energy, advanced manufacturing, and IoT but faces growing competition in solar power.
Production Capacity	The EU is self-sufficient in most industrial ecosystems but relies on imports for AI and Big Data. Advanced manufacturing and renewable energy technologies contribute significantly to the EU's production portfolio.
Scaling Up	The EU lags behind the US in the number of scale-ups but has shown progress in mobility, energy-intensive industries, and electronics. With targeted policies, the EU is on track to meet its Digital Decade goal of 500 unicorns by 2030.

Figure 31 : Key Trends for the EU in the implementation of the twin transition
(Source: EMI, author adaptation)

4.4 Malta's Twin Transition

In addition to the European Commission's working paper on implementing the twin transition at an EU level, the Commission also prepares country fact sheets for every Member state. Figure 32 highlights the key trends emerging from this report, "Monitoring Industrial Ecosystems—EU Member States Fact Sheets: Malta," as published in June 2023.

KEY EU TRENDS IN MALTA'S PATH TO ACHIEVING THE TWIN TRANSITION

Uptake of Digital and Green Technologies

Malta ranks 19th among EU countries in patent applications in the Digital industrial ecosystem.

Significant emphasis on Big Data and Artificial Intelligence, where it ranks 9th and 16th globally in patent applications, respectively.

Production indicators show Malta's highest output is in Digital Mobility and Big Data-based products.

Malts is establishing itself as a cluster of excellence when it comes to digital game developed with the University of Malta Institute of Digital Games being at the core coupled with a strong number of global players setting up locally.

The ICT sector contributed 8.2% to Malta's GDP in 2020. Malta specialises in Advanced Materials and Nanotechnology, maintaining the highest national share in green technology patents.

Green technologies, such as Wind Power and Biomass, have seen oscillating trends in Malta's global patent shares over the decade.

Production of green technology-based products has seen a slight decline but remains a key focus area.

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Environmental Impacts of Industrial Ecosystems	Malta has been an active player in technologies like wind and biomass energy. However, their global share has fluctuated, indicating inconsistent international competitiveness. Land and resource optimisation are increasingly becoming key targets, driven by Malta's size and resource constraints.
Venture Capital & Equity Trends	Venture capital investments predominantly flowed into Renewable Energy, Creative and Cultural Industries and Retail. Cultural industries in Malta are linked to tourism services, sports, gambling, and casinos. Major startups in renewable energy focus on essential materials for electric vehicles and energy storage systems.
Foreign Direct Investment	Trade surplus observed in technology-based products related to Health, Digital, and Electronics ecosystems. Malta has shown resilience in exports despite its small size, capitalising on niche technology markets like AI, Big Data, and health.
Skills Supply and Demand	Advanced digital skills are evident in high patent activity in Big Data and AI sectors. Malta has emphasised building expertise in Advanced Materials, mainly through nanotechnology, though skill shortages in renewable energy and advanced production technologies persist.

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Innovation Capacity	Malta ranks relatively high globally in Advanced Materials and Digital technologies, focusing on Big Data, Artificial Intelligence, and nanotechnology. The country has leveraged its small size and strategic positioning to carve out a niche in high-tech innovation, particularly in fields critical to the green and digital transitions.
Production Capacity	The share of production in Advanced Materials and Nanotechnology has slightly declined from 2010 to 2020 but remains a significant contributor to Malta's industrial output. Digital technology-based production, particularly in Big Data and Digital Mobility, highlights Malta's capacity to adapt and innovate.
Scaling Up	Malta demonstrates strong entrepreneurial dynamics, with private equity investment supporting startups in renewable energy and cultural industries. Key growth areas include renewable energy supply chains and tourism-related technological services.

Figure 32 : Malta's key trends in the implementation of the twin transition 2024
(Source: Malta's EMIs fact sheet, Author's adaptation)

Malta's positioning as a small yet innovative EU Member State underlines its capacity to focus on niche technology areas. The report notes that Malta can serve as a model for smaller nations aiming to optimise their contributions to the EU's twin transition towards green and digital futures. Yet several challenges remain for Malta, as shown in Figure 33, and their impacts on productivity.

Declining Production in Advanced Technologies

Observation:
The production of advanced technology-based goods, such as Advanced Materials and Nanotechnology, has experienced a slight decline over the last decade. However, recent investments announced by industry leaders as part of a broader EU strategy has strengthened Malta's positioning.

Productivity Impact:
Although there has been a reduced production output recent initiatives and investments will support its transition to a higher-tech, higher-margin industrial structure.

Small Market and Scale Limitations

Observation:
Malta's small domestic market restricts the ability of startups to achieve economies of scale.

Productivity Impact:
Scale constraints prevent firms from realising increasing returns to scale, keeping average costs high and reducing allocative efficiency across industrial ecosystems. This diminishes the potential output of the economy.

Lack of funding

Observation:
While private equity and venture capital investment have increased, the lack of scale-up opportunities hinders the expansion of production and innovation activities.

Productivity Impact:
Lack of funding opportunities for innovation and scale-up can hinder productivity gains that are driven by these companies.

Limited Skill Availability

Observation:
Malta faces a mismatch between the domestic supply of and demand for skills, particularly in emerging fields such as Artificial Intelligence (AI), Big Data, and renewable energy systems. This constraint is exacerbated by a lack of vocational and tertiary programs tailored to industrial needs.

Productivity Impact:
A shortage of skilled labour lowers labour productivity, resulting in diminishing marginal returns to investment in technology and innovation. This slows the pace of knowledge diffusion and reduces Malta's competitiveness in global value chains.

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Inconsistent Trade Balance	**Observation:** Malta's trade surplus in Health, Digital, and Electronics products is undermined by fluctuating competitiveness in green technologies such as wind and biomass energy. Such volatility reduces the country's reliability as a technology supplier in global markets. **Productivity Impact:** Fluctuating trade balances can lead to inefficient resource allocation, reducing export-driven productivity gains. This affects Malta's terms of trade, limiting its ability to generate surpluses for reinvestment in high-value sectors.
Inadequate Renewable Energy Infrastructure	**Observation:** Despite investment in renewable energy technologies, Malta faces barriers to deploying large-scale projects due to land constraints and limited infrastructure. There is scope to consider greater use of our offshore resources however the cost involved need to be considered to ensure financial sustainability. The improvement in technology in these areas can increase opportunities in these areas, though decisions should be made on a rigorous cost-benefit analysis. In addition, Malta should support efforts to improve market efficiencies in the European Energy Grid. **Productivity Impact:** Constraints on renewable energy deployment reduce energy efficiency, increasing production costs and limiting industrial competitiveness. High energy costs act as a drag on multifactor productivity (MFP) and the cost structure of Maltese firms.

Figure 33 : Malta's main challenges in the implementation of the twin transition and the impacts on productivity (Source: authors)

Digital Transformation Pillar		RELATIVE TO EU AVERAGE	MT DESI 2021 %	MT DESI 2022 %	MT DESI 2023 %	3YR AVERAGE %	3YR TREND	YR ON YR TREND
Digital Skills	Enterprises Providing ICT Training (% enterprises)		28.0	28.0	28.0	28.0		
	ICT SPecialists (% individuals in Employment 15 - 74)		4.3	4.7	4.8	4.6		
	ICT Graduates (%graduates)		6.0	6.5	6.6	6.4		
Digital Infrastructure	At least 100 Mbps Broadband Take-up (% households)		45.0	54.0	60.0	53.0		
	At least 1Gbps Broadband Take-up (% households)		1.2	2.5	6.4	3.4		
	Fixed VHCN (% households)		100.0	100.0	100.0	100.0		
	Fibre to the Premises Coverage (% Households)		41.0	48.0	56.0	48.3		
	Overoll 5G Coverage (% Populated Area)		.	20.0	100.0	40.0		
Digitalisation of Businesses	SMEs with at least a basic level of Digital Intensity (% SMEs)		N/A	N/A	78.0	78.0		
	Electronic Information sharing (% enterprises)		32.0	39.0	39.0	36.7		
	Big Data (% enterprises)		30.0	30.0	30.0	30.0		
	Cloud (% enterprises)		N/A	48.0	48.0	48.0		
	AI (% enterprises)		N/A	10.0	10.0	10.0		
	e-Invoices (% enterprises)		22.0	22.0	22.0	22.0		
	SMEs selling online (% SMEs)		24.0	26.0	30.0	26.7		
	e-Commerce Turnover (% SME turnover)		9.0	7.0	8.0	8.0		
	Selling online cross-border (SMEs)		N/A	13.0	13.0	13.0		
Digitalisation of Public Services	e-Government users (% internet users)		.	N/A	83.0	83.0		
	Digital Public Services for Citizens (Score 0 to 100)		.	100.0	100.0	100.0		
	Digital Public Services for Businesses (Score 0 to 100)		.	97.0	97.0	97.0		
	Pre-filled form s (Score 0 to 100)		.	87.0	88.0	87.5		

Figure 34 : Malta's digital transition dashboard (source: EC (2023), DESI - Digital Decade Country Report for Malta, author's computation)

Malta's digital transformation metrics reveal several important trends across different sectors. In terms of digital skills, the country has maintained a steady rate of 28% of enterprises providing ICT training throughout the period. There has been modest but consistent improvement in the number of ICT specialists as a percentage of the workforce, rising from 4.3% to 4.8%. Similarly, the proportion of ICT graduates has shown steady growth, increasing from 6.0% to 6.6%.

The digital infrastructure domain demonstrates solid progress. Broadband coverage has improved substantially, with households having access to at least 100Mbps internet increasing from 45% to 60%. Even more impressive is the growth in 1Gbps broadband adoption, which jumped from 1.2% to 6.4%. Malta has maintained complete Very High-Capacity Network (VHCN) coverage at 100% throughout the period. Fibre to the Premises coverage has significantly improved, from 41% to 56%. Perhaps most notably, 5G coverage of populated areas has achieved complete coverage, expanding dramatically from 20% to 100%.

In terms of business digitalisation, the metrics present a mixed picture. A substantial 78% of SMEs have achieved at least a basic level of digital intensity. Electronic information sharing among enterprises has improved from 32% to 39%. Several metrics have remained stable, including big data usage at 30%, cloud adoption at 48%, AI implementation at 10%, and e-invoicing at 22%. The percentage of SMEs selling online has shown improvement, increasing from 24% to 30%, though e-commerce turnover has slightly decreased from 9% to 8%.

The digitalisation of public services stands out as a particular strength. E-government usage among internet users is high at 83%. Digital public services for citizens have achieved a perfect score of 100 out of 100, while digital services for businesses are nearly as strong at 97 out of 100. The pre-filled forms metric shows solid performance at 87.5 out of 100.

These figures show that Malta has made significant strides in digital infrastructure and public service delivery while maintaining steady progress in digital skills development. The business sector shows some positive developments but also indicates areas where further digital adoption could be beneficial.

GREEN TRANSFORMATION PILLAR	RELATIVE TO EU AVERAGE	MT DESI 2021 %	MT DESI 2022 %	MT DESI 2023 %	3YR AVERAGE %	3YR TREND	YR ON YR TREND
Share of Energy from Renewable Sources (%)		12.63	13.97	15.08	13.89	●	●
Total Environmental Goods and Services Sector (% of GDP)		2.44	.	.	2.44	●	●
Persons Employed in Circular Economy (% of total FTE)		1.90	.	.	1.90	●	●
Private Investment related to Circular Economy (% of GDP)		1.10	.	.	1.10	●	●
Resources Productivity (ratio of GDP over domestic material consumption)		2.63	3.24	3.52	3.13	●	●
Circular Material use rate (% share of material recycled)		19.20	21.50	19.80	20.17	●	●
Air emissions related to road transport	N/A	291,107.27	.	.	291,107.27	●	●
Domestic material consumption		159.59	147.52	151.10	152.73	●	●
Domestic extraction		80.05	73.58	73.58	75.74	●	●
Waste treatment		601.0	626.0	600.0	609.0	●	●
Waste generated (kg per capita)		642.0	611.0	618.0	623.67	●	●
GHG emissions from production activities (kg per capita)		3,620.34	3,705.70	.	3,663.02	●	●
Average CO2 emissions per km from new passengers cars		107.50	91.40	91.50	96.08	●	●

Figure 35 : Malta's green dashboard (source: Eurostat, authors computations)

Malta's green transformation metrics, shown in Figure 35, reveal progress and challenges across various environmental indicators from 2021 to 2023. The data shows several noteworthy trends in renewable energy adoption, resource management, and emissions.

Renewable energy adoption has shown consistent improvement. The share of energy from renewable sources steadily increased from 12.63% in 2021 to 15.08% in 2023, averaging 13.89% over the three-year period. This upward trend indicates Malta's growing commitment to sustainable energy sources.
The circular economy indicators present a mixed picture. The environmental goods and services sector represents 2.44% of GDP, while employment in the circular economy accounts for 1.90% of total full-time equivalent positions. Private investment in the circular economy stands at 1.10% of GDP.

Resource productivity has shown significant improvement, with the ratio of GDP over domestic material consumption increasing from 2.63 to 3.52, suggesting more efficient use of resources.

Material usage and waste management metrics show some concerning trends. While the circular material use rate initially improved from 19.20% to 21.50% in 2022, it declined to 19.80% in 2023. Domestic material consumption has fluctuated, starting at 159.59, dropping to 147.52, and settling at 151.10. Domestic extraction has decreased from 80.05 to 73.58, remaining stable in the most recent period.

Waste management presents particular challenges. Waste treatment volumes have remained high, hovering around 600-626 kg per capita over the period. Per capita waste generation has shown a slight improvement, decreasing from 642 kg to 618 kg per person. However, greenhouse gas emissions from production activities have increased from 3,620.34 to 3,705.70 kg per capita.

On a positive note, vehicle emissions show improvement, with average CO2 emissions per kilometre from new passenger cars decreasing from 107.50 to 91.50. However, there was a slight uptick in the most recent measurement. Road transport remains a significant contributor to air emissions, with a reported measurement of 291,107.27 units.

These metrics suggest that while Malta is progressing in areas like renewable energy adoption and resource productivity, challenges remain in waste management and emissions reduction. The data indicates a need to continue improving circular economy metrics and reducing greenhouse gas emissions from production activities.

4.5 Conclusion

The twin transition, encompassing both digital and green transformations, is poised to reshape productivity across key dimensions such as market and resource allocation, accumulation of production factors, internationalisation, and technological and sociological change, as identified earlier in this report. The impact of these dimensions is analysed accordingly.

- Market and Resource Allocation: Digitalisation offers tools like data analytics, artificial intelligence (AI), and blockchain, enabling improved transparency and efficiency in governance. These technologies enhance resource allocation by reducing bureaucratic inefficiencies and promoting equitable distribution. Concurrently, the green transition prioritises sustainable resource use, supported by financial incentives for green projects. However, businesses face potential risks, such as increased non-performing loans during the adjustment period, which could potentially impact market stability.

- Accumulation of Factors of Production: The twin transition creates pathways for increasing human capital productivity by addressing education and training gaps. Digital platforms enable scalable, accessible training that aligns workforce skills with emerging industries like AI, renewable energy, and circular economy practices. Additionally, the digital transformation simplifies business registration and compliance processes, lowering entry barriers for entrepreneurs. Business investment is expected to rise as firms adopt smart technologies and green infrastructure, fostering a virtuous innovation cycle and productivity growth.

- Internationalisation: The twin transitions enhance Malta's appeal as an investment hub by fostering trade openness and increasing its foreign direct investment (FDI) attractiveness. Strategic geographic positioning and a focus on digital and green technologies can position Malta as a leader in renewable energy systems and digital innovation services. However, meeting global regulatory standards and addressing environmental compliance could present short-term challenges.

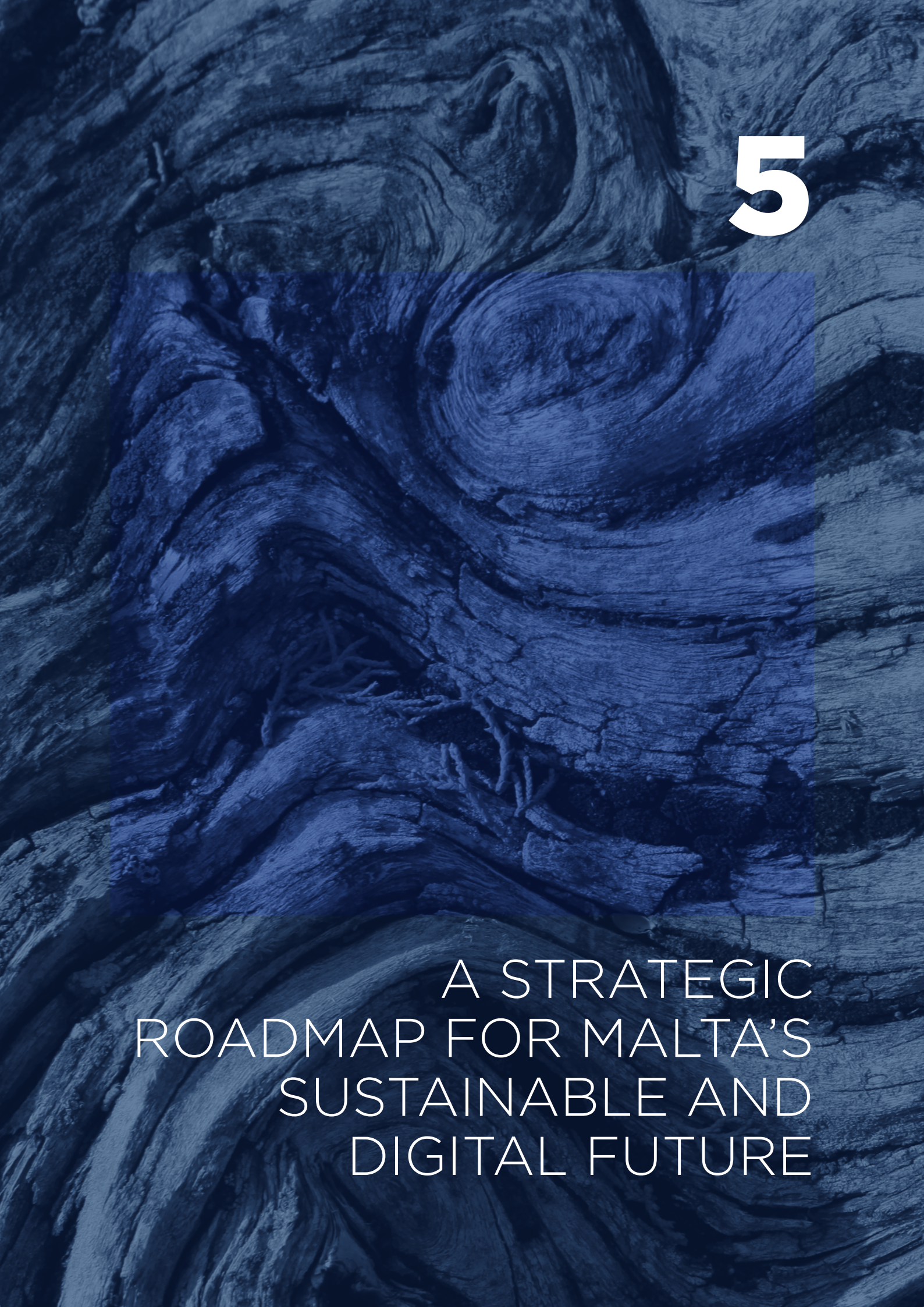
- Technological and Sociological Change: Digitalisation and sustainability transitions stimulate entrepreneurship and business dynamism. Startups leveraging these trends are likely to increase, fostering innovation and competition. As R&D spending grows in AI, renewable energy, and sustainable manufacturing, Malta's industrial base can diversify and scale. Improvements in digital infrastructure and internet penetration will further bolster the Digital Economy and Society Index, reflecting progress in digital readiness.

This chapter has highlighted the transformative potential of the twin transition to reshape Malta's productivity and competitiveness landscape. By integrating digital and green advancements, Malta can address critical structural challenges, from resource inefficiencies to sectoral stagnation, while capitalising on emerging opportunities for innovation and growth. The analysis emphasised the importance of targeted interventions, particularly in key areas such as digital infrastructure, renewable energy adoption, SME transformation, and workforce development.

As outlined, Malta's ability to successfully navigate the twin transition hinges on addressing persistent bottlenecks. These include gaps in governance, insufficient skills alignment, and underinvestment in technologies that drive sustainable and digital growth. At the same time, the twin transition provides Malta with a unique opportunity to leverage EU funding, enhance sectoral resilience, and position itself as a leader among small states in implementing scalable, impactful solutions.

The final chapter transitions from analysis to action, presenting a cohesive set of recommendations derived from the findings in this report. These recommendations are categorised into foundational elements, strategic priorities, and enabling factors, ensuring a holistic approach to addressing Malta's challenges. Each recommendation will outline actionable steps, emphasising the importance of stakeholder collaboration, measurable outcomes, and a commitment to inclusivity and sustainability.

By synthesising the insights and data presented in the previous chapters, the final chapter aims to provide a clear and practical roadmap for Malta's twin transition. It underscores the need for immediate action, bold leadership, and a shared vision to transform Malta's economic potential into tangible, sustainable progress. Through these recommendations, Malta can solidify its commitment to productivity, resilience, and long-term prosperity in an increasingly competitive global environment.



5

A STRATEGIC ROADMAP FOR MALTA'S SUSTAINABLE AND DIGITAL FUTURE

Malta stands at the forefront of a profound transformation that is reshaping economies globally—the twin transition of green and digital advancements. This shift is not merely a reaction to external pressures but a deliberate strategy to future-proof Malta's economy, enhance resilience, and ensure sustainable growth. The twin transition provides an unparalleled opportunity for Malta to address structural challenges, such as resource inefficiencies, skills mismatches, and dependency on external markets, while unlocking new avenues for innovation, productivity, and competitiveness.

The green transition aims to reduce environmental impact by promoting renewable energy, resource efficiency, and sustainability across sectors. Simultaneously, the digital transition focuses on integrating cutting-edge technologies, such as artificial intelligence (AI), big data, and the Internet of Things (IoT), into industries and public services. Together, these transitions create a powerful synergy, enabling Malta to modernise its economic framework while meeting environmental and technological goals.

This chapter outlines ten strategic recommendations that provide a comprehensive roadmap for Malta to leverage the twin transition effectively. The recommendations are designed to be high-level, avoiding prescriptive numerical targets, and adaptable to the country's evolving socio-economic context. They focus on three overarching priorities: strengthening governance, fostering innovation, and empowering sectors critical to Malta's economic transformation. Each recommendation is supported by detailed action points and SMART indicators, which serve as tools for implementation and evaluation.

Structure of the Recommendations

Each recommendation presented in this chapter follows a structured approach:

1. Analysis and Rationale: Each recommendation begins with an analysis of the current challenges and opportunities in the relevant domain, drawing on Malta's unique characteristics and the broader European and global context.

2. Action Points: Action points provide specific, practical steps for implementing the recommendation. These steps are designed to be actionable and achievable within a realistic timeframe while ensuring alignment with existing national and EU frameworks.

3. Indicators: To track the effectiveness of the proposed initiatives, each recommendation includes two types of indicators:

- Lead Indicators: These measure progress at early stages of implementation. They are process-oriented and track milestones such as the launch of initiatives, completion of studies, or establishment of frameworks. Lead indicators allow policymakers to evaluate whether actions are on track during the early phases.

- Lag Indicators: These measure the outcomes and impacts of initiatives over time. They assess long-term results, such as reductions in emissions, increases in productivity, or shifts in workforce capabilities. Lag indicators provide a broader picture of whether the initiatives have achieved their intended goals.

The inclusion of both lead and lag indicators ensures a balanced approach to monitoring. While lead indicators enable real-time course corrections, lag indicators help assess the overall effectiveness and sustainability of the initiatives.

Key Principles Guiding the Recommendations

Throughout the chapter, several key principles are emphasised:

- Adaptability: The recommendations are designed to be flexible, enabling policymakers to adjust strategies as new challenges and opportunities arise.
- Inclusivity: Initiatives are structured to ensure that all segments of the population and economy benefit from the twin transition, including marginalised groups and underserved sectors.
- Alignment: All actions are closely aligned with Malta's existing national strategies and EU directives, ensuring coherence and access to funding and technical support. In particular, care has been taken to ensure consistency with the latest developments in the EU's competitiveness strategy, especially in relation to the 'Competitive Priorities' defined in the Draghi report.[40]

Proportionality

This chapter aims to equip Malta with the tools and strategies needed to navigate the twin transition effectively. By balancing ambition with feasibility and leveraging the power of collaboration, Malta can emerge as a leader in sustainable and digital transformation.

5.1 Strengthening Coordination and Policy Alignment

Governance is the foundation of any successful transformation. For Malta, the challenge lies not in a lack of initiatives but in ensuring that efforts are cohesive, adaptive, and impactful. Fragmentation and overlapping responsibilities remain significant barriers to progress, particularly in aligning green and digital priorities. Instead of creating new administrative structures, Malta should enhance the capacity and coordination of existing mechanisms, ensuring they are responsive and aligned with EU frameworks. This echoes a headline finding in the Draghi report, which calls out a lack of focus and consistency - in both policy and action - as a key barrier to truly 'reigniting' European competitiveness and 'industrial dynamism.' Effective policy alignment in EU and national industrial, competition and trade policies is in fact identified as one of the core building blocks of Draghi's way forward. Draghi therefore advocates a joined-up approach across all three areas, taking a sectoral approach rather than one focused on companies, backed by robust public engagement and implementation monitoring strategies.

Applying Draghi's recommendation to the local context, policy alignment can be achieved by streamlining inter-ministerial coordination processes and fostering stronger collaboration with private sector stakeholders. Regular stakeholder engagement forums, integrated into existing mechanisms, can ensure continuous dialogue, monitor progress, and adapt policies to emerging challenges. Developing an overarching framework for integrating green and digital policies is essential. This framework would serve as a strategic blueprint, ensuring that all initiatives are complementary and mutually reinforcing. This approach ties in with Draghi's emphasis on integrating decarbonisation and competitiveness policy and action, deploying different policy tools and approaches for different industries, with clean digital tech acting as a horizontal driver for sustainable growth. Draghi in fact identifies the joint planning of

[40] Draghi, M.(2024). The future of competitiveness - In-depth analysis and recommendations.

decarbonisation and competitiveness as the second of three main areas of action to propel sustainable growth.

Finally, monitoring progress at national level is essential for maintaining accountability and achieving outcomes. Enhancing existing data collection and reporting tools to provide a transparent view of policy impacts will help Malta adjust its strategies dynamically. This approach ensures that governance remains responsive to new opportunities and risks, without burdening the system with additional layers of oversight.

Action Points:

- Designate a lead institution to oversee the alignment of green and digital priorities across government bodies and coordinate with EU frameworks.
- Develop an overarching Green and Digital Policy Integration Framework by leveraging existing national strategies and aligning them with EU directives.
- Institutionalise stakeholder engagement forums within existing governance structures to facilitate continuous dialogue and ensure broad-based participation.
- Enhance data collection and analytics capabilities through the development of a centralised digital dashboard to track and adapt initiatives dynamically.

Indicators:

- Lead Indicators: Establishment of a lead coordinating body within existing institutions; publication of an integrated policy framework by a specified timeline.
- Lag Indicators: Improved alignment of national strategies with EU directives and increased stakeholder satisfaction as measured through annual assessments.

5.2 Investing in Infrastructure to Support the Transition

Modernising infrastructure is central to Malta's ability to achieve the twin transition. While progress has been made in areas such as renewable energy integration, significant gaps remain in digital connectivity, transport networks, and energy systems. Investments in resilient and adaptable infrastructure are needed to support both green and digital transformations, with a particular emphasis on multi-modal transport solutions and smart technologies.

In energy, the priority should be upgrading the grid to support renewable energy sources, adopting smart energy management systems to enhance efficiency; and increasing energy security . The earlier reference to the integration of decarbonisation and competitiveness strategy applies strongly here. The Draghi report clearly addresses the pitfalls of failing to adopt this coordinated approach, stating that this carries the "risk that decarbonisation could run contrary to competitiveness and growth." In this context, he highlights the need for a phased transition to 'secure, decarbonised and affordable energy' across all Member States, identifying this as a 'Competitiveness Priority' and calling for sustained and targeted investment in the necessary infrastructure to meet this objective cost-effectively.

Digitalisation is a further 'Competitiveness Priority' set out in the Draghi report, which recommends focused investment in advanced connectivity and related infrastructure. expanding high-speed broadband access to underserved areas will also ensure equitable participation in the digital economy.

Transport infrastructure and systems are a further focus area in the Draghi report. In the frame of the green transition, transport is highlighted as a priority sector for the EU's transition to a net-zero economy, given that it accounts for over one-quarter of greenhouse gas emissions (particularly road transport)[41]. This contribution is even higher in Malta, with a rising trend in emissions from road transport.[42] Transport systems therefore require a fundamental shift toward multi-modal solutions that integrate public transit, cycling, and pedestrian infrastructure with energy-efficient vehicles. Implementing a smart traffic management system can further optimise urban mobility, reducing congestion and emissions.

Collaborative funding approaches should be pursued to ensure these initiatives are financially sustainable. Partnering with EU institutions and private stakeholders can unlock resources, while aligning infrastructure projects with EU Green Deal priorities will provide access to additional support.

Action Points:

- Upgrade the energy grid to support renewable energy integration, with a focus on smart energy management and storage solutions.
- Develop a multi-modal transport strategy that integrates public transit, cycling lanes, pedestrian infrastructure, and electric vehicle networks.
- Implement a Smart Traffic Management System to optimise urban mobility, reduce congestion, and improve air quality.
- Leverage EU funding mechanisms and private investment to support the development of energy, digital, and transport infrastructure projects.

Indicators:

- Lead Indicators: Completion of feasibility studies and funding agreements for major infrastructure projects within two years; establishment of pilot multi-modal transport initiatives by a specified timeframe.
- Lag Indicators: Increased use of public transport and non-motorised mobility options, along with measurable reductions in transport-related emissions and energy inefficiencies by 2030.

[41] European Commission. (2024). Climate Action Progress Report 2024.
[42] European Commission. (2023). Climate Action Progress Report 2023 - Country Profile (Malta).

5.3 Building Workforce Capacity for Future Growth

A skilled workforce is essential for driving and sustaining the twin transition. Malta's labour market currently faces significant challenges, including a skills mismatch, low STEM attainment, and a lack of technical expertise in key areas such as renewable energy and digital technologies. Addressing these gaps is critical to ensuring that workers can adapt to and thrive in an economy increasingly shaped by green and digital advancements. Ensuring a skilled workforce is another Competitiveness Priority specified in the Draghi Report, which describes the persistent lack of relevant and sufficient skills in Member States as a core barrier to enhanced competitiveness. The report attributes to a combination of factors affecting the performance of national education and training systems, as well as labour market dynamics. It identifies five key points of failure which, in its analysis, continue to widen the skills and labour gap:

1. the gradually deteriorating performance of the education system;
2. a shrinking active labour population;
3. limited adult learning;
4. low labour mobility;
5. poor working conditions.

This analysis, and how it applies to Malta's evolving situation, has been considered in the formulation of the action points below.

A number of these points are already covered in t he National Employment Policy, which provides a solid foundation for addressing workforce challenges, with its emphasis on upskilling, improving labour market participation, and fostering alignment between education systems and economic demands. Building on this policy, Malta must create lifelong learning pathways that allow workers to continually update their skills in response to labour market needs. Strengthening partnerships between academia, industry, and government is vital to developing sector-specific training programs in areas such as artificial intelligence, renewable energy systems, and circular economy practices. Embedding sustainability and digital literacy into secondary and tertiary education curricula will also ensure that future generations are well-prepared for the twin transition.

The policy's focus on inclusivity aligns with the need to ensure that marginalised groups, including women and older workers, have equitable access to training and upskilling opportunities. Digital platforms for skills assessment and e-learning can be leveraged to reach these audiences, overcoming traditional barriers to participation. Additionally, public-private partnerships can expand the reach and quality of lifelong learning initiatives, ensuring alignment with market needs and fostering innovation.

Action Points:

- Align all upskilling initiatives with the goals of the National Employment Policy, ensuring a cohesive approach to workforce development.
- Establish sector-specific training programs in collaboration with academia and industry, focusing on high-demand areas such as AI, renewable energy, and digital marketing.
- Integrate sustainability and digital literacy into secondary and tertiary curricula to prepare younger generations for future challenges by fully implementing the 2025-2030 Digital Education Strategy
- Develop a national e-learning platform to provide accessible, on-demand training for workers across all sectors.
- Launch public-private partnerships to fund and implement lifelong learning initiatives, ensuring alignment with labour market needs.

Indicators:

- Lead Indicators: Launch of sector-specific training programs and the national e-learning platform within two years, with specific emphasis on sectors identified in the National Employment Policy.
- Lag Indicators: Increased participation in training programs from underrepresented groups and measurable reductions in the skills mismatch, as evidenced by labour market surveys and employer feedback.

5.4 Enabling SME Transformation

Small and medium-sized enterprises (SMEs) are the backbone of Malta's economy, yet they face unique challenges in adopting green and digital practices. Limited financial resources, technical expertise, and awareness often prevent SMEs from fully leveraging the benefits of the twin transition. They often also face cumbersome regulatory requirements which stretch their capacity constraints. Targeted support is therefore essential to empower SMEs to innovate, improve efficiency, and access new markets.

The crucial role of SMEs in reigniting Europe's competitiveness is a core theme of the Draghi report, which pushes for a renewed focus on burden reduction for such enterprises and, crucially, on the full and effective entrenchment of proportionality in EU law.

A number of actions are therefore clustered under this recommendation aimed at supporting SME resilience, growth and innovation. One key initiative is the creation of a centralised knowledge hub that provides SMEs with resources, case studies, and advisory services tailored to their needs. This hub can guide SMEs through the process of adopting digital tools, such as cloud computing and IoT, as well as sustainable practices, such as energy efficiency and waste reduction. Additionally, fostering industrial clusters can facilitate collaboration among SMEs, larger firms, and research institutions, enabling them to share resources and expertise.

The concept of working within industrial clusters to advance the twin transitions and secure growth and competitiveness is fast gaining traction in Europe and beyond, particularly within a decarbonisation context. In very general terms, industrial clusters are ***"geographic concentrations of interconnected companies and institutions in a particular field."***[43] Collaboration across firms within such clusters carries clear benefits for SMEs, driving common growth, increasing competitiveness and facilitating the sharing of resources; it also provides a stronger platform for engaging with institutions in the development of relevant policies and measures. The cluster concept is evident in the Draghi report, which takes a highly sectoral approach in its analysis and recommendations, recognising the different needs and challenges of particular sectors and the value of harnessing collaboration within them to stimulate innovation and enhance value chains. One specific recommendation made by Draghi in this regard is the deliberate creation of industrial clusters in Energy-Intensive Industries to drive and support a purpose-built decarbonisation strategy for each sector.

Access to financing remains a significant barrier for SMEs. Simplifying application processes for green and digital funding programs, while providing targeted capacity-building workshops, can ensure that SMEs have the tools and knowledge to secure financial support. By aligning these efforts with existing EU initiatives, Malta can unlock additional resources for SME transformation. This must include wider and better access to venture capital, which has been identified as a core requirement in the Draghi report for boosting innovation and competitiveness. The report in fact points to an under-developed venture capital market in the EU as a barrier to the emergence of more innovative SMEs and start-ups.

Action Points:

- Further develop the Business First hub of Malta Enterprise to provide tailored resources, advisory services, and case studies with a focus on the twin transition.
- Foster industrial clusters through existing stakeholder organisations to encourage collaboration among SMEs, larger enterprises, and research institutions.
- Simplify access to green and digital funding programs by streamlining application processes and offering targeted workshops.
- Promote digital and green certification programs to help SMEs access new markets and meet regulatory requirements.

Indicators:

- Lead Indicators: Establishment of the knowledge hub and delivery of workshops on funding opportunities within the first year of implementation.
- Lag Indicators: Increased SME participation in green and digital initiatives, along with measurable improvements in resource efficiency and market competitiveness.

[43] This is the most widely used definition in use, originally coined by Michael E.Porter in the Harvard Business Review (1998).

5.5 Supporting Innovation through Collaborative Ecosystems

Innovation is a key driver of productivity, and Malta has significant potential to lead in green and digital technologies. However, this requires the creation of an ecosystem that encourages collaboration among businesses, researchers, and policymakers. By fostering innovation hubs and public-private partnerships, Malta can catalyse the development of new technologies and business models that align with the twin transition.

An immediate priority is establishing a national innovation ecosystem that connects stakeholders across sectors. This approach is in line with the findings of the Draghi report, which recommends a wide and deep reform of the innovation ecosystem in Europe to close the innovation gap between the EU and its competitors. This reform starts with improving the quality and capacity of research institutions within Member States to develop innovative products and services with commercial value, and the creation of a vibrant innovative start-up ecosystem to take these to market. This ecosystem should provide access to R&D facilities, mentorship programs, and funding opportunities, creating an environment where innovative ideas can flourish. Annual innovation challenges focusing on sustainability and digital transformation can further stimulate creativity and cross-sector collaboration.

In addition to fostering local innovation, Malta should leverage international partnerships to access cutting-edge research and technology. Collaborative agreements with EU research centres and global think tanks can bring valuable expertise and resources to Malta, enabling it to punch above its weight in the innovation landscape.

Action Points:

- Replicate and extend the DiHubMT – European Digital Hub launched by the Malta Digital Innovation Authority across other sectors.
- Host annual innovation challenges to stimulate creative solutions in sustainability and digital transformation.
- Develop collaborative agreements with EU research centres and international think tanks to access cutting-edge expertise.
- Strengthen the existing seed funding and incubation services to support the development of green and digital startups.

Indicators:

- Lead Indicators: Creation of the national innovation ecosystem and establishment of partnerships with EU research centres within two years.
- Lag Indicators: Increased R&D activity and the number of successful green and digital startups emerging from Malta's innovation ecosystem.

5.6 Facilitating Access to Green and Digital Financing

Access to financing remains a critical barrier to achieving the twin transition in Malta. Despite the availability of EU funding and sustainability-linked financial instruments, many businesses—particularly SMEs—struggle to navigate complex application processes and secure the resources needed to adopt green and digital technologies. To overcome these challenges, Malta must establish a streamlined, accessible financing framework that supports both public and private initiatives in these areas.

Rather than creating new financial mechanisms, the focus should be on simplifying access to existing funding opportunities, such as EU programs, green bonds, and sustainability-linked loans. This can be achieved by creating a centralised advisory platform that provides businesses with guidance on funding applications, eligibility criteria, and best practices for implementation. Capacity-building workshops can further enhance the ability of businesses, particularly SMEs, to secure and utilise financing effectively.

Collaboration between public and private sectors is also critical. By fostering partnerships with financial institutions, Malta can develop innovative financing solutions tailored to the needs of local businesses. For example, blended financing models can combine public grants with private loans to lower risks and encourage investment. These efforts should prioritise inclusivity, ensuring that smaller businesses and marginalised sectors of the economy can access the resources they need to participate in the twin transition.

Action Points:

- Establish a centralised advisory platform to provide guidance and resources for accessing green and digital financing opportunities.
- Conduct capacity-building workshops to improve the financial literacy of SMEs and other stakeholders regarding funding mechanisms.
- Foster public-private partnerships to develop innovative financing solutions, such as blended financing models that combine grants and loans.
- Align national funding strategies with EU Green Deal and Digital Decade priorities to maximise resource mobilisation.

Indicators:

- Lead Indicators: Launch of the centralised advisory platform and delivery of capacity-building workshops within the first year of implementation.
- Lag Indicators: Increased successful funding applications for green and digital projects and measurable growth in private sector investment in sustainability initiatives.

5.7 Advancing Circular Economy Practices

The gradual yet sustained shift to a circular economy is a core component of the digital transition, together with ongoing decarbonisation efforts. This is emphasised in the Draghi report which identifies circularity as a defining feature of the EU's competitiveness which can deliver significant opportunities if tackled effectively. On this basis, the report recommends that circular economy solutions should be built into all aspects of competition, industrial and trade policy. A circular economy (CE) therefore represents a critical pillar for Malta to achieve resource efficiency, reduce waste, and transition toward sustainability. The principles of circularity—reducing, reusing, and recycling materials—align with Malta's objectives of lowering environmental impacts while enhancing economic resilience. The Circular Economy Malta (CE Malta) initiative provides a foundational framework for implementing these practices and fostering innovation. However, challenges remain, including gaps in infrastructure, limited awareness, and insufficient incentives for businesses and consumers to adopt circular models.

To advance the circular economy, Malta should prioritise investments in infrastructure such as advanced recycling facilities and material reuse hubs. The CE Malta initiative can serve as a platform to drive collaboration between government, businesses, and research institutions, enabling innovation in areas such as sustainable product design, circular supply chains, and waste-to-resource technologies. Public-private partnerships can further accelerate progress by pooling resources and expertise.

Public awareness campaigns, led in collaboration with CE Malta, should highlight the benefits of circular practices for businesses and individuals, fostering a cultural shift toward sustainability. Coupled with targeted policy measures, such as incentives for using recycled materials and penalties for excessive waste generation, these efforts will embed circular principles into Malta's economic framework.

Action Points:

- Strengthen CE Malta as a platform for collaboration and innovation in circular economy practices, including the promotion of innovation through sustainable product design, circular supply chains and waste-to-resource technologies, and leveraging it to connect stakeholders and drive research.
- Invest in circular economy infrastructure, including advanced recycling facilities, material recovery hubs, and industrial symbiosis platforms.
- Provide incentives for businesses adopting circular models, such as tax benefits and certifications, aligned with CE Malta guidelines.
- Launch public awareness campaigns in partnership with CE Malta to promote behavioral shifts toward circularity among consumers and businesses.

Indicators:

- Lead Indicators: Expansion of CE Malta's programs and increased participation from businesses and research institutions within two years.
- Lag Indicators: Reduction in landfill waste, growth in recycled material usage, and increased adoption of circular business models, as reported by CE Malta.

5.8 Accelerating Urban Mobility Solutions

The Draghi report references the importance of sustainable yet effective transport infrastructure to a competitive economy, looking ahead to an expansion in global, regional and local transport demand which will require "unprecedented robustness of the transport sector."

Malta faces an urgent need to transform its urban mobility landscape, with the excessive reliance on private vehicles leading to congestion, air pollution, and productivity losses. Reducing the number of cars on the road is a central priority for ensuring sustainable mobility and achieving broader twin transition goals. This requires a comprehensive approach that integrates multi-modal transport systems, incentivises the use of public transit and active transport, and disincentivises private car usage.

A National Multi-Modal Transport Strategy should be developed to align investments in public transport, cycling, ferry use and pedestrian infrastructure. Expanding the electric bus fleet and creating interconnected networks of cycling and pedestrian paths will provide viable alternatives to car use. Smart traffic management systems can further optimise urban mobility, reducing congestion and improving air quality.

In addition to improving infrastructure, policies must actively discourage ICE vehicle dependency. Measures such as park and ride systems, reduced increased parking availability to serve urban centres, and financial incentives for adopting cleaner transport options, like electric vehicles or carpooling, can shift behavior. Public awareness campaigns should emphasis the personal, economic, and environmental benefits of sustainable transport, fostering a cultural shift toward reduced car ownership.

Action Points:

- Develop a National Multi-Modal Transport Strategy that prioritises the reduction of the number of private vehicles on the road.
- Expand the electric bus fleet and establish interconnected cycling and pedestrian networks to encourage active transport.
- Implement park and ride systems and increase parking availability to serve urban areas.
- Conduct public awareness campaigns highlighting the benefits of reduced car dependency and promoting alternative transport options.

Indicators:

- Lead Indicators: Implementation of park and ride systems and completion of pilot multi-modal initiatives within three years.
- Lag Indicators: Reduction in the number of registered private vehicles, increased use of public and active transport modes, and measurable improvements in air quality by 2030.

5.9 Implementing Energy-Efficient Urban Development

Urban development in Malta must address the dual challenge of supporting economic growth while reducing environmental impacts. Energy-efficient urban planning is essential to achieving the twin transition, ensuring that Malta's cities and towns are sustainable, liveable, and productive. The focus should be on integrating renewable energy, optimising resource use, and enhancing resilience in the face of climate change.

Urban development policies must prioritise energy-efficient building standards, retrofitting older structures, and promoting renewable energy solutions such as solar panels and smart energy management systems. These initiatives should align with Malta's existing sustainability frameworks and EU directives, ensuring that urban areas contribute to national climate and energy goals.

Green infrastructure—such as urban green spaces, rainwater harvesting systems, and permeable surfaces—can also play a critical role in improving urban resilience. Collaboration between local governments, private developers, and residents is vital for ensuring that energy-efficient urban development is inclusive and adaptable. By adopting smart city technologies, Malta can further optimise resource use, reduce emissions, and enhance the quality of life for its urban population.

Action Points:

- Establish mandatory energy-efficient building standards for all new developments and encourage retrofitting of existing structures with energy-saving technologies.
- Promote the adoption of renewable energy systems, such as solar panels, in urban and residential developments through incentives and streamlined permitting processes.
- Expand urban green infrastructure to enhance resilience and livability, including parks, rainwater harvesting systems, and green roofs.
- Implement smart city technologies for energy management, waste reduction, and efficient urban planning.

Indicators:

- Lead Indicators: Adoption of updated energy-efficient building codes and establishment of incentive schemes for renewable energy installations within two years.
- Lag Indicators: Reduction in urban energy consumption and increased adoption of renewable energy systems in residential and commercial buildings, measured through national energy reports.

5.10 Creating a National Digital Twin Strategy

Digital twin technology offers a transformative opportunity for Malta to optimise urban and infrastructure planning. By creating virtual replicas of physical assets, digital twins enable real-time monitoring, simulation, and predictive analytics. For Malta, adopting a National Digital Twin Strategy would enhance decision-making, resource efficiency, and sustainability across sectors, from transport to energy and urban development.

The first step is to develop digital twins for critical infrastructure, including transport networks, energy grids, and water systems. These models can help identify inefficiencies, predict maintenance needs, and simulate the impact of policy decisions. Collaboration with private technology providers and EU research institutions will ensure that Malta benefits from cutting-edge expertise and solutions.

Integrating digital twins with IoT sensors will further enhance their effectiveness, enabling real-time data collection and analysis. Training programs for public officials and urban planners will ensure that these tools are used effectively, fostering a culture of data-driven decision-making. Over time, the National Digital Twin Strategy can be expanded to include smart city applications, enhancing Malta's global competitiveness in sustainable development.

Action Points:

- Develop digital twins for critical infrastructure, including transport networks, energy grids, and water systems, as a priority initiative.
- Collaborate with EU research institutions and private technology providers to access advanced expertise and solutions.
- Integrate digital twins with IoT sensors to enable real-time monitoring and data analysis.
- Launch training programs for public officials and urban planners to build capacity in digital twin applications.

Indicators:

- Lead Indicators: Development of pilot digital twin projects for key infrastructure within three years and integration with IoT sensors within five years.
- Lag Indicators: Improved infrastructure efficiency, reduced maintenance costs, and enhanced urban planning outcomes, as measured through performance assessments.

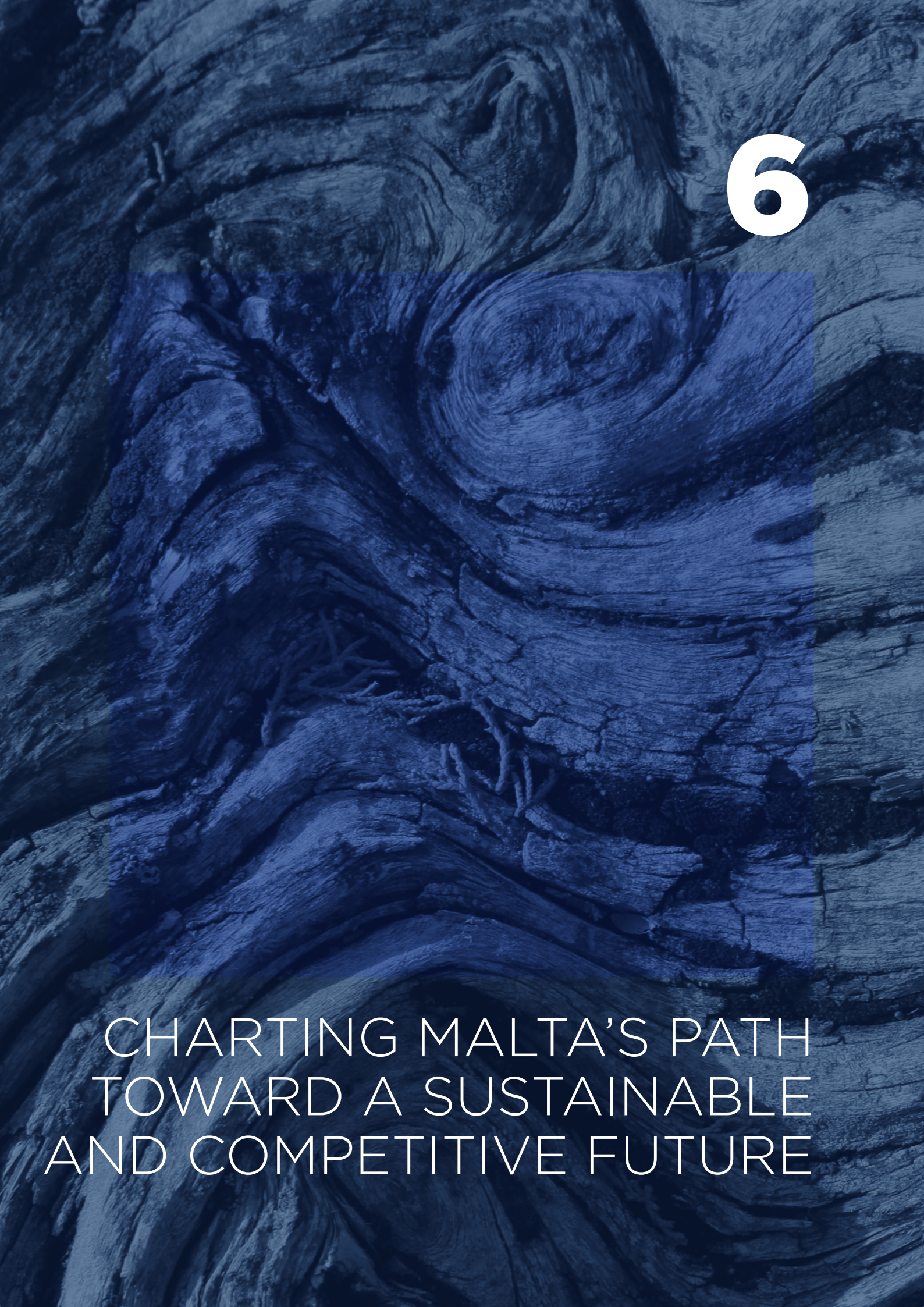
5.11 Conclusion

The twin transition represents a transformative opportunity for Malta to address its long-standing economic, social, and environmental challenges while preparing for a sustainable and competitive future. By aligning its strategies with EU frameworks and leveraging its unique strengths, Malta can overcome structural challenges and achieve long-term resilience and competitiveness.

This chapter has outlined a strategic framework that focuses on high-level recommendations to address key areas such as governance, infrastructure, workforce capacity, SME transformation, circular economy practices, and urban mobility. Rather than prescribing rigid numerical targets, the emphasis is on adaptable and actionable pathways that reflect Malta's evolving socio-economic context.

Central to these recommendations is the need for coordinated governance, investments in infrastructure, and a skilled workforce. Empowering SMEs, advancing circular economy principles, and adopting innovative technologies will further optimise resource use and improve the quality of life for all citizens. By fostering public-private partnerships, encouraging stakeholder engagement, and leveraging EU resources, Malta can ensure that its twin transition is both effective and inclusive.

In conclusion, the twin transition is more than a response to global trends—it is an opportunity for Malta to define its future. By implementing these strategic recommendations, Malta can lead by example, building a resilient economy that balances growth with sustainability and inclusivity.



6

CHARTING MALTA'S PATH TOWARD A SUSTAINABLE AND COMPETITIVE FUTURE

The journey explored throughout this report reveals a critical moment in Malta's development—a period where the challenges and opportunities presented by the twin transition converge to shape the nation's future trajectory. As Malta embraces the green and digital transformations, this report has aimed to provide a roadmap for navigating this complex yet promising journey, addressing structural vulnerabilities while leveraging the country's unique strengths.

The recommendations outlined in this report align with the principles expected to underpin Vision 2050, Malta's forthcoming long-term strategy. While the specifics of Vision 2050 are still under development, this report emphasises synergies with the anticipated goals of creating a sustainable, inclusive, and resilient economy. By focusing on green and digital transformations, Malta is well-positioned to align its national strategy with a vision that integrates productivity growth, technological innovation, and environmental stewardship.

6.1 The Green and Digital Imperative

The twin transition is not simply an economic or environmental strategy; it is a multidimensional transformation that will redefine Malta's productivity, competitiveness, and societal well-being. The green transition compels Malta to address pressing environmental challenges, such as emissions reduction, resource efficiency, and climate resilience. Simultaneously, the digital transition demands the integration of advanced technologies to enhance productivity, foster innovation, and empower individuals and enterprises to thrive in a rapidly evolving global economy.

Together, these transitions represent a critical step toward the aspirations expected in Vision 2050, where sustainability and digital innovation are integrated into every facet of Malta's socio-economic framework. By embracing these changes, Malta will not only address immediate challenges but also lay the groundwork for long-term competitiveness and quality of life improvements.

6.2 Key Insights and Themes

Governance as the Foundation for Transformation

Effective governance remains the cornerstone of Malta's ability to realise the twin transition. The emphasis on alignment across sectors and institutions ensures that green and digital initiatives are cohesive, impactful, and responsive. Strengthening institutional capacity, fostering collaboration among stakeholders, and enhancing transparency through data-driven monitoring mechanisms will enable Malta to build a governance system that supports long-term success and aligns with Vision 2050's anticipated priorities.

Modernising Infrastructure for Resilience and Adaptability

Robust infrastructure is essential to Malta's sustainable and digital transformation. Investments in renewable energy systems, broadband expansion, and multi-modal transport networks will support green and digital goals while addressing challenges such as urban congestion and energy inefficiencies. This report's recommendations reflect the need to align infrastructure initiatives with the forward-looking priorities expected in Vision 2050.

Empowering the Workforce

A skilled and inclusive workforce is central to Malta's ability to harness the twin transition. Lifelong learning pathways, sector-specific training, and targeted inclusivity initiatives ensure that Malta's workforce is equipped to meet the demands of the green and digital economy. These efforts align with the likely focus of Vision 2050 on human capital development as a pillar of national resilience.

Supporting SMEs as Engines of Transformation

SMEs are integral to Malta's economy and key drivers of innovation and inclusivity. Tailored support mechanisms, simplified financing pathways, and collaborative networks will enable SMEs to adopt green and digital practices, contributing to Malta's broader economic transformation. The emphasis on SME development is expected to resonate strongly with Vision 2050's goals.

Fostering Innovation and Circular Economy Practices

Innovation and circular economy principles are critical to achieving a sustainable future. By fostering collaboration between businesses, researchers, and policymakers, Malta can drive the development of technologies and practices that create economic value while minimising environmental impact. These strategies will support Vision 2050's likely emphasis on sustainability and innovation as engines of growth.

6.3 Strategic Opportunities for Malta

The twin transition offers Malta significant opportunities to redefine its economic and social model, aligning closely with the aspirations anticipated in Vision 2050. These opportunities include:

- Enhancing Competitiveness: By integrating advanced technologies and sustainable practices, Malta can position itself as a leader in high-value industries such as digital services, renewable energy, and sustainable tourism.
- Leveraging EU Membership: Access to EU funding, technical support, and strategic frameworks provides Malta with resources to implement initiatives aligned with long-term national goals.
- Strengthening Resilience: Green and digital transformations enhance Malta's ability to withstand external shocks while fostering long-term sustainability.
- Fostering Inclusion: The twin transition aligns with expected Vision 2050 goals of reducing socio-economic disparities, creating opportunities for marginalised groups, and promoting equitable access to resources.

6.4 Call to Action: A Unified Approach

To realise the aspirations outlined in this report, Malta must adopt a unified and collaborative approach that balances ambition with feasibility and inclusivity. The following guiding principles should underpin Malta's strategy moving forward:

Adaptability and Flexibility

The twin transition is an evolving process requiring continuous learning and adaptation. Policymakers must use data-driven insights and stakeholder feedback to refine strategies and address emerging challenges.

Public-Private Partnerships

Collaboration between public institutions, private enterprises, and civil society is essential to mobilising resources, fostering innovation, and ensuring that initiatives are inclusive and impactful.

Alignment with National and EU Frameworks

By aligning initiatives with Vision 2050, the EU Green Deal, and the Digital Decade, Malta can maximise funding opportunities, strengthen coherence, and position itself as a regional leader.

Commitment to Inclusivity

We believe that equity should play a key role in Vision 2050 by ensuring that the benefits of transformation are shared across all demographics, including SMEs, women, and older workers.

6.5 A Vision for the Future

Malta's anticipated Vision 2050 provides a long-term framework to guide the nation's sustainable and digital transformation. While its specifics are yet to be unveiled, this report emphasises the alignment of its recommendations with the principles expected in Vision 2050, underscoring a shared commitment to sustainability, innovation, and inclusivity.

The twin transition represents an opportunity for Malta to lead by example, demonstrating how small states can navigate complex global challenges while thriving in a rapidly changing world. By implementing the recommendations outlined in this report, Malta can position itself as a pioneer of green and digital transformations, driving economic growth and societal progress. This report serves as a call to action for all stakeholders—policymakers, businesses, civil society, and citizens—to work collaboratively toward a shared vision. By embracing the twin transition with boldness, determination, and alignment with Vision 2050, Malta can secure a prosperous and sustainable future for its people, setting an example for others to follow.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