

A Cost Benefit Analysis and an Economic Impact Assessment for an Airstrip Project on the Island Region of Gozo

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Table of Contents

Executive Summary.....	5
1. Introduction	7
2. Context Analysis.....	9
2.1 Territorial Context.....	9
2.2 Socio-economic Context	10
2.2.1 Economic Development.....	10
2.2.2 Demographic Developments	11
2.2.3 Labour Supply and Education	13
2.3 Gozo as a distinct destination.....	13
3. Project Description.....	15
3.1 Historical Background	15
3.2 Proposed Development	15
3.3 Implementation and Operations	17
4. Demand Analysis.....	18
4.1 Demand for Airlink between Gozo and Malta.....	18
4.1.1 Estimating the Effective Demand for the Inter-Island Air Transport Service	19
4.2 Demand for Airfield Facilities for General Aviation and Ancillary Activities.....	21
4.3 Concluding Remarks	24
5. Economic Analysis.....	25
5.1 Bases of the Economic Analysis	25
5.2 Financial Parameters and Assumptions.....	26
5.2.1 Capital Expenditure	26
5.2.2 Operational and Maintenance Costs	26
5.3 Estimation of External Effects from Airlink.....	27
5.3.1 External Costs	28
5.3.2 External Benefits.....	28
5.3.3 Other Qualitative Benefits	29
5.4 Economic Impact Assessment for General Aviation Activities	30
5.4.1 Estimation of Economic Activity from General Aviation	30
5.4.2 Economic Impact Assessment Methodology.....	30
5.4.3 Economic Contribution	31
5.5 Economic Performance.....	33
6. Risk and Sensitivity Analysis.....	35
6.1 Airlink Passenger Demand Shock.....	35

6.2 General Aviation Activities Shock	36
6.3 Fuel Cost Shock	36
6.4 Risk Assessment	36
7. Concluding Remarks and Recommendations	38

List of Figures

Figure 1: Proportion of Economic Activity by Sector in Gozo relative to Malta (2019).....	11
Figure 2: Dependency ratio and old-age dependency ratio (2019)	12
Figure 3: Schematic Diagram of the Proposed Airfield at Ta' Lambert Area in Xewkija, Gozo.....	16
Figure 4: Sectoral distribution of Value Added and Employment generated in the economy.....	32

List of Tables

Table 1: Extent of access problems indicators.....	10
Table 2: Population Structure in Gozo and Malta.....	12
Table 3: Estimates of Single Airport Passengers Between Malta and Gozo	20
Table 4: Estimates of Single Work-Related Commuters Between Malta and Gozo	20
Table 5: Comparative Sound Measurement	29
Table 6: Economic contribution in terms of value added and employment	31
Table 7: Economic contribution in terms of Tax Revenue Generated.....	32
Table 8: Economic Performance of the Project	34

Executive Summary

The Ministry for Gozo is considering the development of an eco-friendly airfield in Gozo. This project entails the regeneration of the derelict heliport at Ta' Lambert in Xewkija Gozo into an airfield to be used for the operations of small propeller-driven aeroplanes. Apart from catering for the provision of an inter-island air transport service between Malta and Gozo, the proposed airfield will be designed to facilitate the development of a general aviation ecosystem in Gozo, capitalising upon the natural advantages of the island with activities spanning from aviation training and events to the testing of technologies.

The objectives of this project are two-fold:

- i. improving connectivity and reducing travelling time between Gozo and its mainland through the provision of an alternative inter-island transport service; and
- ii. making Gozo more attractive to business and high-end visitors through the development of general aviation activities in Gozo.

This report presents a Cost Benefit Analysis of the project with a view of providing considerations that are relevant to the public consultation process. This report determines the economic viability of the project also through an Economic Impact Assessment of general aviation activities that are expected to develop in Gozo as a result of the airfield project. This study is based on information provided by the Civil Aviation Directorate within Transport Malta and assumptions thereof.

Demand Analysis

The demand analysis indicates sufficient demand for the airfield project to cater for both the inter-island service as well as general aviation operations.

The demand for the scheduled inter-island air transport service is expected to emanate from four main sources, including inbound tourists travelling to Gozo both as a twin- and a single-centre destination, Gozitans travelling abroad and Gozitan workers travelling to Malta for professional reasons. Based on regional statistics and assumptions thereof, this analysis estimates that the airlink project could potentially operate around 69,783 passenger trips in a year, amounting to 97 one-way passengers per day at an estimated average ticket price of €30 per one-way trip, including the carriage of one luggage. This airfare is in this study considered as a benchmark which should be sufficient toward the financial sustainability of the service, considering also the cost of alternative means of transportation. However, this charge could also be subject to support mechanisms and subsidies in line with any future public policy approach to render the service accessible to users.

On the basis of discussions held with potential users of the airfield for general aviation activities, the demand analysis also revealed a strong demand from general aviation operators to operate from the proposed airfield away from the congested environment at the Malta International Airport.

Economic Assessment

This project features an investment cost of around €2.5 million of which €1.6 million is attributed to the regeneration of the existing heliport into an eco-friendly airfield whilst the remaining are spent on the fleet of aircrafts. Throughout its operational period, the project is expected to incur a cost of €1.2 million per year, excluding transfer payment between different agents in the economy. This approach

considers the project in its totality, to encompass the development and operations of all facilities to cater for the transport service as well as for general aviation activities.

The economic analysis considers a number of socio-economic costs and benefits which are expected to emanate from the project. Saved travelling time between Gozo and its mainland represents the largest external benefit, estimated at €1.2 million per annum. Other economic benefits expected to emanate from the airlink project include saved road fuel costs and carbon emissions from road transport amounting to a total of €61,130 per annum. Against these external benefits, this study considers the external cost of emissions from the airlink which is estimated at €26,290 per annum. It is worth noting that the land which is earmarked for the development of the project is owned by Government and is currently not in use except in cases of emergency by air ambulance helicopters. Thus, no opportunity cost of land is considered in this study.

Furthermore, this report considers the impact of general aviation activities from a macroeconomic perspective in terms of potential value added, employment and tax revenue to be generated in Gozo. The development of such activities is expected to directly generate an annual average of €895,777 worth of value added, 20 FTE jobs and €304,908 in tax revenues. These benefits are expected to be generated as a result of an increase in turnover and tourism expenditure resulting from the development of general aviation activities in Gozo. When considering all the multiplier effects, these benefits increase to €2.5 million worth of value added, 48 FTE jobs and €844,460 in tax revenues.

Considering only the direct effects generated from general aviation activities together with other net benefits to be generated from the inter-island air transport service, this project is expected to render an Economic Net Present Value of €10.4 million consistent with a social discount rate of 5%, an Economic Rate of Return of 30% and a corresponding Benefit-to-Cost ratio of 2.06.

Risk and Sensitivity Analysis

The positive results identified in the Economic Analysis are considered against risks which may impact the economic feasibility of the project. This study identified three critical variables which could potentially cause major shocks to the performance of the project, including a reduction in passenger demand for the scheduled inter-island air transport service, a reduction in economic welfare benefits expected to emanate from general aviation and an increase in the price of fuel for piston engine islander aircrafts.

The risk assessment is conducted through the computation of switching value for critical variables, indicating the extent of shocks required to each variable to reduce the ERR of the project to zero. This assessment revealed that the net economic benefits of the project are resilient also to the most extreme shocks that could take place.

1. Introduction

Characterised by its smallness, peripherality and double insularity, the island of Gozo presents a distinct yet complementary economic offering to that of the main island of Malta. Gozo's potential as a distinct destination for both business and tourism activity is however hampered by the same geographical characteristics which have inevitably deterred economic activity on the island, leading to socio-economic disparities between Gozo and its mainland. In particular, the lack of connectivity to the main commercial hubs has discouraged various investors to look into the distinct opportunities that the island of Gozo has to offer.

Indeed, the Gozo Regional Development Authority (GRDA) has been set up to address Gozo's specific needs and exploit Gozo's potential towards further development of the region through place-based interventions. The *Gozo Regional Development Strategy for the period 2021-2030*¹, which the GRDA has recently launched for public consultation, seeks to improve Gozo's economic offering particularly by increasing the attractiveness of the region and exploring new areas of economic development.

A project which could potentially address these objectives is the Eco-friendly Airstrip which is proposed to be developed at Ta' Lambert area in Xewkija Gozo. As outlined in the Gozo Regional Strategy consultation document, efforts will be directed towards the establishment of,

“a fixed wing airlink between Gozo and the mainland that respects the natural environment. Such a link should complement the sea link, whilst providing a convenient and less time-consuming inter-island transfer for tourists and Gozitans alike between Malta International Airport and Gozo.”

Government's intention to study the possibility of an airlink between Malta and Gozo has been cited in a number of policy documents and strategies concerning the island of Gozo throughout the past years. The 2006 *Gozo and Comino Local Plan*² had already accentuated the need to evaluate the viability and implications of constructing an airstrip in Xewkija Gozo for the provision of a fixed-wing service between Gozo and mainland Malta. Moreover, the *Integrated Territorial Development Strategy for Gozo 2017-2020*³ also highlighted Government's intention to study the possibility for Gozo to be accessed directly through an airlink which would not only provide an alternative inter-island connectivity service between Gozo and its mainland, but would also promote Gozo as a distinct destination of choice, boosting Gozo's tourism offering. The *Civil Aviation Policy for Malta 2022-2030*⁴ which was recently published for consultation, refers to Government's intention to enhance the aviation facilities in Gozo to re-establish communication by air to and from the island with possible opportunities for aviation related activities that could potentially create new jobs and skills and enhance creativity and innovation in Gozo.

Against this background, this report presents a Cost Benefit Analysis (CBA) to assess the economic feasibility of the proposed eco-friendly airfield project, with a view of providing considerations that are relevant to the public consultation process. It also provides an Economic Impact Assessment of the general aviation and other ancillary activities which are expected to develop in Gozo as a result of the project.

¹https://grda.mt/wp-content/uploads/2021/07/GRDA_Gozo-Strategy-Report_VH_WEB_OP2.pdf

²<https://www.pa.org.mt/file.aspx?f=8F0DB0BB569DF5B7A6C19C78570B4FE6B1F55AC49A65498A>

³https://meae.gov.mt/en/Public_Consultations/MEAE/Publishing/Images/Pages/Consultations/PublicConsultationonanIntegratedTerritorialDevelopmentStrategyforGozo2017-2020/Gozo%20Strategy_FINAL.pdf

⁴ https://meae.gov.mt/en/Public_Consultations/MTI/Documents/aviation%20v2.pdf

Following this brief introduction, Chapter 2 sets out the context of the project through an analysis of Gozo's territorial and socio-economic developments, highlighting in particular the challenges encountered as a result of its characteristics and its potential as a distinct destination. Subsequently, Chapter 3 provides a description of the project, whereas Chapter 4 provides an analysis of the demand for the project, both in relation to the scheduled inter-island air transport service as well as the airfield facilities which will cater for general aviation and ancillary activities. Chapter 5 deals with the economic feasibility of the project and presents an Economic Impact Assessment for general aviation and other ancillary activities expected to develop as a result of the project, in terms of value added and employment to be generated in Gozo. This is followed by Chapter 6 which provides a risk and sensitivity assessment with respect to three exogenous shocks, and Chapter 7 concludes with final remarks and conclusions.

2. Context Analysis

This Chapter sets out the context for the proposed development of an airstrip at Ta' Lambert in Xewkija, highlighting in particular the challenges and inherent features which characterise the island of Gozo and its population.

2.1 Territorial Context

Whilst Gozo is located 6km northwest of Malta, Gozo's insularity and peripherality distinguish it from the mainland mainly through its smaller size and its relatively smaller scale economic development. Gozo has a land area of 67km², accounting for 25% of the national total and a resident population of 34,430, representing 6.7% of the national population⁵.

Whilst Malta is an insular state which is heavily dependent on air and maritime connectivity with mainland Europe, Gozo is characterised by an additional level of insularity as it is only connected to Malta by sea transport. A conventional ferry service operates frequently between the two islands, often registering a year-on-year increase in demand. Indeed, the number of vehicles which crossed the channel in 2019 stood at nearly 1.8 million, an increase of 7.4% over the previous year, whilst the number of passengers crossing between the two islands in 2019 stood at 5.9 million, an increase of 3% over 2018⁶. Due to travel restrictions pertaining to the COVID-19 pandemic, the number of vehicles which crossed the channel in 2020 declined by 12.9% whilst the number of passengers declined significantly by 36.2% when compared to 2019.

Sea transport remains the sole mode of transportation connecting the two islands, which is however subject to weather conditions. Given dependence on this sole mode of transport, travel time between the two islands is often lengthy, affecting frequent commuters and businesses as well as causing traffic congestions from Ċirkewwa to the central areas of Malta. This dependence has led to increasing input costs for businesses, and younger generations shifting their permanent residence to Malta or abroad. With a view to reduce travel time and improve connectivity, Government has implemented a number of measures including further investments in TEN-T road infrastructure, increasing the existing conventional ferry fleet capacity as well as the introduction of a fast ferry service which transports passengers from Gozo to Malta's city centre in Valletta.

The inherent disadvantages related to Gozo's peripherality and physical access are further reflected in Table 1 below. Higher average travelling times are applicable to Gozo from a number of different critical points such as the airport and seaports, in comparison to Malta. For instance, the average travelling time from the airport is estimated at 17.2 minutes for Malta in comparison to 94.1 minutes for Gozo which takes much longer due to the ferry crossing. This results in a 546.6% higher average travelling time for Gozitans when compared to residents in mainland Malta. Also, the average travelling time from cargo seaport is 23.6 minutes for Malta and 106.1 minutes for Gozo, resulting in around 450.6% higher average travelling time for Gozo based businesses when compared to those in mainland Malta.

⁵ Gozo registers a population density of 513 inhabitants per km².

⁶ NSO News Release NR008/2021

Table 1: Extent of access problems indicators

Access and Peripherality	Malta	Gozo	Gozo: Malta
Average travelling time (mins) from airport	17.2	94.1	546.6%
Average travelling time (mins) from passenger seaport	15.4	92.1	597.3%
Average travelling time (mins) from cargo seaport	23.6	106.1	450.6%
Average travelling time (mins) from governance hub	18.0	97.1	540.2%
Average travelling time (mins) from entertainment hub	19.8	82.1	414.9%
Average travelling time (mins) from commercial hub	18.0	86.1	479.1%

Source: University of Geneva; Alterra, Wageningen University and Research Centre

2.2 Socio-economic Context

2.2.1 Economic Development

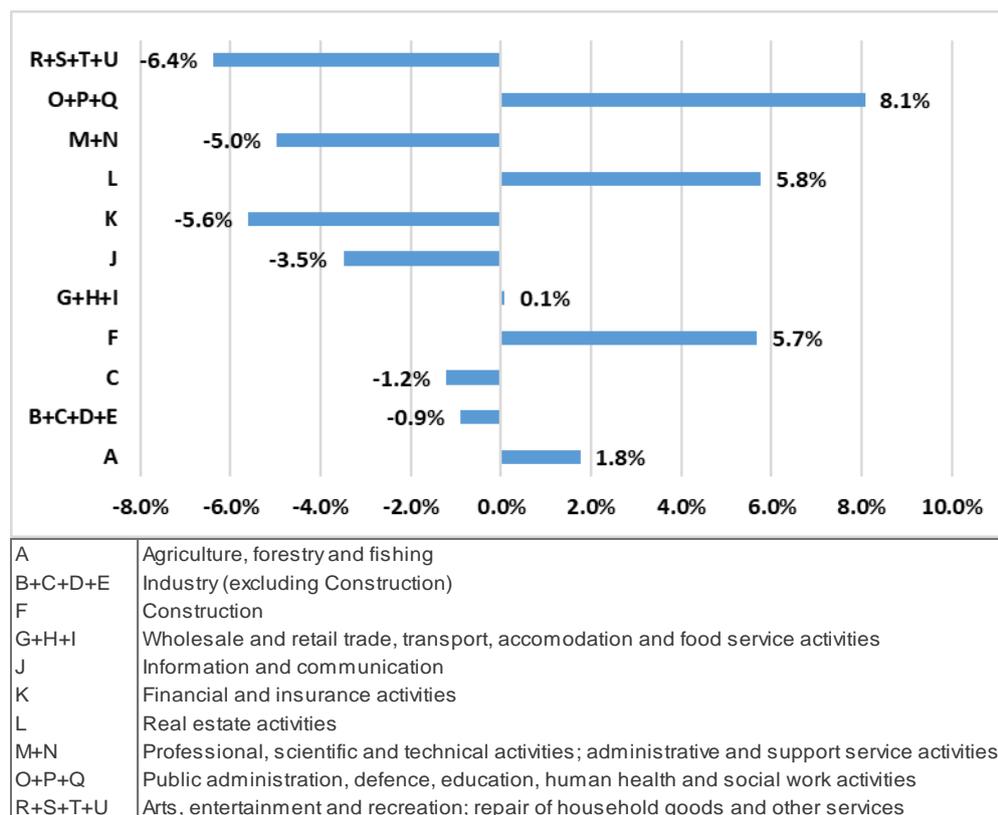
The inherent challenges faced by the island of Gozo are manifested in its economic development. Whilst Gozo's population accounted for around 6.7% of the national total in 2019, output produced in Gozo at market prices amounted to nearly €0.59 billion, accounting for 4.4% of the national value. This suggests that whilst Gozo is a key contributor to the national economy, it still lags behind the main island of Malta. In fact, in per capita terms, Gozo produced a value of €17,027 when compared to €26,780 produced in Malta in 2019.

Nonetheless, it is worth noting that whilst the growth rate of GDP in Gozo has been historically lower than that recorded in Malta, this situation is changing such that since 2016, the average economic growth in Gozo exceeded that registered in the mainland. This suggests that whilst Malta's GDP growth is reaching a level of saturation, Gozo has the potential to grow further despite its difficulties relative to Malta.

The discrepancy in economic development is also evident from the value of the productivity generated per worker⁷ which in 2019 stood at circa €41,412 in Gozo, whilst in Malta stood at around €49,659. This indicates that productivity in Gozo accounts for around 83% that in Malta, highlighting the lack of job opportunities with higher value added in Gozo. Indeed, the economy in Gozo remains dependent on public administration, retail and wholesale and tourism which together account for almost half of the gross value added generated by the island. Conversely, higher productive sectors such as financial services and gaming account for a larger proportion of economic value in Malta. In fact, as shown in Figure 1 below, the proportion of economic activity generated by the arts and entertainment sector in Gozo is 6.4 percentage points lower than that in Malta whilst the share of economic activity generated by the public administration sector in Gozo is 8.1 percentage points higher compared to Malta.

⁷ Defined as the Gross Value Added divided by Full-Time Equivalent.

Figure 1: Proportion of Economic Activity by Sector in Gozo relative to Malta (2019)



Source: NSO News Release 2020_206

2.2.2 Demographic Developments

The inherent challenges associated with double insularity are also manifested in Gozo's demographic developments. The challenges faced by the island are inevitably compelling Gozitans, particularly youths to opt for permanent dwelling in Malta to be within the proximity of the main working hubs, given the lack of connectivity and accessibility to the mainland.

As illustrated in Table 2, while both Gozo and Malta recorded a positive population growth in recent years, the growth in Malta's population has been more pronounced relative to Gozo. The growth in population may be chiefly attributed to the inflow of foreign workers which has been propelled by the short-term growth recorded in certain sectors, such as the tourism and construction sectors which affected both islands, and the gaming sector which affected the population growth in the main Island of Malta. For both Gozo and Malta, this element of migration is mainly observed in the working-age segment of the population. Indeed, between 2015 and 2019, the population in the age cohort of 20 to 49 grew by an annual average of 4% in Gozo and by 7.7% in Malta.

Nevertheless, when considering the share of the population by age groups in Malta and Gozo, it is observed that the share of older age groups remains relatively higher in Gozo. Table 2 indicates that in 2019, the share of population in Gozo aged over 50 stood at 42% whereas that in Malta stood at 36%.

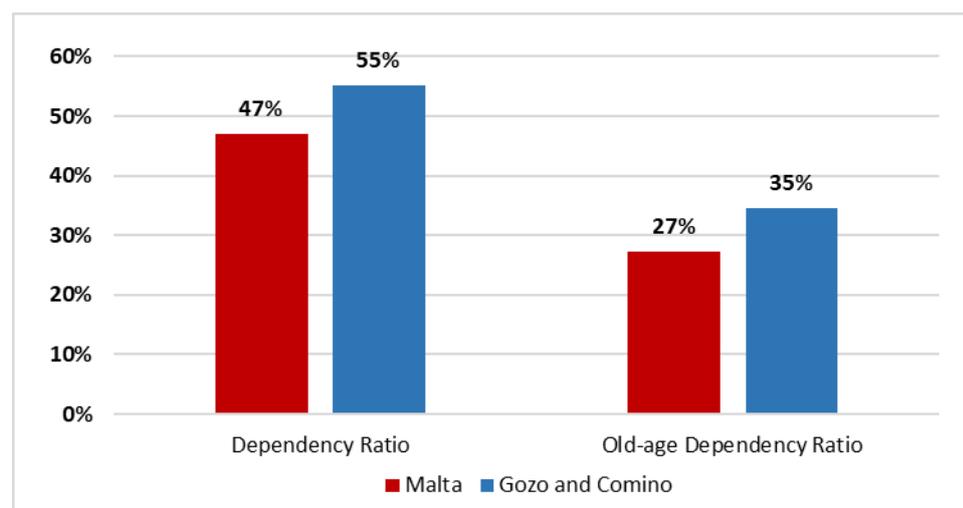
Table 2: Population Structure in Gozo and Malta

Population by Age Groups									
Gozo					Malta				
	2005	2011	2015	2019		2005	2011	2015	2019
0-19	7,717	6,870	6,134	6,075	0-19	90,503	83,059	79,522	85,229
20-49	12,151	11,908	11,925	13,977	20-49	157,309	159,771	166,673	223,957
50+	11,139	12,518	13,624	14,378	50+	126,143	142,715	156,525	170,948
Total	31,007	31,296	31,683	34,430	Total	373,955	385,545	402,720	480,134
Growth in Population over time (%)									
Gozo					Malta				
	2011/2005	2015/2011	2019/2015		2011/2005	2015/2011	2019/2015		2011/2005
0-19	-1.9%	-2.8%	-0.2%	0-19	-1.4%	-1.1%	1.7%		
20-49	-0.3%	0.0%	4.0%	20-49	0.3%	1.1%	7.7%		
50+	2.0%	2.1%	1.4%	50+	2.1%	2.3%	2.2%		
Total	0.2%	0.3%	2.1%	Total	0.5%	1.1%	4.5%		
Share of Population by Age Group (%)									
Gozo					Malta				
	2005	2011	2015	2019		2005	2011	2015	2019
0-19	25%	22%	19%	18%	0-19	24%	22%	20%	18%
20-49	39%	38%	38%	41%	20-49	42%	41%	41%	47%
50+	36%	40%	43%	42%	50+	34%	37%	39%	36%

Source: Author's estimates based on NSO data

Figure 2 proceed to demonstrate that the aging problem is more accentuated in the island of Gozo. In fact, the share of Gozo's population which is dependent on the working-age population, is estimated at 8 percentage points higher when compared to Malta. This reflects the situation where young workers prefer to work and reside in Malta due to better job opportunities and lower commuting times.

Figure 2: Dependency ratio⁸ and old-age dependency ratio⁹ (2019)



Source: Author's estimates based on NSO data

⁸ Sum of population aged 0-14 and 65+ as a percentage of the working-age population (15-64)

⁹ Population aged 65+ as a percentage of the working-age population (15-64)

2.2.3 Labour Supply and Education

Regional labour supply data published by the National Statistics Office (NSO) indicates that in 2019, about 3,578 Gozitan residents were employed on a full-time bases in Malta, of which 51% worked in the public sector. Hence, from a total of 15,193 workers residing in Gozo, around 23% held a primary job in Malta. This is a result of the limited job opportunities in Gozo which is in turn causing a lack of suitable access to critical masses of resource inputs and consumer bases, limiting the capacity of business to exploit economies of scale, of scope and diversification. Furthermore, from an employee perspective, daily commuting is expensive in terms of time, traffic congestion and transport costs.

In 2019, the average gross annual basic salary in Gozo amounted to €17,533 whereas that in Malta amounted to €19,721, reflecting the lower proportion of high value-added jobs in Gozo when compared to Malta. The share of jobs in higher value-added sectors such as financial services, IT and gaming are lower in Gozo when compared to its mainland. The share of employment among Gozo residents exceeds that in Malta only in the agricultural and public administration sectors, where the latter accounts for one-third of the total jobs in Gozo.

In terms of education attainment, the proportion of graduates in Gozo to the total population compares well with the national average indicating that Gozitans invest in education as a means of accessing work opportunities which are not necessarily available in Gozo. In 2019, a higher share of Gozitan graduates per 1,000 inhabitants was observed almost across all MQF levels. Female graduate in Gozo surpassed those in Malta across MQF levels 3,5,6 and 7 whereas the share of male graduates per 1,000 male population was higher in Gozo across all MQF levels, except for levels 1,5 and 7. This investment occurs in spite of the challenges faced by Gozitan students.

While both MCAST and the University of Malta have campuses on Gozo, the range of courses provided at the regional campuses are restricted such that the majority of Gozitans need to commute in order to further their studies. Hence, the issue of connectivity and accessibility is even more pronounced within a context of a relatively higher level of education attainment in Gozo when compared to that at the national level. This drives the younger generation of highly-skilled workers away from Gozo in pursuit of better job offerings in Malta.

2.3 Gozo as a distinct destination

Despite the challenges brought about by Gozo's inherent characteristics, the island provides a distinctive experience to that provided in Malta. From a bird's-eye view, Gozo appears greener than the main island and provides an oasis of tranquillity with a beautiful coastline, sea and countryside. When one approaches the island from the sea, the landscape of elevations and hills intermingle with the historical forts and church domes welcoming visitors to a deep historical and cultural experience. Gozo offers modern amenities, but in the village cores and countryside, the experiences remain authentic. Over the cycle of the year, Gozo offers a full calendar of activities to attract international and domestic tourists, ranging from musical concerts to culinary events, fireworks festivals and traditional festas. Hence, Gozo has a natural vocation to excel in providing an ecological brand for tourism and for residential investment.

The tourism activity in Gozo is focused on longer stay tourists which seek immersive cultural experiences based on its history, Mediterranean artistic confluences and natural environment, serviced in high quality boutique accommodation. According to surveys carried out by the Malta

Tourism Authority, half of the tourists opting for a Gozo-based trip are repeat tourists, most of whom had visited the Maltese islands several times and had visited Gozo in previous trips. Furthermore, slightly over one in four tourists opt to visit the island for its history and cultural heritage whereby the main cultural activities sought after are sightseeing, visiting historical sites and churches.

Despite Gozo`s small size and population, it still serves as a natural focal point for a variety of activities and performances, including the hosting of opera productions of the highest, international standards with numerous world-class performers. Gozo is seeking to attract new tourist niche markets including sports and adventure tourism where sensitivity to urban development and regeneration are key to ensure sustainable development within the island region. Nonetheless, a continuous improvement in connectivity and diversification in air, sea, physical land links is essential.

3. Project Description

This Chapter provides a description of the airlink project which is proposed to be developed in Gozo, in accordance with the Government's objectives to make Gozo more attractive and accessible to business and high-end visitors, and stimulate the development of high-value economic niches.

3.1 Historical Background

In the past, several efforts were made towards the introduction of an inter-island air transport service operating between Gozo and its mainland. The initial attempt goes back to 1943 when the fields at Ta' Lambert in Xewkija Gozo were cleared to make way for an airstrip, which plan was discarded soon after and land was handed back to the farmers. Following this, in 1958 a helicopter landing pad was laid by the British forces in the same area. However, it was not before the year 1987 when the first inter-island helicopter service took off. Between 1990 and 2008, five different helicopter companies had tried to operate the inter-island air service, with all of them eventually running out of business.

The current infrastructure of the Heliport Terminal administered by the Gozo Heliport Ltd under the remit of the Ministry for Gozo was last upgraded and inaugurated in May 1996 following a LM550,000 investment by the Department of Civil Aviation (DCA) and the Malta International Airport (MIA) whose majority shares were then still owned by the Government. Nevertheless, the Gozo Heliport has been in disuse since 2008, with several efforts to regenerate the area since then.

The area bordering the existing Heliport was cleared by members of the Armed Forces of Malta Plant Troop between 2013 and 2014 in preparation for a 900-metre grass runway. The 40,000m² site was covered in rubble and waste from the construction industry as well as carcasses. This project was later shelved and today the site is in a derelict state.

Since 2015 to date, the Civil Aviation Directorate within Transport Malta (TM) has been conducting studies regarding the possibility of re-activating an inter-island helicopter air service. These studies continue to suggest that the cost to re-activate a helicopter service is greater than a short take-off and landing airfield for fixed-wing aircrafts. This is mainly, because a heliport limits the number of users and investment opportunities and is less environmentally friendly. Furthermore, previous plans were large in scale and encroached onto privately-owned agricultural land with an estimated development cost escalating to €14 million. Currently the heliport is only used in cases of emergency by the air ambulance helicopters.

3.2 Proposed Development

The proposed project entails the regeneration of the derelict heliport at Ta' Lambert in Xewkija Gozo into an airfield to be used for the operations of small propeller-driven aeroplanes. The upgrades that are being proposed for the development of the airfield will all be made on Government-owned land. Such regeneration and upgrade of infrastructure would provide for the establishment of an inter-island airlink which will improve connectivity between Gozo and its mainland as well as the development of General Aviation activities in Gozo. This project would also provide a potential link with other similar airfields in Europe whilst facilitating and encouraging other aviation related ancillary activities to take place in Gozo.

The first phase of the project entails the development of an eco-friendly airfield equipped with a runway and grass aprons which will offer a number of parking spaces for aircrafts. The activity which is proposed to take place at the airfield during the first phase of the project comprise the inter-island air transport service which will provide a direct link between Ta' Lambert area and MIA. Apart from this, the first phase will also cater for general aviation operators including flight schools which would require a dedicated area for training purposes, microlight aircrafts for tourism purposes, drone operations and other ancillary activities such as air rallies and skydiving activities organised in collaboration with national tourism entities including the Malta Tourism Authority, the Directorate for Tourism and Economic Development within the Ministry for Gozo and the Gozo Tourism Association.

Figure 3 provides a schematic diagram of the airfield which is proposed to be developed at Ta' Lambert in Xewkija Gozo. The total area proposed for the development of the airfield is around 76,000 sqm which incorporates the runway, four aprons and other airside facilities. The runway will be 445 metres long and is within the available confined areas marked in the below Figure. As previously stated, the proposed airstrip will only encompass government owned areas including the existing heliport and the adjacent land which has been in a derelict state throughout the past years. It will not trespass over fertile land outside the development zone.

The development of the proposed airfield is estimated to cost around €1.64 million¹⁰, which comprise the asphalted runway, the refurbishment of the Heliport Terminal and other facilities. The runway will be surrounded by grass/compacted earth taxiways and parking spaces which may be easily adapted also for ancillary activities. The area highlighted in red in Figure 3 is earmarked for the Civil Protection Department facility expansion, whilst the area encircled in yellow is an archaeological site which will be included in the Heritage Trail.

Figure 3: Schematic Diagram of the Proposed Airfield at Ta' Lambert Area in Xewkija, Gozo



¹⁰ Excluding VAT. This figure reflects data available as at 20th November 2021.

The airfield at Ta' Lambert may potentially include other phases in the future which would enable the transportation of passengers from Gozo to airfields in other remote European islands, such as Lampedusa, Pantelleria and Sicily. The airfield could also be equipped with maintenance hangers which would generate revenue and other indirect economic activity.

3.3 Implementation and Operations

This study considers three second-hand islander piston engine aircrafts for the operations of the inter-island scheduled service, each with a carrying capacity of nine passengers. A team of 18 crew members are expected to be required for the operations of this service mainly consisting of pilots, airfield managers, administrators, IT expert, engineers and other maintenance personnel. The inter-island airlink service is expected to operate from 6am to 1am in order to prevent noise pollution in the neighbourhood during the night. Nonetheless, a more flexible service could be provided as long as well-planned noise abatement procedures are in place.

The proposed airfield will also be equipped with facilities which could be rented by general aviation organisations for the operations of general aviation and other ancillary activities. Such organisations may include Flying Schools, Drone Operators and recreational flying clubs, amongst others. Specifically, Apron 2 and Apron 3 will be dedicated for General Aviation Activities. While both Aprons will serve as a parking facility for small aircrafts, Apron 3 will also include a helicopter hover training area and a VTOL drone test site. These two Aprons together make up an area of circa 30,000 sqm.

This study provides an indicative economic appraisal for the operations of the airfield project on the basis of information provided by the Civil Aviation Directorate within Transport Malta and assumptions thereof. Nonetheless, the economic operator may for instance wish to operate the service with different fleet, provided that it meets the expected demand and the economic sustainability of the project.

4. Demand Analysis

This Chapter presents an analysis of the potential demand for the airfield project proposed to be developed at Ta' Lambert in Xewkija Gozo. This analysis considers demand in terms of the number of passengers using the airlink as well as in terms of demand for airfield facilities from potential general aviation operators.

4.1 Demand for Airlink between Gozo and Malta

As delineated in previous Chapters, Gozo's double insularity and peripherality have limited the island of Gozo from realising its full potential across various socio-economic aspects, particularly with respect to high-quality job creation and tourism activity. Notwithstanding additions to the conventional ferry fleet and the fast ferry service which have contributed towards improving connectivity between the two islands, Gozo requires an alternative inter-island transport service which eliminates the sole dependency on sea transport and reduce travelling time between the two islands. Apart from providing a direct link for Gozitans travelling abroad, the airlink would also ease access to tourists, making Gozo more attractive to business and high-end visitors, and kickstart the development of high-value economic niches.

The demand for the proposed airlink between Gozo and its mainland is expected to emanate mainly from four sources, these include:

i. International tourists travelling to Gozo as a single destination

In 2019, total inbound tourists visiting Gozo amounted to 180,979, of which 51% visited Gozo as a single centre destination amounting to a total of 92,715, a decline of 1.4% over 2018. More than half of the single centre destination tourists travelled by low-cost airlines. In the same year, single centre destination tourists spent an average of nine nights in Gozo and are estimated to have consumed an average of €94 per capita per night.

The airlink is expected to facilitate travel to the island of Gozo as it will directly link MIA to a central location in Gozo in a relatively shorter period of time. This would potentially attract more single centre destination tourists to Gozo as the convenience of travelling directly to a central destination in Gozo in merely 15 minutes would make Gozo more attractive.

ii. International tourists travelling to Gozo as a twin destination

In 2019, the total number of inbound tourists who visited the Maltese islands as a twin centre destination amounted to 85,218, with around 61% of the twin centre inbound tourists travelling by low-cost airlines. The total nights spent by these types of tourists in the Maltese islands amounted to 863,452 in 2019, of which 37% were spent in Gozo¹¹. The total expenditure generated by twin centre destination tourists in the Maltese islands in 2019 is estimated at €84 million.

The inter-island transport service could potentially increase the number of days spent in Gozo for twin centre destination tourists, as the airlink would provide a direct connection to MIA for tourists ending their holiday in Gozo, hence enabling a longer stay in Gozo. Without the airlink project, tourists prefer to spend their last night in mainland Malta to avoid travel risks given the sole dependency on sea

¹¹ NSO, News Release 133/2021

transport service which is lengthy and subject to weather conditions. The airlink project would provide a connecting flight for tourists to arrive at their final destination from the small island of Gozo.

iii. Gozo residents travelling to airport

The proposed project would also be beneficial for Gozitans travelling abroad be it for recreational, business or health purposes, as it would provide a direct connection to MIA in a relatively shorter period of time. It would also reduce the risk of missing the flight due to adverse weather conditions or delays in the multiple inter-island modes of transport required to arrive at MIA.

This study estimates that in 2019, a total of 42,758 Gozitan residents departed from MIA, of which 52% are estimated to have travelled via low-cost airlines.

iv. Workers based in Gozo travelling to Malta for professional reasons, and, to a lesser extent, vice-versa

The inter-island air transport service could also potentially be used by workers who are based in Gozo, and would need to travel a couple of days to Malta for professional purposes. These individuals are likely to be occupying high paid jobs in sectors such as ICT, Finance, Professional Services and Public Administration. In 2019, a total of 9,005 employees were employed in such sectors in Gozo. This could also apply to Malta residents who would travel to Gozo for business or professional reasons, albeit to a lesser extent.

4.1.1 Estimating the Effective Demand for the Inter-Island Air Transport Service

The effective demand for the service by each of the aforementioned categories is influenced by factors including pricing and availability of capacity at the times required for travelling. The expected demand in a year is in this study estimated on the bases of the volumes for the above variables and pricing that is retained competitive with other modalities but which includes an estimate for the monetary value of time savings.

The price point considered in this analysis is around €30 per single-way trip including the carriage of one luggage, derived on the basis of the willingness to pay by commuters. The price of a single-way ticket considers the travel cost incurred per person to travel between MIA and Ta' Lambert in Xewkija Gozo by ferry and shared road transport, as well as the value of professional time saved as a result of the project. The benchmark price of €30 per single-way trip considered in this study should be sufficient towards the financial sustainability of the airlink service, considering also the cost of alternative means of transportation. However, this charge could also be subject to support mechanisms and subsidies in line with any future public policy approach to render the service accessible to users.

The expected demand for the service by international tourists and by Gozo residents travelling to the airport is summarised in Table 3. Based on official data for regional and national tourism,¹² Table 3 indicates a potential demand of over 80,000 single passengers in any year, implying a potential of over 160,000 passenger trips.

¹² NSO, News Release 133_2021

The results are derived as the product of the volume of passengers and an assumed demand coefficient thereof, reflecting judgement regarding service take-up at the indicated price point and other behavioural and service requirement factors.

Table 3: Estimates of Single Airport Passengers Between Malta and Gozo

	International tourists with Gozo as a single destination (2019)	International tourists twin destination (2019)	Gozo residents to airport (2019)	Total
Total	92,517	85,218	42,758	220,494
Low cost airline	52,786	52,106	22,542	127,434
Other airline	39,731	33,112	22,112	94,955
Demand coefficient at price point	0.5	0.1	0.6	
Passengers per year	46,259	8,522	25,655	80,435

On the other hand, demand estimates for work-related commuters are derived by considering workers residing in Gozo who operate within sectors that are more likely to utilise the service, on the basis of the need for rapid travel and ability to pay. Out of these, a proportion of workers who regularly travel to Malta is assumed, together with a proportion of the days they actually need to spend in Malta, for each sector. Therefrom, the number of annual passengers is derived on the basis of a 250-day working year and an assumed 50% service take-up.

As outlined in Table 4, this gives a total of 6,794 single passengers in a year, which are equivalent to 18 daily commuters. Therefore, there would potentially be another 13,588 passenger trips in a year to be provided by the service.

Table 4: Estimates of Single Work-Related Commuters Between Malta and Gozo

Workers residing in Gozo:	2019	% of workers regularly travelling to Malta	% of their days of work in Malta	% of days of work in Malta from labour force	Passengers for 250 days in a year at 50% service take-up	Equivalent daily commuters
ICT	401	25%	20%	5.00%	2,506	6.87
Finance	486	10%	15%	1.50%	911	2.50
Professional	2,230	10%	10%	1.00%	2,788	7.64
Public Admin	5,888	0.2%	40%	0.08%	589	1.61
Total	9,005				6,794	18.61

Hence, the potential total number of passenger trips that can be estimated for a year is 174,458. However, within the potential demand for the service, the actual provision being aimed for at this initial stage is around 40%, that is 69,783 passenger trips in a year. This is for the following reasons:

1. the need to ensure the highest possible levels of flight seat utilisation at all times, in the face of fluctuating demand between seasons and different times of the day;
2. the relative uncertainty of demand at the indicated price point at this stage, with the consequent need to test the market, requiring significant headroom between potential demand and the commitments entered into to provide supply;
3. the technical feasibility and cost optimisation with respect to aircraft size and number of flights operated daily; and
4. the possibility to upscale (or downscale) the service as may be required to meet sustained and sustainable patterns of market demand that can be foreseen for the long term.

The airlink project is in this study proposed to be operated by means of three aircrafts, each with a capacity of nine passengers. A total of eleven round trips are expected to operate per day, amounting to 3,971 round trips in a year. Considering that two round trips are completed in an hour, the airlink would operate for five hours per day. Based on these assumptions, the total number of passengers travelling between the two islands in one day are estimated at 193, that is, a total of 97 single way passengers per day.

4.2 Demand for Airfield Facilities for General Aviation and Ancillary Activities

The proposed airfield will also enable the development of a general aviation ecosystem in Gozo, capitalising upon the natural advantages of the Island Region, with activities spanning from training and events to the testing of technologies.

A number of consultation meetings were held with general aviation operators in Malta as potential users of the airfield, to obtain their views on the project and determine the extent to which such operators would be willing to use the proposed airfield facilities in Gozo. A wide range of operators within the industry were consulted, namely:

- i. **Malta School of Flying**¹³: A Professional Aviation Training Academy certified as a pilot training organisation by the Civil Aviation Directorate within Transport Malta and recognised by the Malta Further and Higher Education Authority as a Tuition Centre. Malta School of Flying also holds an Air Operator Certificate (AOC) which allows the operation of sightseeing flights through the Malta Wings co. Ltd.
- ii. **European Pilot Academy**¹⁴: An internationally renowned academy accredited by European Union Aviation Safety Agency and approved as a training organisation by the Civil Aviation Directorate within Transport Malta. The academy provides a number of pilot training courses for students to obtain either a commercial or a private pilot licence.
- iii. **Malta Helicopter Ltd**¹⁵: A helicopter Approved Training Organisation (ATO) authorised by Transport Malta to offer both Commercial and Private Helicopter Pilot Training. This organisation is based in Spain and operates from a small airfield in Mallorca dedicated for general aviation activities.
- iv. **Buzz Flying Ltd**¹⁶: Offers microlight training courses for pilots to obtain the National Private Pilot's License for Microlights. It also offers trial flight lessons, also known as air experience flights on microlight aircrafts.
- v. **Island Microlight Club**¹⁷: A club of microlight enthusiasts which was founded to encourage, develop and facilitate the flying sport in the Maltese islands through education, safety and good airmanship. Presently there are 30 active members of whom 22 are aircraft owners.
- vi. **Swiss Drones**¹⁸: A Swiss aviation company specialising in the development, manufacturing and operation of long-range unmanned helicopter systems for commercial and public safety

¹³ <http://www.maltaflying.com/>

¹⁴ <http://europeanpilotacademy.com/>

¹⁵ <https://www.transport.gov.mt/news/tm-awards-ato-to-mh-helicopters-3900>

¹⁶ <http://buzzflying.com/>

¹⁷ <https://slidetodoc.com/island-microlight-club-malta-founded-to-encourage-develop/>

¹⁸ <https://www.swissdrones.com/>

applications. It was founded in 2013 by a small group of aviation enthusiasts and today it has 20 drones and operates in 12 countries across the world.

- vii. **Malta Aviation Museum Foundation¹⁹**: Restore and preserve a number of aircrafts at the Malta Aviation Museum which is located at the former Royal Air Force airfield in Ta' Qali. The Museum covers the history of aviation on the island with exhibits particularly from the Second World War and post-war periods, some of which are in airworthy condition.

In general, discussions with the aforementioned operators indicate that there are a number of constraints at MIA which restrict general aviation operations. Since there are no alternative airfields in Malta, all aviation activities are currently operating from the same airport. Furthermore, given that it is an international airport, scheduled commercial passenger flights take precedence, resulting in delays and cancelled flights for general aviation operators. The intensive activity at MIA has also led to logistical constraints related to parking facilities and air traffic control. Bureaucratic processes particularly in relation to security passes as well as high handling costs at MIA are also among the factors which are discouraging general aviation operations in Malta. Towards this end, the proposed airfield would provide an opportunity to divert some of the activity away from MIA, hence eliminating bottlenecks and ensuring efficient operations whilst accommodating the needs of the general aviation community.

The following case studies denote the extent to which different general aviation activities could be carried out from the proposed airfield, based on response obtained during consultation meetings with the above-mentioned operators.

i. Flight schools and Training centres

Flight schools and training centres claimed that bottlenecks at MIA do not allow for proper and effective training, particularly when it comes to circuit training and emergency false landing which are two crucial components of a pilot training course. Flight schools have a limit of three circuits in a day at MIA. In fact, as activity intensifies during the peak season, flight schools tend to shift some of their training to southern Italy and Sicily.

Flight schools are willing to set up a satellite office in Gozo to shift some of their activity away from the congested environment at MIA, as the Gozo airfield would offer better flexibility to operate effectively. The facilities required for such operations include an office and a small classroom where ground theory could be easily taught.

Apart from attracting foreign students to Gozo, the proposed airfield would also facilitate training for Gozitans who currently travel to Malta to conduct their training at MIA. Discussions with these operators suggest that the proposed size of the runway at the Gozo airfield is suitable to carry out a proportion of their operations in Gozo, depending on the aircraft performance requirements and weather conditions, albeit a runway of around 650m would be more appropriate for solo training and unexperienced pilots to operate safely and securely.

Being a small island like Mallorca, Gozo also offers an ideal location for operators like Malta Helicopter Ltd to operate from the proposed airfield and offer helicopter training potentially also between the existing helipad in Comino and the Gozo airfield, without intruding into MIA. Their activity tends to

¹⁹ <https://www.maltaaviationmuseum.com/the-foundation>

attract extremely wealthy clients who are after convenience and hence prefer direct links from one destination to another. The Gozo airfield could also cater for other niche training sectors such as seaplane training²⁰ which is only offered in Portugal.

ii. Microlight Aviation

Microlight aircrafts are two-seater aircrafts used by sport fliers. Around 30 microlight aircrafts are registered on the Maltese Aviation Register, nonetheless, this number is on the decline as a result of capacity limitations, logistical constraints and red tape at MIA. The proposed airfield could offer an alternative and more accessible out-landing facility with all-round conditions for such activities. Microlight aircrafts require a short runway of about 40m to 50m for their take-off and landing.

Discussions with microlight operators suggest that the proposed airfield would offer the required airspace for such general aviation operators to operate effectively. Microlight enthusiasts consider the Gozo airfield as an opportunity for them to organise fly-ins and other events for the whole family in collaboration with international enthusiast, particularly those in neighbouring Italian regions including Siracusa, Pozzalo and Ragusa, amongst others. Due to its strategic position, Gozo lends itself as a perfect location for wealthy microlight flyers who look for small and accessible airfields where they can land, spend some leisure time and refuel their aircraft before heading back to their destination.

Taormina and Giardini Naxos have identified this market of high-level clients who fly to Taormina with their private microlight aircraft and land at Calatabiano airfield. This airfield is found on the border between the province of Catania and Messina in Sicily. Due to its strategic position, this airfield is considered by the world of recreational aeronautics as the gateway to Sicily and Europe as it is the first landing point for those coming from the North and heading towards the Mediterranean basin, to then reach the African Continent. Calatabiano Airfield has a landing strip of 490m long, that is, just a few meters longer than the proposed airstrip in Gozo. Calatabiano airfield is used for various flying adventures, including ultralight and microlight flying tours over Taormina and the Ionian coast with an itinerary that includes places like Naxos Garden and Isola Bella. Among other excursions, Calatabiano airfield is also used for Etna tours with helicopters and skydiving.

Discussions with participants suggest that MIA is not accessible for such events given its restrictive and bureaucratic set up. Hence, the Gozo airfield could offer such opportunity and open up new tourism niche markets also combined with existing ones such as diving and skydiving expeditions, aerial sight-seeing and filming, amongst others.

iii. Drone Testing, Research and Development

Drones and unmanned aircrafts manufacturers are increasingly seeking test, proof and demonstration grounds for their innovations and products. Gozo offers an ideal opportunity for companies seeking a test-bed for research, development and testing of innovative technologies and solutions.

Indeed, Swiss Drones, a global manufacturer of long-range unmanned helicopter systems has recently completed a series of long-range Beyond Visual Line of Sight (BVLOS) flights over the waters of the Maltese archipelago. This company tested its advanced aircraft in settings simulating maritime patrol, search and rescue, and surveillance missions. These operations took place at Dwejra in Gozo through

²⁰ Malta has three seaplanes on the Maltese Aviation Register.

close collaboration with Transport Malta, Malta Communication Authority, Malta Air Traffic Services, Enterprise Malta, Indis Malta and the San Lawrenz local council²¹. Although these flights were successful, a fenced facility would have been better suited for such operations for safety purposes. The factors which mainly attracted these operators to Gozo include good weather conditions and the fact that Gozo is a small island surrounded by sea.

Discussions with such operators indicate that the proposed airfield would provide an ideal testing ground for such operations within a contained environment and with all the required facilities. Drone operations would mainly require a runway of 20m x 30m, fuel facilities, fencing and a fairly high antenna to enable communication from the ground to the drone. It is worth noting that the Civil Aviation Directorate has already designated a U-space way out over the sea West of Gozo for the testing of drones.

iv. Other Aviation Activities

The proposed airfield could also open up various opportunities to showcase the collection of vintage aircrafts in Malta, as it would provide the right ambience for exhibition events away from the congested activity at MIA. Such events would attract aircraft enthusiasts together with all the family to the island of Gozo. The Malta Aviation Museum Foundation would also be willing to organise open weekends and public events in collaboration with other groups with an interest in vintage land and maritime transport, including the Military Vehicles Group.

A similar and successful event is the Goodwood Revival which takes place in West Sussex, a county in South-East England on the English Channel Coast. The Goodwood Revival evolved in 1998 and has now become the world's most celebrated historic motor racing event, with race fans coming from all over the world to soak up the unique atmosphere in period costumes. Each year, around 150,000 visitors flock through the gates of the historic Goodwood Motor Circuit to enjoy the three-day event which transports visitors back to the halcyon days of 1948-1966. Apart from exhibiting the world's rarest and most valuable racing cars, bikes and vintage dressing, this event offers aerial displays featuring rare historic aircrafts.

The Gozo airfield could also offer an opportunity for the Malta Aviation Museum Foundation to organise air shows with military airplanes in collaboration with foreign vintage aircraft enthusiasts. Other activities may include re-enactments and commemoration events with exhibitions and flights of airworthy aircrafts used during a particular era. The Gozo airfield also offers the right environment for the filming of vintage aircrafts, as apart from the landscape, it provides an accessible airspace and the required flexibility.

4.3 Concluding Remarks

This Chapter has showed the potential of the proposed airfield to cater for both the inter-island air transport service as well as general aviation activities. The foregoing analysis confirmed that there is sufficient demand for the inter-island air transport service from various sources including inbound tourists, outbound Gozitans and professional workers. This Chapter also revealed a strong demand from general aviation operators to operate from the proposed airfield away from the congested environment at MIA on the basis of discussions with potential users.

²¹ <https://www.transport.gov.mt/news/swissdrones-concludes-flight-testing-in-malta-5177>

5. Economic Analysis

This Chapter presents an in-depth analysis of the socio-economic costs and benefits which are expected to emanate from the project, based on the anticipated demand presented in Chapter 4. In addition, this Chapter provides an assessment of the macroeconomic impact expected to be generated in Gozo in terms of value added and employment resulting from the development of general aviation and ancillary activities in Gozo.

5.1 Bases of the Economic Analysis

In line with the Guidelines for the drawing up of Cost-Benefit Assessments²², the following principles are adhered to in the conduct of this analysis:

- An **incremental approach** is utilized in the estimation of the economic benefits of the project. In other words, the welfare effects are a result of the project and would otherwise not materialise in the absence of the project.
- No **adjustments to market prices** are undertaken in this analysis. All elements are net of VAT and all costs are considered at constant prices to exclude distortion of the results by inflationary effects.
- Relevant **welfare effects** which are not captured through market transactions are estimated through a quantitative assessment of external effects. In this project, economic welfare benefits mainly relate to saved travelling time for users of the airlink, saved road fuel costs and saved carbon emissions from road transport. This analysis also considers economic welfare benefits from general aviation and ancillary activities which are expected to generate tourism activity in Gozo. Furthermore, this study considers an estimate of the shadow cost of fuel emissions emanating from the operations of the airlink.
- The **length of the lifetime of the project** is considered to be 15 operational years, following a one-year period (termed as Year 0) of project set-up activities including the undertaking of capital investment to regenerate the airfield and the acquisition of aircrafts.
- A **social discount rate of 5%** is used, as recommended in the Cost Benefit Assessment Guidelines.
- A **residual value** of investment is considered in the final year of the analysis, accounting for 15 years of future economic benefits.

The economic analysis is undertaken from the society's point of view as it seeks to assess the overall economic welfare generated in the economy and thus, any income which is expected to be earned solely by the project operator is not considered in this analysis. This income is considered as transfer payments between different agents in the economy, without generating incremental economic effects.

²² DG Regio (2014), *Guide to the Economic Appraisal of Investment Projects*.

5.2 Financial Parameters and Assumptions

This section provides an estimation of the financial elements considered in this analysis based on information obtained from the Civil Aviation Directorate within Transport Malta together with a number of assumptions which are here used as an indicative case study for the provision of an inter-island air transport service between Gozo and its mainland. The service could, for instance, be equally provided by a different fleet and operating hours which could have both revenue and cost implications for the operator, provided that it meets the expected demand indicated in Chapter 4 and ensures the financial and economic sustainability of the project.

5.2.1 Capital Expenditure

A capital expenditure of €2.5 million is expected to be incurred during the first year of the project when the airfield is being renovated and upgraded. The capital expenditure elements include the following:

Regeneration of Airfield

The renovation and upgrade of the airfield is estimated to cost approximately €1.64 million²³ excluding VAT. This cost mainly comprise the asphalted 445m runway and compacted reinforced grass aprons and taxiways, the refurbishment and modernisation of existing passenger terminal, ancillary facilities and equipment as well as the landscaping and embellishment of the airfield and surrounding areas. The regeneration of the airfield will ensure eco-responsibility by adopting sustainable means throughout the site including light pollution control measures, noise abatement procedures and the promotion of e-commute vehicles for travellers visiting Gozo.

Aircraft

A three aircraft fleet is considered to be required for the provision of the inter-island air transport service. This fleet is considered to be suitable to serve the forecasted demand including peak periods and ensure the continuation of the service when one of the aircrafts would not be in use due to the routine maintenance. This study considers investment in three second-hand piston engine Islander aircrafts, each estimated to cost around €350,000 inclusive of VAT. These are twin-engine aircrafts, each with a carrying capacity of nine passengers and are usually operated by a single pilot. These types of aircrafts are capable of operating in almost all-weather conditions, except for low visibility mornings and very strong winds with each happening on limited occasions. Short take-off and landing aircrafts are capable of taking-off in winds up to 55 knots (Force 9), with a 25 knot crosswind. The total investment cost related to the three aircrafts required to operate the envisaged service is estimated at €861,000²⁴.

5.2.2 Operational and Maintenance Costs

The total operational and maintenance costs expected to be incurred during the years of operation are estimated at €1.2 million per year, comprising of wages and salaries, aircraft fuel and maintenance costs and other overhead costs. Ground handling costs are not included in this analysis as these are considered as transfer payments between different economic agents.

²³ The cut-off date for data on Capital Expenditure on Airfield is 20th November 2021.

²⁴ Excluding VAT.

Labour Costs

It is estimated that the operations of the inter-island air transport service between Gozo and Malta would require 18 crew members, comprising of eight pilots, two airfield managers, two administrators, an IT expert, two engineers and three maintenance workers. These workers are assumed to earn a comparable wage to a public sector employee in a similar position such that salaries vary from a wage of €14,000 for a maintenance worker to €25,500 for an engineer. As stated above, these figures are indicative and somewhat conservative as the operator may wish to operate the service at higher wages, provided that the financial and economic sustainability of the project is ensured. It is also worth noting that such costs are considered at constant prices to eliminate inflationary distortions. On these bases, the total labour costs incurred for the provision of the inter-island air transport service is estimated to be around €350,500 per annum.

Fuel Costs

The fuel costs are calculated based on the type of engine used and the number of operating hours. The type of aircrafts considered in this study operate with piston engines which are estimated to consume a total of 125 litres per hour at a price of €2.69 per litre, excluding VAT. Considering a total of circa five operating hours per day to cover a total of eleven round trips in a day²⁵, based on expected demand and a total of 361 operational days²⁶, the total fuel cost per year is estimated at €651,698.

Aircraft maintenance costs

Aircraft maintenance costs are calculated as a percentage of the capital expenditure on aircrafts which in this analysis is assumed at 15% of the total cost of aircrafts. The aircraft maintenance cost is thus estimated at around €129,150 per year.

Overhead costs

This analysis considers insurance premium cost as the main overhead cost incurred on the three aircrafts, estimated at €60,000 per annum. This accounts for a hull cover, which would provide insurance for the airplane itself, and a liability cover, which would cater for the legal exposure of the aircraft operator vis-à-vis third parties, including passengers on board. This estimate provides an indication of the insurance premium cost which would typically be incurred for piston engine islander aircrafts considered in this study on the basis of market rates. It considers a rate of 3% on the hull value and a liability limit of \$5 million.

5.3 Estimation of External Effects from Airlink

This section provides an estimation of relevant external costs and benefits which are expected to emanate from the project through appropriate use of shadow prices.

It is important to note that since the airfield is proposed to be developed on government owned land which is currently in a dilapidated state and no land expropriation will take place for the development of the project, no opportunity cost of land is considered in this study as the development of the airfield will not prevent any other activities from being undertaken.

²⁵ Assuming that two round trips could be made within an hour.

²⁶ Excluding non-operational days due to adverse weather conditions.

5.3.1 External Costs

External Fuel Emissions Costs from Aviation

Further to the cost of fuel which is expected to be consumed for the provision of the airlink service between Malta and Gozo, the economic analysis considers the external cost of fuel in the form of emissions which are expected to emanate from such activity and which have an effect on the society as a whole.

This external cost is estimated by applying the shadow cost of carbon emissions which are expected to be generated from the operations of the inter-island air transport service. Considering a total of 242,303 litres of fuel consumption per year, a carbon equivalent content for the type of fuel used by piston engine islander aircrafts of 3.1 kg per litre of fuel²⁷ and a price of €35 per tonne of CO₂²⁸, the external cost of carbon emissions emanating from the provision of the inter-island air transport service is estimated at €26,290 per year.

5.3.2 External Benefits

Saved Travelling Time

As outlined in Section 4.1.1, the estimation of the proposed average passenger airfare to be charged per one-way trip takes into consideration the professional time saved when travelling between Gozo and Malta via air transport relative to the current means of transport. Professional time saved in travelling is an incremental external benefit emanating from such project. The value of professional time saved is calculated by multiplying the loss of productive time estimated at €13.22²⁹ per hour, by the time in minutes expected to be saved when using air transport relative to current modes of transport, estimated at 113 minutes. The value of productive time lost is in this analysis considered at 70% of the indicated value per hour in the CBA guide to account for Gozo's lower per capita GDP relative to Malta. Multiplying such estimates by the total number of passengers which are projected to use such service per annum results in an external benefit of €1.2 million per year.

Saved Road Fuel Costs

This analysis also considers the cost of vehicle fuel saved as an external benefit of the project in terms of the number of passenger kilometres saved which the airstrip would divert from road transport. The distance by car covering the trip from MIA to Cirkewwa and from Mgarr harbour to the Gozo heliport is about 30km. Multiplied by the number of passengers which are expected to utilise the airlink in a year, amounts to a total of 2.1 million passenger km saved in a year. It is furthermore assumed that 1 litre of fuel is saved for every 20 kilometres of travel with an average resource cost of €0.5³⁰ per litre of fuel. Based on these assumptions, the amount of fuel expected to be saved is estimated at 104,675 litres which is equivalent to a value of €52,337 per year.

Saved Carbon Emissions from Road Transport

²⁷ <https://www.verifavia.com/greenhouse-gas-verification/fq-how-are-aircraft-co2-emissions-calculated-11.php>

²⁸ Assumed on the basis of Carbon Emissions Trading Scheme

²⁹ Based on indications provided in the Cost Benefit Analysis Guide for Malta

³⁰ Exclusive of taxes

Saved fuel cost from road transport is expected to generate further economic benefits as carbon emissions would in turn be saved. Considering a carbon equivalent content of 2.4 kg per litre of car fuel³¹ and utilising the shadow price of carbon, the value of saved carbon emissions on the road is estimated at €8,793 per annum.

5.3.3 Other Qualitative Benefits

Apart from the aforementioned economic benefits which are expected to emanate from the operations of the airlink, there are other noteworthy positive qualities. Firstly, the airfield will be developed on government unleased land which is currently in a dilapidated state and no expropriation of land will take place, thus there is no opportunity cost of land. Secondly, the project is expected to generate a low level of noise pollution when compared to other activities, as shown in Table 5.

Table 5: Comparative Sound Measurement

140 dB	-	Fireworks
130 dB	-	Jet engine
120 dB	-	Siren - Shotgun
100 dB	-	Helicopter (Air Ambulance) – Portable insecticide dispenser
90 dB	-	Twin engine aeroplane – equivalent to a Hair dryer
>70 dB	-	Light aircraft – normal conversation
>60 dB	-	Electric aeroplane

Inter-island service aircrafts should receive a Manufacturer’s Supplementary Type Certificated (STC) noise reduction modifications. This strict requirement is adopted in Germany and other Nordic countries for aircrafts operating to and from remote or island airfields. Furthermore, general fixed-wing aircrafts which are expected to operate at the Gozo Airfield will fall within the lower limit of the noise classification. The two-to-five seat training and private helicopters expected to use Gozo Airfield will be small to medium in size with noise levels ranging between 90db to 70db. The Armed Forces of Malta’s AW139 is expected to remain the largest and noisiest helicopter to operate from Gozo on VIP and other security related flights which reaches a noise level of 100db.

A number of noise abatement measures are in place. General aviation aircraft operations are limited to daylight whereas the inter-island air transport service is expected to operate till 1am to avoid noise pollution during the night. The airfield design also helps to mitigate noise pollution on the surroundings. In particular, the clever use of vegetation and the choice of indigenous trees, hedges and turf all shield aircraft noise on the ground. Engine run-ups in dedicated bays are shielded by hedges and concealed sound deflectors. Furthermore, while making 180 degree turn at the end of the runway, all aircrafts should use dumb bells with engine thrust directed towards the sea. Furthermore, the grass aprons and taxiways are designed to smother engine noise.

Pilots will be required to follow aircraft noise abatement procedures as published in the ‘Pilot Operating Handbook’. Furthermore, circuit activity to the North of the airfield is prohibited.

³¹ <https://www.carbonindependent.org/17.html>

5.4 Economic Impact Assessment for General Aviation Activities

As revealed through discussions with general aviation and ancillary activity operators in Malta, there is a growing demand for an alternative airfield to be used for general aviation as activity at MIA has intensified creating bottlenecks for general aviation operators. Apart from the renting income that is expected to be earned by the operator of the airfield, the economy as a whole would also benefit from the organisation of such activities as these would generate economic activity in Gozo particularly in terms of employment and value added.

The economic welfare benefits generated from general aviation operations are two-fold. Flight schools and other ancillary activity operators could transfer part of their operations in Gozo, hence generating a number of direct employment in Gozo. Furthermore, aviation mass events and other recreational activities would attract a number of tourists to the island of Gozo, hence generating expenditure in the economy. These activities would in turn generate further economic activity in the economy through multiplier effects.

5.4.1 Estimation of Economic Activity from General Aviation

Based on discussions with general aviation operators in Malta, this analysis estimates that such activities would generate a total of 15 Full-Time Equivalent (FTE) jobs in Gozo through training and non-tourism ancillary aviation activities. These jobs would translate in a direct turnover of €1.9 million³².

Furthermore, based on international regional events and discussions with stakeholders, this analysis conservatively assumes that a total of three aviation mass events would be held annually, attracting around 2,000 tourists per event, which altogether amount to 6,000 tourists in a year. These are assumed to spend an average of two nights in Gozo and an average expenditure of €79 per capita per night. Expenditure per capita per night is estimated by considering the average expenditure per capita per night of both domestic and international tourists in 2019 as such events would attract both national and international visitors to the island region of Gozo. Based on these assumptions, an expenditure of €946,817 is expected to be generated in Gozo as a result of such events mainly in tourism related sectors.

5.4.2 Economic Impact Assessment Methodology

The economic impact of such activities is assessed at three distinct levels through the use of relevant multiplier estimates. These include:

1. **Direct Contribution:** this consists of the economic value added and employment within business activities that are directly generating turnover or receiving the expenditure injection.
2. **Indirect Contribution:** this consists of the value added and employment effects within firms that supply resources to the firms that are the initial beneficiaries of the injection.
3. **Induced Contribution:** this considers the effects of the expenditure of incomes earned from the direct and indirect effects into other sectors of the economy.

³² Based on a turnover per employee of €129,537 for the Professional, Scientific and Technical Activities, derived from Eurostat data.

This analysis is based on industry specific multipliers derived from the Input-Output tables computed by the National Accounts for the Maltese Economy in line with internationally agreed principles. Specifically, this analysis utilises the latest Supply and Use tables for the year 2010 published by the National Statistics Office of Malta in 2016. The input-output multipliers were first calculated in a working paper published by the Central Bank of Malta³³, which was then updated in 2018 on the basis of the 2010 Input-Output Tables³⁴.

It is worth noting that these multipliers were computed for the national economy and are not specific for Gozo. Nonetheless, these provide a good indication of Gozo’s economic impact.

5.4.3 Economic Contribution

Based on the foregoing methodology, this analysis estimates that the development of general aviation and ancillary activities in Gozo would generate an annual average direct value added of €895,777. This would rise to over €1.7 million worth of value added when considering indirect effects, reaching €2.5 million when including also induced multiplier effects generated from earned income.

Moreover, an annual average of 20 FTE jobs are estimated to be created in the economy as a direct effect of these activities, increasing to 34 FTE jobs when considering indirect effects and rising to 48 FTE jobs when including also induced multiplier effects.

Table 6: Economic contribution in terms of value added and employment

Annual Average Effects	Value Added Generation (€million)	Employment Generation (FTE)
Direct	895,777	20
Direct+Indirect	1,752,574	34
Direct+Indirect+Induced	2,483,048	48

The impact generated in the economy can be further distributed across various sectors of the economy. This approach is based on the ‘Decomposition Model’ and builds on the Symmetric Input Output Tables (SIOT) for the Maltese economy which define the multiplier effect of a hypothetical increase in the demand for each sector’s output. The objective of this model is to decompose the total impact resulting from the project to reflect the effect on individual sectors in the economy. The Decomposition Ratios produced by the model reflect the share of the total impact of an increase in the demand for a sector’s output relating to individual sectors.

As show in Figure 4, the Professional Services sector is expected to benefit the most in terms of both value added and employment when considering the direct and indirect multiplier effects. The share of value added generated as a result of the project in the Professional sector is estimated at around €958,000. In addition, around €198,000 worth of value added is estimated to be generated in the Hotels and Restaurant sector, followed by the Transport and Distribution Sectors with a value added of around €126,000 and €112,000 respectively. The other sectors of the economy combined would

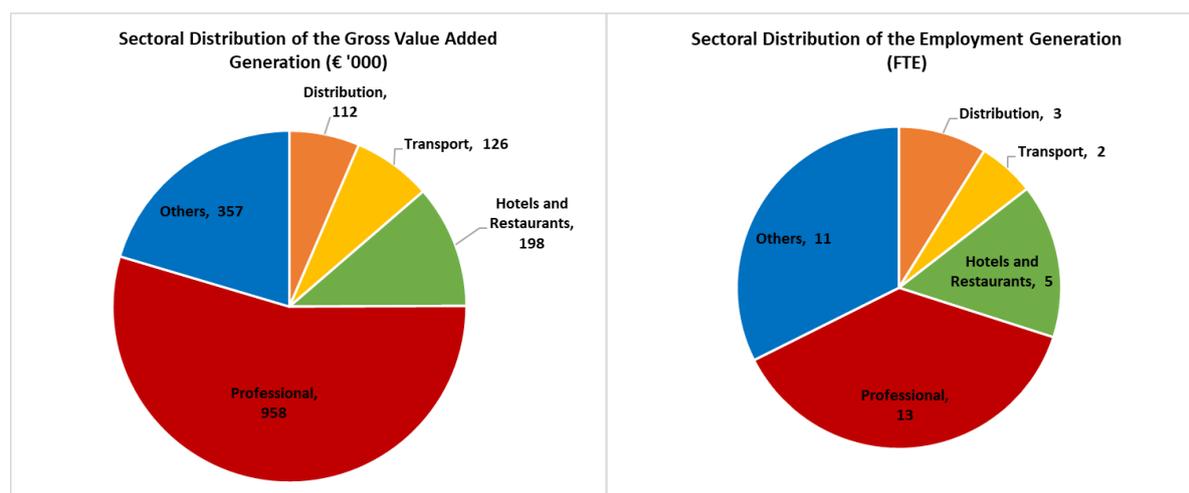
³³ Ian.P.Cassar (2015). ‘Estimates of output, income and value added and employment multipliers for the Maltese economy’.

³⁴ Ian P. Cassar and Noel Rapa (2018). ‘Estimates of Input-Output Multipliers for the Maltese Economy Based on the Symmetric Input-Output Table for 2010’

have around €357,000 additional value added generated as a result of general aviation activities in Gozo.

The sectors which are expected to benefit the most in terms of employment generation are primarily the same, with 13 FTE jobs generated in the Professional sector, followed by the Hotels and Restaurant sector with 5 FTE jobs, respectively. The other economic sectors combined would gain 16 additional FTE jobs.

Figure 4: Sectoral distribution of Value Added and Employment generated in the economy



The operations of general aviation activities will also contribute towards the generation of tax revenue in the economy. An annual average of €304,908 would be generated in tax revenue from direct activities, which increases to €596,270 when including indirect effects, reaching an annual average of €844,460 when considering also induced effects.

Table 7: Economic contribution in terms of Tax Revenue Generated

Tax revenue generated	Tax revenue Generation from Operations			
	Expenditure Tax	Income Tax	SSC	Total
Direct	111,732	145,786	47,390	304,908
Direct+Indirect	218,500	285,095	92,675	596,270
Direct+Indirect+Induced	309,448	403,762	131,250	844,460

5.4.4 Estimating Economic Welfare Benefits from General Aviation and Ancillary Activities

Further to Section 5.3.2 which outlines the external benefits emanating from the airlink, this section estimates the external benefit emanating from general aviation activities in terms of value added as estimated in the foregoing impact assessment. The direct value added estimated to be generated as a result of turnover from general aviation operations and tourism expenditure generated from aviation events is considered to be the main economic benefit emanating from such activities. General aviation activity is expected to reach its full potential by the fourth year of operations of the airfield, thus a gradual injection of such economic benefit is considered such that by the fourth year of operations, such activities would be expected to generate a total of €895,777 worth of value added per annum.

5.5 Economic Performance

This section assesses the overall economic performance of the proposed project over an operational period of 15 years. As shown in Table 8, from an economic incremental perspective, this project is expected to yield net economic benefits to society.

The main cost elements considered in this analysis is the required capital investment for the project to take place. This is estimated at a total of €2.5 million, of which €1.6 million relates to the renovation and upgrade of the airfield and another €861,000 pertain to the acquisition of aircrafts.

Included in the model is the residual value of the airstrip which is equivalent to the present value of the future economic benefits which are expected to be generated from the project over the 15-year period, estimated at €9.9 million.

Furthermore, a total operational and maintenance cost of €1.2 million per annum is considered over the 15-year operational period, amounting to a net present value of €11.8 million. This comprise of wages and salaries, aircraft fuel and maintenance costs and other overhead costs. Ground handling costs are not included in this analysis as these are considered as transfer payments between different economic agents.

The external benefits which are expected to emanate from the airlink project are estimated at €1.3 million per year, amounting to a net present value of €12.6 million. Saved travelling time represents the largest external benefit which is expected to emanate from the airlink, estimated at €1.2 million per annum. Saved road fuel costs and carbon emission from road transport combined amount to a total external benefit of €61,130 per annum.

The renovation and upgrade of the airfield at Ta' Lambert in Xewkija Gozo is also expected to generate economic welfare benefits from ancillary activities which will take place at the facilities of the airfield by third-party operators. These activities are estimated to generate an average benefit of €806,199 per year.

Against these external benefits, the study considers the external costs of emissions from the airlink which is estimated at €26,290 per annum, amounting to a net present value of €259,886.

On these bases, the project is expected to render an Economic Net Present Value (ENPV) of €10.4 million consistent with a social discount rate of 5%, equivalent to an Economic Rate of Return (ERR) of 30% and a Benefit-to-Cost ratio of 2.06.

Table 8: Economic Performance of the Project

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Capital Expenditure:	- 2,501,000															
Regeneration of Airfield	- 1,640,000															
Aircrafts	- 861,000															
Residual Value:																9,915,033
Airstrip																9,915,033
Operational Expenditure:	- 1,191,348	- 1,191,348	- 1,191,348	- 1,191,348	- 1,191,348	- 1,191,348	- 1,191,348	- 1,191,348	- 1,191,348	- 1,191,348	- 1,191,348	- 1,191,348	- 1,191,348	- 1,191,348	- 1,191,348	- 1,191,348
Wages and Salaries	- 350,500	- 350,500	- 350,500	- 350,500	- 350,500	- 350,500	- 350,500	- 350,500	- 350,500	- 350,500	- 350,500	- 350,500	- 350,500	- 350,500	- 350,500	- 350,500
Fuel	- 651,698	- 651,698	- 651,698	- 651,698	- 651,698	- 651,698	- 651,698	- 651,698	- 651,698	- 651,698	- 651,698	- 651,698	- 651,698	- 651,698	- 651,698	- 651,698
Aircrafts maintenance costs	- 129,150	- 129,150	- 129,150	- 129,150	- 129,150	- 129,150	- 129,150	- 129,150	- 129,150	- 129,150	- 129,150	- 129,150	- 129,150	- 129,150	- 129,150	- 129,150
Overhead Costs	- 60,000	- 60,000	- 60,000	- 60,000	- 60,000	- 60,000	- 60,000	- 60,000	- 60,000	- 60,000	- 60,000	- 60,000	- 60,000	- 60,000	- 60,000	- 60,000
External Fuel Emissions Costs from Aviation	- 26,290	- 26,290	- 26,290	- 26,290	- 26,290	- 26,290	- 26,290	- 26,290	- 26,290	- 26,290	- 26,290	- 26,290	- 26,290	- 26,290	- 26,290	- 26,290
External Benefits:	1,277,098	1,277,098	1,277,098	1,277,098	1,277,098	1,277,098	1,277,098	1,277,098	1,277,098	1,277,098	1,277,098	1,277,098	1,277,098	1,277,098	1,277,098	1,277,098
Saved Travelling Time	1,215,968	1,215,968	1,215,968	1,215,968	1,215,968	1,215,968	1,215,968	1,215,968	1,215,968	1,215,968	1,215,968	1,215,968	1,215,968	1,215,968	1,215,968	1,215,968
Saved road fuel costs	52,337	52,337	52,337	52,337	52,337	52,337	52,337	52,337	52,337	52,337	52,337	52,337	52,337	52,337	52,337	52,337
Saved carbon emissions from road transport	8,793	8,793	8,793	8,793	8,793	8,793	8,793	8,793	8,793	8,793	8,793	8,793	8,793	8,793	8,793	8,793
Economic Welfare Benefits from General Aviation	268,733	447,888	627,044	895,777	895,777	895,777	895,777	895,777	895,777	895,777	895,777	895,777	895,777	895,777	895,777	895,777
Net Cash Flows	- 2,501,000	328,193	507,349	686,504	955,237	955,237	955,237	955,237	955,237	955,237	955,237	955,237	955,237	955,237	955,237	10,870,270

Economic Net Present Value at 5%	10,426,438
Economic Rate of Return	30%
Economic Benefit/Cost Ratio	2.06

6. Risk and Sensitivity Analysis

The positive results identified in the Economic Analysis Chapter need to be considered against risks which may impact the economic feasibility of the project. In this context, risk is defined as the occurrences of outcomes that are different from expected, particularly for variables whose values are largely outside the control of either the project operator and/or Government.

The resulting effects of exogenous shocks on the economic performance of the project depend upon the degree of sensitivity of the project performance indicators to such shocks. This assessment is thus performed for variables to which the economic performance of the project can be expected to be sensitive, either because of their absolute magnitude, their volatility, their importance in the model or all such factors taken together.

This study identified three critical variables which could potentially cause major shocks to the performance of the project. These variables include:

- i. passenger demand for the scheduled inter-island air transport service;
- ii. cost of fuel for piston engine islander aircrafts; and
- iii. economic welfare benefits emanating from the general aviation activity which is expected to develop at the airfield.

The risk assessment is conducted through the computation of switching value for critical variables, indicating the extent of shocks required to each variable to reduce the ERR of the project to zero. The following analysis assesses the effect of an exogenous shock for each of the critical variables independently on the economic performance of the project.

6.1 Airlink Passenger Demand Shock

As shown in the Demand Analysis Chapter, demand for the scheduled inter-island air transport service is expected to emanate from four main sources which could be grouped into two categories:

- a. Inbound international tourists and Gozo residents travelling abroad; and
- b. Professional Gozitan resident workers commuting between Malta and Gozo for work purposes.

This analysis considers a scenario where either one or both of the abovementioned categories of passengers would opt not to use the airlink such that demand for the service would be zero.

Firstly, this analysis considers an extreme scenario where none of the inbound tourists and Gozo residents would opt to use the airlink. This scenario assumes that this group of passengers would prefer to use the current modes of transport to travel between MIA and Gozo.

Having considered this extreme adverse scenario, the project would still remain economically viable with an ENPV of €2.3 million, an ERR of 12% and an economic benefit-to-cost ratio of 1.53. It is estimated that for the ERR to turn zero, the demand from inbound tourists and Gozo residents travelling abroad would have to fall to 45% of the expected demand considering in this study.

Furthermore, this analysis considers a scenario where none of the professional Gozitan workers considered in this study would opt to use the airlink to travel between Malta and Gozo. In this case, the project would remain highly economically viable with an ENPV of €9.7 million and a corresponding ERR of 28%.

Combining both shocks together and assuming a worst case scenario where neither inbound tourist and Gozitan residents travelling abroad nor professional commuter workers would opt to use the scheduled air transport service, the project would still remain economically viable with an ENPV of around €1.7 million and an ERR of 10%. The resulting positive net economic benefits to society in this case are solely generated from general aviation activity which is expected to develop in Gozo as a result of the project.

6.2 General Aviation Activities Shock

Another critical variable which is considered to affect the economic performance of the project in case of an exogenous shock is the economic welfare benefits which are expected to emanate from general aviation and other ancillary activities. This analysis considers a worst case scenario where no general aviation activities would take place at the Gozo airfield such that no turnover and tourism expenditure would materialise in the economy as a result of this project and thus, no economic benefits would be reaped. In such a case, the project ENPV would turn negative with an ERR of -4%, implying net economic costs to society. This reflects the importance of such activities in Gozo from an economic perspective.

This analysis estimates that if the direct value added which is expected to be generated in the Gozitan economy as a result of general aviation and other ancillary activities falls to 4.6% of that expected to be generated in this study, the ERR would fall to 0%. This implies that if the direct value added generated from general aviation activities would fall from €895,777 to at least €41,624, the project would no longer remain economically viable.

6.3 Fuel Cost Shock

Fuel Costs is also considered to be a critical variable as fuel prices tend to vary over time. This analysis estimates that for the project ERR to turn 0%, the price of fuel for piston engine islander aircrafts should rise by 223% over the current price. This implies that for the project to become economically infeasible, the price of fuel should rise by a factor of 2.23, from a price of €2.69 per litre (excl. taxes) to an estimated cost of €6 per litre of fuel.

6.4 Risk Assessment

Each of the abovementioned shocks are considered to be extremely unlikely to materialise. In terms of passenger demand, it is highly unlikely that no demand would materialise for the airlink as such project would lead to improved connectivity and convenience for tourists and residents alike. The proposed service would offer a convenient and flexible alternative to existing modalities in a relatively short period of time, hence saving travelling time whilst reducing the risk of missing the flight due to adverse weather conditions or delays in the multiple modes of transport required to arrive at MIA. Nonetheless, the project is considered to be resilient for such shock as it would still generate net economic return if at worst the demand for the airlink is zero.

The shock on the economic welfare benefits which are expected to emanate from general aviation activities is also considered to be highly improbable given that such benefits are based on discussions with potential users of the airfield who all expressed their willingness to operate from the proposed

airfield, away from the bottlenecks at MIA. There would furthermore be the possibility of using marketing strategies to promote the airfield for general aviation activities.

The fuel price shock is also considered to be highly improbable as the cost estimates provided in this study reflect ongoing market rates. Furthermore, an increase in costs of the magnitude indicated by the switching value would not be expected to materialise.

It is furthermore worth noting that the investment cost is not considered to be a critical variable in this case, as the project is considered to be resilient to such a shock given that the ENPV of the project would allow for an increase of four times as much as the value of the investment required for the development of the airfield.

It is thus concluded that the net economic benefits of the project are resilient, also to the most extreme shocks that could take place.

7. Concluding Remarks and Recommendations

This report presents a Cost Benefit Analysis of the airfield project which is proposed to be developed at Ta' Lambert in Xewkija Gozo. The proposed project will cater for the provision of an inter-island air transport service connecting Gozo to its mainland as well as for general aviation and ancillary activities.

Based on regional statistical data and assumptions thereof, this report showed that there is sufficient demand for the inter-island air transport service from various sources including inbound tourists, Gozitans travelling abroad and Gozitan workers travelling to Malta for professional reasons. Furthermore, discussions with potential users of the airfield for general aviation and ancillary activities revealed a strong demand to carry out their activities from the proposed airfield away from the congested environment at MIA.

A capital cost of around €2.5 million is estimated to be required for the development of the project, of which €1.6 million is attributed to the regeneration of the existing heliport into an eco-friendly airfield and another €861,000 pertain to the acquisition of aircrafts. Throughout its operational period, the project is expected to incur a cost of €1.2 million per year, excluding transfer payment between different agents in the economy.

Apart from these financial elements, the economic analysis considers a number of external costs and benefits which are expected to emanate from the project. Saved travelling time between Gozo and its mainland represents the largest external benefit, estimated at €1.2 million per annum. Other economic benefits expected to emanate from the airlink project include saved road fuel costs and carbon emissions from road transport amounting to a total of €61,130 per annum. Against these external benefits, this study considers the external cost of emissions from the airlink which is estimated at €26,290 per annum. It is worth noting that the land which is earmarked for the development of the project is owned by Government and is currently disused except in cases of emergency by air ambulance helicopters. Thus, no opportunity cost of land is considered in this study.

Furthermore, this report considers the impact of general aviation activities from a macroeconomic perspective in terms of potential value added, employment and tax revenue to be generated in the economy of Gozo. Considering the direct and indirect effects, the development of such activities is expected to generate an annual average of €1.7 million worth of value added, 34 FTE jobs and €596,270 in tax revenues. These benefits are expected to be generated as a result of an increase in turnover and tourism expenditure resulting from the development of general aviation activities in Gozo.

Considering only the direct effects emanating from general aviation activities together with other net benefits to be generated from the inter-island air transport service, primarily saved travelling time and emissions from roads, this project is expected to render an ENPV of €10.4 million consistent with a social discount rate of 5%, equivalent to an ERR of 30% and a Benefit-to-Cost ratio of 2.06.

Following a risk assessment, the net economic benefits of the project are found to be resilient also to the most extreme shocks that could take place including a shock in passenger demand, economic welfare benefits from general aviation and fuel price. Thus, from an economic incremental perspective, this project is expected to yield net economic benefits to society and can on this basis be recommended for implementation.