

Towards Safer Transport in Malta

Proposal for the setting up of a
Transport Safety Investigation Commission

White Paper, December 2022





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1.0

Introduction

Transportation is essential for any economy and Malta is no exception. The Maltese Government is committed to making transportation, whether by land, air, or sea, as safe as possible. Transportation safety investigation practices, specifically within the aviation and maritime domains, have long been established in Malta in accordance with international practice and indeed, independent accident investigation bodies have been created for these domains. Within the context of road transport, however, international practice related to independent investigation is varied and there is no established convention for creating an institutional set-up similar to those in the aviation and maritime domains.

Admittedly the three sectors are rather diverse, with aviation and maritime having an international character, in contrast to land transport which, in Malta's case, is mostly a national concern. With respect to the latter, the Maltese Government has noted a rise in road fatalities over the course of 2022. During the third quarter of 2022 road fatalities on Maltese roads increased threefold when compared to the quarter in the previous year (National Statistics Office, 2022). While an element of this increase reflects normalisation of activity following the Covid-19 pandemic, a trend which has been noted elsewhere in Europe, the Maltese Government deems road fatalities to be of great concern. To this

end, it is the government's intention to explore the ways in which this critical issue can be addressed.

The Maltese Government subscribed to 'Vision Zero' whose goal is to reduce road deaths to zero by 2050. It is in this context that this White Paper proposes the setting up of a Bureau of Road Safety Investigation as part of a single entity which will be known as the Transport Safety Investigation Commission (TSIC). The Commission will be composed of two other Bureaux responsible for air and maritime safety investigations. Safety investigations carried out by the three Bureaux will not replace investigations intended to establish legal responsibilities. Rather, the three Bureaux will investigate accidents in their respective domains from a systemic perspective. Thus, the scientific approach of giving a meaning to decisions taken by people before the onset of accidents will be introduced in fatal road accident investigations through the establishment of the Bureau of Road Safety Investigation and consolidated in all the three transport domains by the setting up of the TSIC. In the absence of investigation procedures similar to those implemented in the aviation and maritime domains, it will therefore be the TSIC's role to assist in the establishment of procedures for the safety investigation of fatal road accidents and to consolidate efforts undertaken within the aviation and maritime domains.

2.0 Motivation

The importance of transport in the development and growth of economies should not be understated. The recent effects of the Covid-19 pandemic on global transportation remain a reminder of the potential loss of opportunities arising due to the failure or malfunction of transportation chains. Effects of such failures were felt at both macroeconomic and microeconomic levels. Presenting a detailed analysis on transportation systems, Rodrigue (2020) highlights the direct, indirect, and induced impacts on the economy. In so doing, Rodrigue claims that seaports, roads, airways, and information technology, are but four critical components of the transportation chain.

It is possible to calculate the economic cost caused by disrupted operational transportation systems – and transport accidents do indeed contribute to such disruptions – with such costs potentially amounting to significant losses in revenue. However, as important as this may be, it is not the most crucial factor which needs to be considered.

Beyond finances and economics, the potential consequences for those involved in an accident, either directly or indirectly, could be far-reaching and the monetary aspect would cease to have value. The effects of long-term consequences of road accidents have been extensively discussed and published. More than 15 years ago, the European Transport Safety Council had already commenced its work to raise awareness on this issue, highlighting the challenges brought about by fatalities, disabilities and/or other life-changing injuries and the associated psychological consequences. The latter may be underestimated because not everyone seeks the necessary help (European Transport Safety Council, 2007).

These issues are not confined to the land transport domain but are also applicable to other modes of transport. Safety investigations into air and maritime accidents are mandatory because it is widely accepted that such investigations may prevent similar future accidents by uncovering relevant accident data. Furthermore, the published safety investigation reports are an important vehicle for communicating the safety lessons emerging from each investigation.

The Vision Zero concept was developed in Sweden 26 years ago as an integral part of the Swedish road safety strategy which sought to eliminate traffic deaths entirely but was adopted by the European Commission, with the goal of reducing road deaths to zero by 2050 (European Commission, 2015).

The concept was a breakthrough in the attempts to shift from a road-user approach (RUA) to a systemic mindset (Larsson et al., 2010). This corresponds with the systemic philosophy of safety investigations as applied within the aviation and maritime domains because, whilst the RUA approach focused on the driver's

¹ Vulnerable road users are defined as non-motorised road users, such as pedestrians and cyclists as well as motorcyclists and persons with disabilities or reduced mobility and orientation.

behaviour, the Vision Zero philosophy promotes the understanding that road safety is a shared responsibility (European Commission, 2022). The shared responsibility suggests that road transport systems are indeed systemic and can therefore only be understood by investigating road accidents within the context of a system composed of several interacting elements. This shared responsibility of multiple stakeholders is also in line with the claim that driver decisions should not be investigated in isolation because of the influence which the context would have had on the driver's decisions and actions.

The establishment of TSIC is a clear message highlighting the Government's preferred approach towards ensuring safety across all transport domains. TSIC and its Bureaux will not be the first multi-modal safety investigation entity in the world to investigate road accidents. The United States, Netherlands, Norway, Sweden and recently the United Kingdom all have entities tasked with carrying out safety investigations of road accidents. However, by putting forward the proposal to set up TSIC that, inter alia, includes the Bureau of Road Safety Investigation, the Maltese Government is taking the initiative of proposing safety investigations of fatal road accidents, rather than wait for requirements arising from a future EU Directive or Regulation.

Malta has the opportunity to rethink transport safety because established safety investigation philosophy from the aviation and maritime domains may be applied to this domain, considering in particular that road transport systems are also characterised by complex socio-technical systems (Salmon et al., 2012).

The aim of this realignment is therefore to consolidate what has already been achieved on a national level in air and maritime safety investigations, and to introduce safety investigations in land transport, specifically for fatal accidents. The proposed approach is aimed at introducing a national paradigm shift in transportation safety from 'safety being a priority' to 'safety becoming a national value'. Considering safety as a priority (the 'Safety First' slogan) is not sufficient because other priorities may take over and safety may be perceived as a burden. If, however, safety becomes a value, then no other pressing matters will compete with it.

3.0

International character of safety investigations

As a Member of the International Civil Aviation Organization (ICAO), the International Maritime Organization (IMO) and the European Union (EU), Malta is committed to contributing towards air and sea transport safety. Commitment, whether political, legal, or moral, is operationalised by implementing the relevant conventions, directives, and regulations. Transport safety is achieved proactively through a strict regime of safety inspections, surveys, and other enforcement activities to ensure that the prescribed standards are met and maintained. Complementing enforcement activities, investigations remain a key function for transport safety. Therefore, whereas the (proactive) enforcement approach is aimed to address risk and mitigate it, the (reactive) investigative approach is activated when risk materialises into an accident.

3.1

Civil aviation safety investigations

ICAO's Annex 13 to the Convention on International Civil Aviation (Chicago Convention) prescribes international standards and recommends practices for carrying out aircraft accident and incident investigations. Article 26 of the Convention imposes an obligation on contracting parties in whose territory an accident has occurred to launch "an inquiry in certain circumstances and, as far as its law permits, to conduct the inquiry in accordance with ICAO procedure" (International Civil Aviation Organization, 2020, p. x). Although the ICAO does not normally participate in aircraft accident investigations, Annex 13 requirements state that the Organization may either deploy an observer of its own accord or, following a request from the investigating states, provides clarifications on the requirements of Annex 13 (Bureau of Air Accident Investigation, n.d.).

The safety investigations into causes of accidents and incidents are not only mandatory and regulated at international level. As an EU Member State, Malta also has an obligation to implement relevant EU Regulations. The obligations stem from Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation, as amended (European Parliament & Council of the European Union, 2010). This Regulation provides a detailed, comprehensive legal framework, which, inter alia, establishes the independence of safety investigation entities, obligations to investigate, and cooperation during safety investigations. The Regulation further provides a safety investigation standard, regulating networking and coordination with other states, confidentiality and appropriate use of information, assistance for victims and relatives, and the publication of safety investigation reports and recommendations made therein (Eur-Lex & Legal Information Unit, 2021).

3.2

Maritime safety investigations

Whilst the tragic incident of the Titanic in April 1912 in the North Atlantic Ocean was an impetus for the adoption of the first Safety of Life at Sea Convention (SOLAS) 1914, the Torrey Canyon grounding off the coast of Cornwall, UK in 1967, led to the adoption of the International Convention for the Prevention of Pollution from Ships (MARPOL) in 1973. The SOLAS and MARPOL conventions were the result of international concern in response to two catastrophic incidents, however the investigation of maritime accidents or incidents has since remained an important requirement imposed on contracting parties to these conventions. The IMO's Assembly adopted several resolutions intended to guide its Member States in the safety investigation of maritime accidents and incidents. In particular, Resolution 849, which was adopted during the 20th Assembly in 1997 (and eventually amended some years later), was considered to be a major breakthrough in that it introduced the first ever casualty investigation code (International Maritime Organization, 1997). Although persuasive in character, it remained a soft law and it was thus not binding on the IMO Member States.

Eventually, a revised Casualty Investigation Code became mandatory on 1 January 2010 under a new regulation XI-I/6 of the SOLAS Convention (International Maritime Organization, 2020). The Casualty Investigation Code recognises the obligations of a flag State to conduct safety investigations into very serious casualties occurring on any of the ships flying its flag. It is the Code's aim to provide IMO Member States with a common approach so as to enhance cooperation in the best interest of the safety investigation as well as a benchmark for carrying out such investigations (International Maritime Organization, 2008).

The sinking of the motor oil tanker Erika in December 1999, followed by yet another structural failure and sinking of the motor oil tanker Prestige in November 2002, led to major oil spills on the Brittany and Galicia coasts respectively. Both accidents brought about major changes in the European Union's legislative measures, aimed at enhancing safety of life at sea and preventing marine pollution. In particular, the 'Erika III Maritime Safety Package' included a proposal of seven EU Directives, one of which addresses the improvement of maritime safety through technical investigations of maritime accidents and incidents. Directive 2009/18/EC entered into force on 17 June 2011, thereby establishing fundamental principles governing the investigation of accidents in the maritime transport domain (European Parliament & European Council, 2009). The Directive places an obligation on EU Member States to, inter alia, investigate serious maritime casualties (which may involve a fire, explosion, collision, etc) as well as very serious maritime accidents (which may entail severe damage to the environment, loss of life or total loss of a ship).

As in the civil aviation domain, the Casualty Investigation Code and the EU Directive in the maritime domain require the publication of the safety investigation reports as well as any recommendations made as a result of the safety investigation.

¹ A State's right to register ships in its territory is enshrined in the United Nations Convention on the Law of the Sea. Within this context, a flag State is that State which has granted a ship the right to fly its flag, thereby granting nationality to that ship. That State will then have jurisdiction over the ship. United Nations. (1982). United Nations Convention on the Law of the Sea (UNCLOS). United Nations.

3.3 Road safety investigations

There are neither international nor regional requirements regulating the safety investigations of road accidents, however the United Nations General Assembly Resolution 74/299 put forward a strategy entitled 'A Second Decade of Action for Road Safety 2021-2030' (United Nations, 2020), with a renewed target of preventing 50 % of road traffic deaths and injuries by 2030 (World Health Organization & United Nations Regional Commissions, 2021). As part of a post-crash response, the plan not only recommends multi-disciplinary post-crash investigations but also encourages the private sector to facilitate post-crash investigations by enabling the sharing of data (World Health Organization & United Nations Regional Commissions, 2021).

At EU level, there is no concrete action yet towards establishing road accident safety investigation bodies in Member States; whereas the safety investigation of accidents within the aviation and maritime domains are mandatory (as carried out by their respective investigative entities), there are no similar requirements for road accidents. Furthermore, the EU has agencies for air, maritime, and rail safety but an agency for road safety has not yet been established.

In parallel with the commitment towards the successful implementation of the UN's 'Decade of Action for Road Safety 2021-2030', there has also been a continuous call to investigate road accidents. This direction was taken despite a 13% decrease in the number of road deaths between 2019-2021 in the EU, resulting in 45 road deaths per million inhabitants in the EU in 2021 (European Transport Safety Council, 2022).

The absence of mandatory requirements related to road safety investigations in Europe by no means reflects a lack of political commitment. On 28 March 2017, a Special Envoy participated in a High-Level Stakeholder and Ministerial Conference in Malta. Under the Maltese Presidency of the Council of the European Union, the Special Envoy, the European Commissioner for Mobility and Transport, and the transport ministers from the EU Member States signed the Valletta Declaration for Road Safety. Whilst the Declaration reiterates the commitment to enhance road safety, transport ministers agreed to promote in-depth investigations into severe traffic collisions / accidents, and to analyse data to improve road safety. Transport ministers had also requested the EU Commission to facilitate co-operation among Member States and stakeholders in order to facilitate exchange of knowledge and best practices on, inter alia, road accident investigation (Ministry for Transport Infrastructure and Capital Projects, 2017).

² It must be clarified that this fall in percentage is attributed only to Covid-19 lockdowns across Europe.

4.0 National safety investigation set-ups

The safety investigations of air accidents and incidents are carried out by the Bureau of Air Accident Investigation (BAAI), which falls within the portfolio of the Ministry for Transport, Infrastructure and Capital Projects. The BAAI is an independent entity and it neither receives nor requests instructions on the conduct of its safety investigations. The BAAI's investigative mandate is broad and its safety investigations, which neither apportion blame nor determine liabilities, are only intended to enhance aviation safety. Subsidiary Legislation 499.22 of the Laws of Malta established the BAAI and regulates its safety investigations, satisfying the requirements prescribed in Regulation (EU) No 996/2010, as amended and ICAO Annex 13 ("Civil Aviation (Investigation of Air Accidents and Incidents) Regulations," 2013). All safety investigation reports compiled by the BAAI are public documents.

The Marine Safety Investigation Unit (MSIU) is also an independent safety investigation entity. Although the MSIU officials are Transport Malta employees, the Unit does not fall under any of Transport Malta's directorates and, for the purpose of safety investigations, it reports directly to the Minister for Transport, Infrastructure and Capital Projects. The MSIU was established and is regulated by subsidiary legislation to the Merchant Shipping Act ("Merchant Shipping (Accident and Incident Safety Investigation) Regulations," 2011). As in the civil aviation domain, the MSIU neither investigates to apportion blame, nor to determine civil / criminal liabilities. The Unit has significant authority to investigate maritime accidents and incidents and is the sole entity legally empowered to commence a safety investigation into a marine accident and incident. All safety investigation reports compiled by the MSIU are public documents.

Malta does not have a road safety investigation regime. Road accidents may be investigated by the police and via magisterial inquiries, carried out by a Magistrate acting in an investigative capacity. Unlike safety investigations, the main purpose of police investigations and magisterial inquiries is to apportion blame and determine civil/criminal liabilities. The wealth of information gathered during the course of magisterial inquiries is normally used for prosecution purposes only. As will be explained further on, it is being proposed that a Bureau will be set up such that it may have access to this information, thereby avoiding duplication of efforts in order to analyse the data gathered during such inquiries in terms of road safety.

5.0

Issues requiring intervention

Two main issues have been identified which warrant an intervention at national level:

- a. Although both the Bureau of Air Accident Investigation (BAAI) and the Marine Safety Investigation Unit (MSIU) are meeting their safety investigation obligations, emanating from ICAO, IMO treaty instruments, and European requirements, and notwithstanding that safety investigations in the aviation and maritime domains share a similar philosophy, these two safety investigation entities are unable to share their experiences and maximise on their knowledge. This is even due to their existing reporting structures; whereas the BAAI falls under the portfolio of the Ministry for Transport, Infrastructure and Capital Projects, the MSIU is a (functionally independent) Unit within Transport Malta. The current set-up imposes several limitations, including but not limited to:
 - i. the inability to create synergies and identify common factors which would enhance the work of both entities;
 - ii. issues that may be of common concern are addressed in a fragmented manner with remote possibilities of sharing experiences;
 - iii. the limited possibility of sharing information on best practices related to safety investigations; and
 - iv. the absence of a common forum where the senior management of both entities can discuss their respective safety investigation processes and listen to stakeholders' concerns.
- b. Malta has a significant knowledge and data gap on the immediate causes and related underlying causal factors of road accidents. Although very detailed and accurate descriptive road accident statistics are readily available and updated every quarter (National Statistics Office, 2022), complementing the available statistical data with the findings of road safety investigations into fatal accidents, would generate an extremely rich dataset, which would enable policymakers as well as the respective authorities to act effectively and efficiently to reduce the number of deaths and grievous injuries due to road accidents. To this effect, Malta presently faces an analytical gap with respect to the contributing factors of fatal road accidents.

6.0

Safety investigations in practice: key concepts

To ensure that safety investigations are sound and credible, several key concepts need to be adhered to. Considering the successful implementation of safety investigation practices in the air and maritime domain, road safety investigations should follow similar safety investigation processes and adopt the key concepts already in place for the air and maritime organisations. The following key concepts are being singled out, but their implementation will have a much wider effect on the safety investigation process within the context of road safety:

- Permanent safety investigation set-up, which assures operational readiness whenever an occurrence is reported and warrants a safety investigation, in accordance with prescribed criteria;
- Autonomous and independent safety investigation structure to guarantee that the safety investigation is carried out in a serene environment;
- Enhancing transport safety by guaranteeing that safety investigations will neither apportion blame nor determine civil / criminal liabilities; this will be conducive towards understanding why things went wrong with the aim of learning and disseminating these lessons to the public and to policymakers;
- Conducting systemic safety investigations to understand why it made sense to people involved in the accident to act in the way they did, taking into consideration the context in which they operate.
- Publishing safety investigation recommendations when the safety investigation is completed to communicate the recommended safety actions, if it is so required;
- Extending the life of the safety investigation recommendations by contributing to educational campaigns and research studies on transport safety.



7.0

Explaining the scope of safety investigations: the importance of learning from accidents and incidents

Political concern for system safety dates to the industrial revolution when the consequences of accidents in mines, steamships, railways, and relatively heavy industries were no longer confined to the accident site but started to adversely affect third parties. The search for blame was (and remains) a common phenomenon, triggered immediately in the wake of any accident, especially if no other suspected cause (say, mechanical failure) is identified.

Safety science within the context of safety investigation of transport accidents is critical as it is the most (if not the only) effective way of understanding system safety and accident dynamics. Given the complexity of the transport domain and dynamic interactions of its various actors, the safety investigation of transport accidents needs to be multi-faceted to understand how an accident happened. In fact, Dekker (2019, pp. 1-2) identifies five main disciplines:

- **Social science** which analyses the ways society make sense and reacts towards the threat of accidents;
- **Psychology** which provides meaning to the behaviours of actors, teams, and the organisation in general prior, during and in the wake of accidents;
- **Population health**, where patterns, habits and accident trends are examined to identify contextual factors leading to 'human error';
- **Physical sciences**, which provides an account of the physical processes leading to accidents; and
- **Engineering**, which provides details of the necessary safety actions to reduce the risk of accidents in terms of likelihood and consequences.

The application of safety science to the investigation of accidents has evolved significantly over the past 35 years or so. Guided by scientific principles, the theoretical frameworks of safety investigations have evolved; accident causation models used in early safety investigations have developed from early linear models to high-end, sophisticated systemic models. These developments were not only essential because organisations and the contexts in which they operate changed over the years, but also because a new meaning, emerging from research, has been ascribed to the concept of 'human error'; human error is no longer seen as a cause of accidents but a consequence of deeper systemic issue.

Adopting this new meaning of 'human error' in safety investigations is an effective safety investigation strategy to distance oneself from the apportionment of blame. This new meaning mirrors the requirements of the existing international and regional standards on safety investigations such that they neither apportion blame nor determine civil / criminal liabilities, however it also necessitates a paradigm shift in the way accidents are analysed.

8.0 Proposals

The following proposals take into consideration the international, regional, and national legal obligations which already regulate safety investigations in the aviation and maritime domains. In the absence of a similar regulatory regime for road safety investigations, the Maltese Government is exploring the possibility of establishing a safety investigation structure which also enables a thorough understanding of why and how fatal road accidents happen.

It is the aim of the Government to establish a single permanent entity with the necessary legal remit and resources to link theoretical aspects of system safety with transport accident data from all three domains: air, maritime and land transport. The entity will be responsible for making recommendations where necessary, addressed to the appropriate hierarchical levels to enhance transport safety in the respective domains.

Proposal 1

Transport Safety Investigation Commission (TSIC) and Safety Investigation Bureaux

It is being proposed that the TSIC is established as a permanent safety investigation entity. Safety investigations will be carried out by three Bureaux within the TSIC - the Bureau of Air Safety Investigation, the Bureau of Maritime Safety Investigation, and the Bureau of Road Safety Investigation (Figure 1). The Bureau of Air Safety Investigation and the Bureau of Maritime Safety Investigation will assume the functions of the BAAI and the MSIU respectively. It is proposed that primary legislation is enacted to establish the TSIC and the Bureaux.

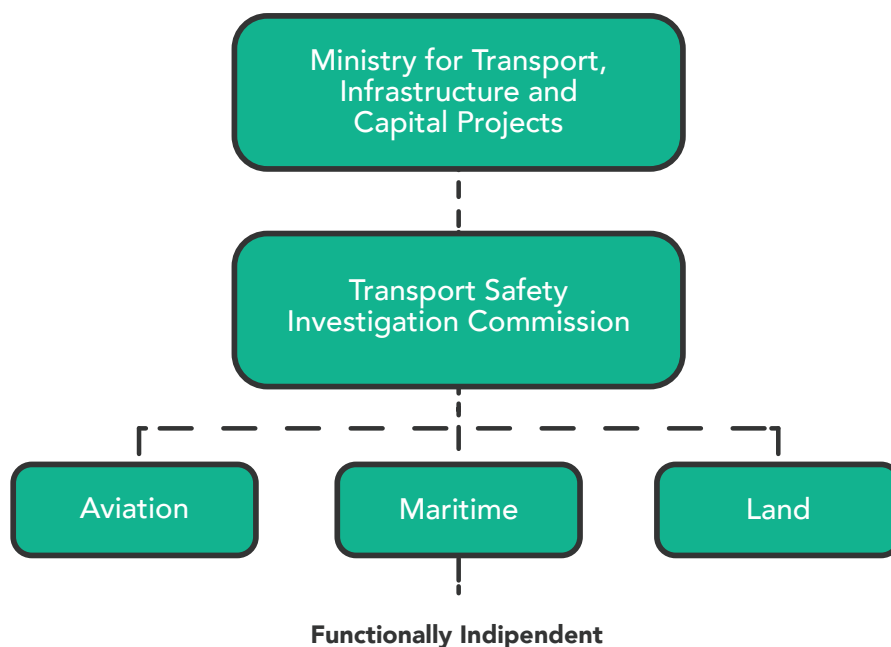


Figure 1: Proposed TSIC organigram

Functionally independent

It is also proposed that the TSIC and its three Bureaux will fall under the remit of the Ministry responsible for transport.

It is further proposed that the TSIC will have the following five main responsibilities:

- i. supporting the three Bureaux in the execution of their functions at law, including any functions relative to the conduct of safety investigations as well as any relevant ancillary functions;
- ii. co-ordinating and approving specific safety studies and scientific research on matters pertaining to transport safety and environment protection in the maritime domain and to ensure the effective implementation of such studies and research through the relevant Bureau;
- iii. co-operating and co-ordinating with local and foreign stakeholders to ensure that the duties of the Commission are effectively and efficiently discharged;
- iv. co-operating with local and foreign public authorities, including adjudicating and investigative authorities, where there exists a degree of overlap between the responsibilities and functions of the Commission and those pertaining to the respective adjudicating and investigative authorities. Therefore, it would be possible for a safety investigation to be initiated, based on evidence which would have been preserved and gathered by the adjudicating and investigative authorities;
- v. supporting each Bureau through the provision of corporate services which include the management of budgets, IT, and the HR structures.

It is being proposed that the TSIC and its three Bureaux are autonomous and independent. This will ensure that the safety investigation processes are self-regulated. Therefore, in line with the spirit of co-operation, the TSIC and its Bureaux will complement other administrative and / or judicial investigations. Given that the air, maritime and land transport domains operate in different contexts, it is further proposed that the three Bureaux will be functionally independent from one another, although this will not compromise potential synergies

It is envisaged that the TSIC will have a Board of Directors which will include the Chief Safety Investigators of the three Bureaux and three other members (one expert from each domain) appointed by the Minister. Members of the Board of Directors must not have a vested interest which may conflict with the role and functions of the TSIC or any of its Bureaux.

Proposal 2

Setting obligations to either investigate or participate in safety investigations

It is proposed that each Bureau is responsible for the safety investigation of occurrences in its respective domain. While air and maritime accident safety investigations are carried out in accordance with established criteria, criteria will be developed for the safety investigation of fatal road accidents. In that regard, Government is considering several options. It is important to make best use of resources, and in particular make better use of the data collected during the course of magisterial inquiries. During the course of such investigations, experts appointed by the magistrate are provided with the necessary resources. At present this

data is normally used for prosecution purposes only. Thus, in the area of road safety, one can explore the possibility of providing the Bureau with access to this data, thus avoiding duplication of resources. It should be reiterated that the TSIC and its Bureaux will not have the mandate to conduct investigations intended to apportion blame and / or to determine civil / criminal liabilities and therefore, safety investigations will not replace investigations intended to establish legal responsibilities.

Proposal 3

TSIC becoming a point of reference for furthering safety in transport

The Bureau of Air Safety Investigation and the Bureau of Maritime Safety Investigation will be assuming responsibilities from the BAAI and the MSIU respectively and are expected to have seamless transitions. In the short-term, the Bureau of Road Safety Investigation is expected to complete its familiarisation and commence with the safety investigations of fatal road accidents. With the three Bureaux functioning in their respective domains, the TSIC will be able to communicate safety recommendations to policymakers and other stakeholders, becoming a national entity which is a specialised point of reference and leader in transport safety in the medium-term, based on the credibility of its safety investigations.. TSIC staff will also have access to other industry experts, who must not have a vested interest which may conflict with the role and functions of the TSIC or any of its Bureaux. In the long-term, the TSIC is expected to have completed a significant number of safety investigations and will be able to develop its database and engage in transport safety studies.

9.0 Consultation Process

Government is running a public consultation on the proposals listed in this White Paper.

Feedback may be sent as follows

By email consultations.mtip@gov.mt

By post Transport Safety Investigation Commission White Paper
Ministry for Transport, Infrastructure and Capital Projects Casa Leoni,
476, Triq il-Kbira San Ġużepp, Santa Venera

Submissions will be received until 15/02/2023.

Thank you for your time and input.

References

- Airbus. (2022). Innovation. Shaping the future of aerospace. Airbus. Retrieved 11 November 2022 from <https://www.airbus.com/en/innovation>
- Anon. (2022). A new type of air terminal opens for flying taxis. Urban air-travel takes a step closer. *The Economist*. <https://www.economist.com/science-and-technology/2022/11/16/a-new-type-of-air-terminal-opens-for-flying-taxis>
- Bureau of Air Accident Investigation. (n.d.). Safety awareness. Retrieved 11 November 2022 from <https://baai.gov.mt/en/Pages/SAFETY%20AWARENESS/To-help-the-public-and-media-better-understand-the-scope-and-substance-of-ICAO.aspx>
- Civil Aviation (Investigation of Air Accidents and Incidents) Regulations, § S.L.499.22 (2013). <https://legislation.mt/eli/sl/499.22/eng/pdf>
- Cook, R. I., & Woods, D. D. (1998). Operating at the sharp end: the complexity of human error. In S. Bogner (Ed.), *Human error in medicine* (pp. 255-310). Lawrence Erlbaum.
- Dekker, S. (2014). *Safety differently: human factors for a new era*. CRC Press.
- Dekker, S. (2019). *Foundations of safety science. A century of understanding accidents and disasters*. CRC Press.
- Eur-Lex & Legal Information Unit. (2021). Civil aviation accidents and incidents. Publications Office of the European Union. Retrieved 27 November 2022 from <https://eur-lex.europa.eu/EN/legal-content/summary/civil-aviation-accidents-and-incidents.html>
- European Commission. (2015). Vision Zero. European Commission - Mobility and Transport. Retrieved 11 November 2022 from https://road-safety.transport.ec.europa.eu/index_en
- European Commission. (2022). ITS & vulnerable road users. European Commission - Mobility and Transport. Retrieved 11 November 2022 from https://transport.ec.europa.eu/transport-themes/intelligent-transport-systems/road/action-plan-and-directive/its-vulnerable-road-users_en
- European Parliament, & Council of the European Union. (2010). Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and repealing Directive 94/56/EC. *Official Journal of the European Union*, 53(L. 295), 35-50. <http://data.europa.eu/eli/reg/2010/996/oj>
- European Parliament, & European Council. (2009). Directive 2019/18/EC of the European Parliament and of the Council establishing the fundamental principles governing the investigation of accidents in the maritime transport sector and amending Directives 1999/35/EC and 2002/59/EC L131, 114-127. <http://data.europa.eu/eli/dir/2009/18/oj>
- European Transport Safety Council. (2007). Social and economic consequences of road traffic injury in Europe. European Transport Safety Council. <https://etsc.eu/wp-content/uploads/Social-and-economic-consequences-of-road-traffic-injury-in-Europe.pdf>
- European Transport Safety Council. (2022). Road deaths in the European Union - latest data. Retrieved 11 November 2022 from <https://etsc.eu/euroadsafetydata/>
- Hollnagel, E. (2008). Investigation as an impediment to learning. In E. Hollnagel, C. P. Nemeth, & S. Dekker (Eds.), *Resilience engineering perspectives: remaining sensitive to the possibility of failure* (Vol. 1, pp. 259-268). Ashgate Publishing Ltd.
- Hossay, P. (2019). *Automotive innovation. The science and engineering behind cutting-edge automotive technology* (1st ed.). CRC Press.
- Hutchins, E. (1995). *Cognition in the wild*. The MIT Press.
- International Chamber of Shipping. (n.d.). Container ships. International Chamber of Shipping. Retrieved 11 November 2022 from <https://www.ics-shipping.org/explaining/ships-ops/container-ships/>
- International Civil Aviation Organization. (2020). Annex 13 to the Convention on International Civil Aviation (12th ed.). International Civil Aviation Organization.
- International Maritime Organization Assembly Resolution A20/Res.849: Code for the investigation of marine casualties and incidents, International Maritime Organization (1997).
- International Maritime Organization. (2008). Casualty investigation code. Code of the international standards and recommended practices for a safety investigation into a marine casualty or marine incident (2008 ed.). International Maritime Organization.
- International Maritime Organization. (2020). Safety of Life at Sea (SOLAS), 1974 (Consolidated ed.). Author.
- Larsson, P., Dekker, S. W. A., & Tingvall, C. (2010). The need for a systems theory approach to road safety. *Safety Science*, 48(9), 1167-1174.
- Martins, I. T., Martins, E. T., Soares, M., & da Silva Augusto, L. G. (2013). Human error in aviation: the behavior of pilots facing the modern technology (A. Marcus, Ed. Vol. 8014) [User Experience in Novel Technological Environments. DUXU 2013. Lecture Notes in Computer Science]. Springer. https://doi.org/10.1007/978-3-642-39238-2_17
- Merchant Shipping (Accident and Incident Safety Investigation) Regulations, § S.L.234.49 (2011). <https://legislation.mt/eli/sl/234.49/eng/pdf>
- Ministry for Transport Infrastructure and Capital Projects. (2017, 29 March). Transport ministers adopt the Valletta declaration on road safety <https://mtip.gov.mt/en/government/press%20releases/pages/2017/pr170795.aspx>
- National Statistics Office. (2022, 08 November7). Road Traffic Accidents: Q3/2022 https://nso.gov.mt/en/News_Releases/Documents/2022/11/News2022_199.pdf
- Rodrigue, J.-P. (2020). *The geography of transport systems* (5th ed.). Routledge.
- Salmon, P. M., McClure, R., & Stanton, N. A. (2012). Road transport in drift? Applying contemporary systems thinking to road safety. *Safety Science*, 50(9), 1829-1838. <https://doi.org/10.1016/j.ssci.2012.04.011>
- Snook, S. A. (2000). *Friendly fire: the accidental shutdown of U.S. Black Hawks over Northern Iraq*. Princeton University Press.
- The Royal Society for the Prevention of Accidents. (2017). Road crashes overview (Road Safety Factsheet, Issue November 2017). The Royal Society for the Prevention of Accidents. <https://www.rospa.com/rospaweb/docs/advice-services/road-safety/road-crashes-overview.pdf>
- Uğurlu, Ö., Yildirim, U., & Başar, E. (2015). Analysis of grounding accidents caused by human error. *Journal of Marine Science and Technology*, 23(5), 748-760. <https://doi.org/10.6119/JMST-015-0615-1>
- United Nations. (1982). United Nations Convention on the Law of the Sea (UNCLOS). United Nations.
- United Nations Assembly Resolution A/RES/74/299: Improving global road safety, (2020). <https://www.roadssafetyngos.org/about/about-road-safety/un-resolution-on-improving-global-road-safety/>
- World Health Organization, & United Nations Regional Commissions. (2021). Global plan. Decade of action for road safety 2021-2030. UN Economic Commission for Europe Information Service. https://cdn.who.int/media/docs/default-source/documents/health-topics/road-traffic-injuries/global-plan-for-road-safety.pdf?sfvrsn=65cf34c8_27&download=true





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