

Submission of Feedback by the Chamber of Engineers:

Public Consultation on the National Research & Innovation Strategic Plan for 2023 to 2027

Engineers are catalysts for innovation and engineering forms a cornerstone for technological development and for any forward looking society. As the representative of the engineering profession in Malta, the Chamber of Engineers (CoE) has taken a proactive role in the promotion of research and innovation (R&I) with policy makers through its [Strategic Recommendations for R&D&I in Malta](#) and seeks to extend its contribution by presenting its feedback on the proposed National R&I Strategic Plan.

1. Education Sector

The CoE was pleased to note that the proposed National R&I Strategic Plan directly refers to the main recommendations given by the European Commission in the Peer Review of the Maltese Research and Innovation System. It is also positive to observe the Government's steady funding allocation to R&I in its annual budget over the past couple of years, however, further financial backing is needed. Further investment should also reflect the budgets allocated to the two major educational institutions and budgetary reductions convey a mixed message to the society that education and R&I are not being prioritized at a national level.

Over and above the performance metrics and comparative statistics, the number of yearly graduates in engineering, which is a pivotal profession for R&I, is not encouraging and does not spell positively for the future of our country. A strong R&I policy should strategically focus on encouraging younger generations to pursue engineering and STEM careers and make sure to sustain an enticing job market. This strategic plan proposes the upgrading of the current system for STEM education and learning but further specifics are required in the form of a guidance framework. While subjects such as Engineering Technology do provide younger students with some background of practical technological skills, this subject does not lead to becoming an engineer. This subject title is inherently misleading and harmful to the pursuit of career paths in the engineering profession as prospective students require an *academic degree*; as engineering is a regulated profession in Malta and not a vocational subject. The Chamber recommends renaming of the subject to reflect the professional affiliation more accurately.

2. Human Resources

R&I performance is highly dependent on the human resources required to sustain it, specifically, doctorate level graduates who champion research. On the other hand, doctorate level graduates require a job market where to apply their qualifications and contribute to R&I. Policymakers need to sufficiently understand that the rate of doctorate level graduates and the attractiveness towards private/foreign R&I investment are highly intertwined. Human resources remain a key strength for Malta and the academic and practical training received by our STEM professionals should be one of the major aspects used to attract investments. Concurrently, there is an evident challenge in attracting students towards STEM careers and studies at post-graduate level in STEM subjects.

The issue of doctoral level employment is highlighted in the strategic plan proposed with a proposal to make the career options for people with doctoral qualifications more attractive; however further details on how this would be done are required in the strategic plan proposed. This strategic plan details specifically the proposal of employing of doctorate holders as policy makers and this presents a good prospective, especially when it relates to R&I and other relevant areas of science and technology. However, focusing specifically on this aspect alone would result in significant missed opportunities for our economy and our prospective doctorate holders. The Chamber presents the following recommendations under this subject area:

- A national mechanism is required to ensure that the in-depth training of PhD holders can be harnessed for locally-undertaken research on a **fixed** basis to ensure that Malta mitigates the not-to-be underestimated reality of “brain drain”. Urgent research funding is needed for local R&I activities to be performed on a fixed basis by fixed employees rather than employees on a temporary contractual basis. The current system makes use of finite contracts which does not provide adult researchers with the stability required to invest in such a career path. This is compounded by the considerable difficulty in finding local researchers when funds are available. The process of employing third country nationals is too long, making it difficult to meet targets and tight project deadlines. A fast-track work visa option in such cases should be considered for the benefit of R&I activities.
- Provide further incentives which assist adults in committing to further studies where a living wage should be offered to incentivize further study and research. In addition, salaries for researchers need to become more competitive and attractive for local engineers/scientists to opt for a research career.
- Current funding is allocated to projects with very short-term goals and ideally leading directly to commercialization, which, with R&I, is not always the case. In order to advance local R&I, the country needs more mechanisms for dedicated research funding which is not constrained within a research project.

The CoE advocates for a public awareness campaign to highlight in layman’s terms why R&I is important and to raise awareness on the importance of R&I for the future of our country, how R&I is contributing to our quality of life and how younger generations are able to make a difference in such a sector. This campaign needs to also target locally-established companies to focus on both incremental improvements together with novel R&I activities in Malta.

A commendable focus area highlighted in the strategic plan is gender mainstreaming. There needs to be a cultural shift for successful implementation of such an initiative. Locally, women are still expected to give a majority contribution to care duties as an ingrained cultural aspect. While this has much improved in current times from what it was, a culture shift and support systems are still required to empower equal opportunities. A pilot study and stakeholder meetings are required to identify and address such issues. Specific objectives are required in measurable and reachable terms.

3. Funding

Malta’s Gross R&D expenditure as a % of its GDP is at ~30% of the EU’s average (see [Eurostat](#)). This shows that as a country we need to be more ambitious, as Malta is falling significantly short compared to fellow member states. Furthermore, one notes that the proportion of funding contributed by the Government of Malta is very small and therefore there is ample room for improvement in the Government’s allocation of budget.

Mechanisms to encourage and leverage private funding into R&I should also be investigated and detailed. Current funding mechanisms also need urgent simplification to make these more accessible to industrial players. An application for research funding currently involves significant work (around a month for a full-time employee) which for industrial players is not sustainable given that funding is limited. Microbusinesses and SMEs need more dedicated support. Both sectors need more support, and more efforts need to be done by Malta Enterprise and MCST to proactively market their funding schemes. In parallel to R&I funding, upskilling funding should also be available in tandem.

Furthermore, funded project durations are in many cases not tallying with the time required to implement the research. Research at PhD level takes between 3.5 to 4 years while project timelines typically run for 2 or at most 3 years which presents massive difficulties in engaging full-time adult independent PhD researchers to undertake such activities. A simplification of the procedures related to funding applications together with a reevaluation of the associated timelines and assessment of the current and potential candidate profiles expected to perform these research activities would be beneficial at this stage.

4. Procurement

In the Strategic Plan, green procurement is listed as a key area. There should also be a mechanism to ensure that the remuneration quoted for R&I professionals at procurement stage is realistic and not undervaluing professionals to meet the criteria for minimum cost. This criterion should also be adjusted to reflect indicators for quality.

Furthermore, the strategic plan should highlight a commitment to simplify the complex procurement process that currently exists. As per the current process, open calls for quotations or tenders are needed for equipment, repair or upgrades costing more than € 5 000. Most of the equipment needed for R&I costs more than € 100 000 in view of very specific requirements and needs. Maintenance and upgrades of equipment would be provided only by the original supplier of the item and cannot be delivered within the 3 quote system or tenders. Furthermore, current tender processes are very laborious and take more than a year to prepare, vet, publish and evaluate; by which time the funding period would have been terminated. Often few bids are received and many of them tend to not be compliant. This results in significant delays and makes uptake of such funding in the timeframes currently established difficult. Timely maintenance, repair, and upgrades of equipment are fundamental to support continued R&I. Maintenance agreements typically have a duration of 2 years and cost around €10-20k. Such maintenance is currently based on breakdowns while preventive maintenance should remain best practice. Extended mechanisms of using the funding need to be in place for funding opportunities where instruments are being procured to allow for the procurement process to complete. In view to the significant delays which are currently encountered in procurement, the Chamber proposes a simpler and less bureaucratic approval process. Allocating a standard portion of funding calls for operational/maintenance costs (without affecting the funds for equipment procurement) would also be beneficial for equipment-dependent projects or allocating funding mechanisms specifically dedicated to equipment maintenance need to be made available.

5. R&I Administration

A Ministerial Portfolio for R&I is commendable and should be maintained within Cabinet going forward. The Minister should be well versed in R&I but may have capacity limitations to fulfil the role of R&I Champion laid out in the strategic plan. While fully able to fill the role, this strategy should consider that the role of R&I Champion is assigned to a technocrat which reports to the Minister e.g. A Commissioner for Research & Innovation. This person should also be familiar with the R&I sector, having a background in research or innovation with a proven track record of having worked in the field and hold some form of STEM research based post-graduate degree preferably at doctorate level. Advisors for the R&I champion should also have a post-graduate level of education focusing on research, preferably in a STEM subject at doctoral level. This should be both within the steering group proposed and the core group proposed. A strong STEM background is especially important in regards to the proposed targets in relation digitalization and a green economy.

The government is recommended to employ further the principle of devolution and to focus on simplifying the complex. Any re-engineering of the existing monitoring structure should mitigate bureaucracy and should be reducing the layers between the policy maker/s and the researcher/s on the field. A mission focused

approach is presented, which is good. Pilot missions specified in Section 2.4 offer a good, targeted approach with which to determine the success factor of a proposed initiative. There needs to be clarity on how these missions will be defined. There also needs to be more transparency with regards to how the pilot missions will be funded (e.g. national or EU funding). A priority setting exercise is mentioned however this should be defined by a combination of stake holders from industry, government, and research bodies.

In conclusion, the CoE trusts that this feedback is carefully evaluated as feedback from the engineering community in the frame of the public consultation. As a Chamber we strongly recommend that the Government looks at R&I as an investment in society and as a key means towards future-proofing the island. The CoE makes itself available to authorities to further elaborate this feedback and give advice and support where needed.