

FOREWORD

Forces in Science

Serving the interests of South Africa and its people is an objective the CSIR shares with its defence partners. In our case, our directed research and technology development supports the health of national industrial competitiveness and the sustainable socio-economic development of the country's people.

Undoubtedly, we benefit from leveraging a strong (both in depth and scope) skills base that not only fuels our own accomplishments, but gives lifeblood to a South African knowledge and innovation economy. This base is supported by the expert equipment and facilities to excel in different fields – from wind tunnels and sophisticated radar equipment to field units for laser or command and control technologies.

The CSIR channels its intellectual energy into specifically selected areas – and where greatest impact can be made through scientific discovery and intervention. These so-called *research impact areas* are at the core of the organisational strategy. They are: industry; built environment; health; natural environment; defence and security; and energy. Layered over these are selected 'flagship' programmes: Large, integrated development and innovation endeavours that focus on utilising robust, existing technologies for direct, stronger and more immediate impact. The burning issues in water sustainability and health led to the implementation of two flagship programmes in those domains. Safety and security is currently under analysis for future intervention.

We have the ability to contribute at a multitude of levels: developing new knowledge and capabilities; innovating technology-specific solutions in, for example, radar or laser technology; integrating across disciplines in, for example, interoperability and complex surveillance systems; and taking on platform development to support an entire industry. This is the case for our contribution in aerospace and the automotive, titanium and textiles industries. As a dependable and independent science partner, we offer this level of support to ensure longer-term sustainability.

Another important element of our success is the commitment to close partnerships with our peers, stakeholders and clients alike. It is only through this approach that we can truly understand and respond effectively to the real and relevant challenges and needs that exist. Stakeholder engagement to us means a lot of listening and time spent 'in the field'. This includes stakeholders across the range: from government and higher education institutions,

to state-owned enterprises and the private sector. Our footprint also extends to international linkages – which are key to ensuring South Africa's quality of science, engineering and technology is shaped beyond what is typically expected of 'developing' nations.

After more than 65 years, the CSIR's multidisciplinary science, engineering and technology base positions the organisation as a critical component of the national system of innovation, a key contributor to local innovation, service delivery and competitiveness – and makes it a leader in research and innovation on the African continent.

As scientific frontiers shift – and new challenges arise – the CSIR continues to invest in and explore new research areas and technologies that can add to the impact of research. These include work in information and telecommunications technologies, novel materials, robotics, nanotechnology, synthetic biology, photonics and continually increasing levels of systems integration across domains to weave robust technology solutions.

This publication outlines our capabilities and track record in defence and security science engineering and technology. 'Armed' with science, we look forward to further advances in this field to better address the changing parameters of conflict and peace.



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