

INTRODUCTION

Defence and security research and development for a safe and secure South Africa

In the 21st century, security structures are not effective if they are not part of the web and weave of society. The security of individuals is as important as that of states, while conversely, state security relies on the well-being of citizens. The expectation placed on the security organs of state is to ensure the physical safety of people and communities; to look after cyber space and ensure the integrity of our information systems; and to guard the infrastructure that we rely on as a society to be prosperous.

We want to feel safe in the knowledge that somewhere someone is taking care of these concerns. We want to walk on a beach with our children and enjoy the sunset; we want to do our banking online – knowing that our information is safe with the bank and with the data carrier, and we want to know that security forces have the technology and know-how to control who enters our country at harbours, airports and border posts. We want to go to large social events like a soccer game and know that no harm will come to us while we spur our team on.

At the same time we do not want to be reminded of the presence of all these security measures. It must be integrated and invisible, effective and efficient to live up to our expectations. Imagine the complexity of achieving this. We live in a time of information, of massive communication links allowing anybody access to anything or anyone, where all these technologies are available to those who want to use it for good, but also to those who have dark agendas.

The Grand Challenges set by South Africa's Department of Science and Technology rely on our ability to achieve and maintain a safe and secure society in South Africa. It is a challenge that demands scientific excellence and engineering prowess coupled with a sensitive approach to the society we serve. In this issue of *ScienceScope* we highlight the response of the CSIR to this challenge.

It is widely recognised that technology is a force multiplier and herein lies the value addition of the CSIR for the South African National Defence Force. Many articles in this edition relate to the CSIR being able to increase value for our armed forces: helping them to be smart buyers and smart users of technology. And yet, despite technologies specifically designed for force, the measure of success lies in absence: absence of war, instability, fear and unsafe communities.

