INTRODUCTION
With less than 650 days to go until the first kick-off of the 2010 FIFA World Cup in South Africa, the need for and preparation of robust and simulation-based systems to enhance planning, briefing, execution and debriefing of joint exercises between South African authorities is paramount. For example, the South African Navy (SAN) and South African Army (SAA), systems, procedures and processes will be deployed for events close to the coast (Durban, Port Elizabeth and Cape Town International Airport). Simulated observations of simulated aerial threats are to be kept in mind. Integration of legacy systems is not a trivial undertaking, and the need for relevant protocols becomes apparent.

Modelling and simulation-based support to interoperability exercises in preparation of 2010 FIFA World Cup South Africa™

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To help secure everyone’s safety at the 2010 FIFA World Cup in South Africa, CSR researchers are using simulations to integrate the different technical systems of the departments and agencies responsible for safety and security.

INTEROPERABILITY EXERCISES
A series of interoperability exercises are held in preparation of the 2010 event. To kick-start the exercises, air traffic control and air defence are used as initial missions. Air Traffic Navigation Systems are responsible for civil and commercial air traffic control, and the South African Air Force (SAAF) for military air space control. These agencies have interoperable processes and procedures, but with the inclusion of capabilities from the South African Navy (SAN) and South African Army (SAA), systems, procedures and processes have to be revised and extended. Civilian air traffic is controlled via a set of fixed sensor (radar) installation sites countrywide, which are also used by the SAAF. The SAN and SAAF contribute in the form of additional sensors. These are flexible in terms of deployment, since at least one of the new Frigates will be deployed for events close to the coast (Durban, Port Elizabeth and Cape Town). The additional sensors are used to create a richer air picture for enhanced situation awareness within the commanding structures of the operation. In addition to air situation awareness, tracking of land-based, mobile resources are also done by the police, army and emergency services. These include tracking of individuals, both within vehicles or dismounted, or vehicles themselves.

COMPUTER-AIDED EXERCISES
As large exercises are expensive, time-consuming endeavours, all avenues of assistance with planning, briefing, execution and debriefing are explored. Modelling and simulation serve to extend support these functions, especially if an infrastructure already exists that relates to the type of operation. The CSR has been supporting ArisGSCOR and the SANDF for a number of years with modelling and simulation capabilities in their acquisition programmes. An example is the procurement of a Mobile Air Defence System, used mainly by the SAN.

INTEROPERABILITY ARCHITECTURE
Modelling and simulation is an effective tool to support wide-ranging activities in diverse disciplines. It has successfully been used during exercises in preparation of the 2010 FIFA World Cup South Africa, specifically in support of the SANDF. Virtual threats have been injected into real-world systems, to test for effective training processes for coordinated, complex exercises.

CONCLUSION
The evolution of air-based simulation systems has been successfully used in various exercises and operations in South Africa and worldwide. It is an effective tool for the enhancement of training and operational efficiency. The evolution of air-based simulation systems is a dynamic field, and its success lies in the ability to adapt and evolve to meet new challenges and requirements.

REFERENCES