INTRODUCTION

With less than 650 days to go until the first kick-off of the 2010 FIFA World Cup South Africa, the safety and security of everyone is paramount. All South African departments, agencies and institutes that are part of the team to ensure a safe and successful event, are busy with preparations. Some of these include exercises at the provincial disaster management centres and involve multiple role players. Important aspects of such exercises are the training of personnel, fine-tuning of drills and procedures and the element of surprise. The latter is necessary to ensure effective training. The CSIR was involved in such an exercise – Operation Greenpoint 208. It stretched over 10 days with the actual exercise during the last three days. The CSIR has been supporting the South African National Defence Force (SANDF) with joint command and control development over a number of years with its modelling and simulation capabilities. The SANDF’s ‘Red’ team were used at Operation Greenpoint, and this is where the simulation capabilities of the CSIR come into very handy. Simulated attacks were ‘injected’ into the system by the Red team. All of this was done to ensure that the Blue team was up to scratch.

Simulation capability was also used to support the SANDF SAPS and other agencies to ensure that the different systems used at the exercise are interoperable at a technical level.

JOINT INTERDEPARTMENTAL AND MULTINATIONAL OPERATIONS

Efforts such as ensuring the safety and security of all involved during large events are typically led by an appointed agency or department, with the rest in a supporting role. In the military context, such efforts, or operations, are referred to as joint, interdepartmental or multinational operations (JIM Ops). Although 2010 FIFA World Cup South Africa is an international event, the security for the event is guaranteed by the South African government by means of the South African Police Services.

INTEROPERABILITY EXERCISES

A series of interoperability exercises are held in preparation of the 2010 event. Air traffic control and air defence exercises are used as initial ‘missions’. Air Traffic Navigation System are responsible for civilian 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 and procedures have to be revised and extended. Civilian air traffic is controlled via a set of fixed satellites and in communication with airlines all over the world, which are also used by the SAAF and SAA respectively. The SAN and SAA 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 command 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 disembarked, or vehicles itself.

COMPUTER-AIDED EXERCISES

As large disasters and long-term, time-consuming endeavours, all avenues of assistance with planning, briefing, execution and debriefing are explored. Modelling and simulation can be used to support these endeavours, especially if an infrastructure already exists that relates to the type of operation. The CSIR has been supporting ARHITOR and the SANDF for a number of years with modelling and simulation capabilities in their acquisition programmes. An example is the provision of a Mobile Air Defence System, used mainly by the SAA.

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

WH LE ROUX

CSR Defence, Peace, Safety and Security

PO Box 395, Pretoria, 0001, South Africa

Email: whleroux@csir.co.za

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

DATA MODELS

Different approaches exist for the integration of diverse data and information sources through the use of relevant protocols. In essence, information has to be exchanged in compliance with processes and procedures. Aspects such as situation awareness, information overload and decision-making nodes have to be kept in mind. Integration of legacy systems is not a trivial undertaking; therefore system developers continually strive to reduce this effort footprint – that is before systems are defined, developed and implemented. One such effort is to define the levels of conceptual interoperability, and to take them into account when defining data models. Data models are domain specific, with the dilemma that if the model is too generic, the level of effort to describe entities with it is very cumbersome. If the data model is too specific to a domain or sub-domain, it is difficult to extent the model to other domains. Well defined data models facilitate the definition of new information exchange protocols.

CONCLUSION

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 provide a refine processes for coordinated, complex exercises.

REFERENCES