

POLICY ON COMPUTER-BASED, COMMERCIAL MILITARY SIMULATIONS AND GAMES

INTRODUCTION

1. Defence looks increasingly to simulation as a way to help decision-makers take better account of the complexity, dynamics and uncertainties that pervade modern warfare. The Defence Efficiency Review, the Australian National Audit Office report on Defence Aerospace Simulators, and the *Defence 2000 White Paper* underlined key future roles for simulation. Issues raised in the *Defence 2000 White Paper* highlight the potential for simulation support to war games and analysis, research and development experimentation, acquisition, training and operations.

2. Simulation is already widely used, with demonstrable benefits, for Defence training purposes. Training continues to be a growth area for simulation in Defence. Increasingly, simulation also offers decision makers a cost-effective means to investigate new ideas, test assumptions, evaluate alternative options for action and develop responses to situations before they occur. Fundamentally, simulation helps people to gain and sustain knowledge—to look at and to prepare for the future.

3. Within each Defence Group, varied use is already made of simulation. Several Groups have simulation policy and planning documents appropriate to their areas of application. However, overall policy direction and coordination of simulation initiatives within Defence Groups offers the potential to increase the effectiveness of individual Group activities. There are strategic issues regarding the development and use of simulation that affect each Group but are not within the responsibility of any particular Group to address for the benefit of Defence as a whole. A Defence policy on simulation has therefore been developed to address these strategic simulation issues from a Defence-wide perspective. It establishes the rationale for and sets the context for the Defence Simulation Plan. The latter prepares the way ahead for the coordination of future component and subordinate plans and the management of Defence simulation investments.

4. In recent years computer-based, commercial, military simulations and games have been used within the ADO for a number of purposes including training, capability development and analysis and education. As more products have become available and more sophisticated, their use and applicability has increased. The commercial simulation market in response to the public demand for entertainment software has itself grown substantially in recent years. Many of the resulting products may have an application within Defence. Defence's exploitation of computer-based, commercial, military simulations and games is to proceed in ways consistent with guidance given in Defence Simulation Policy (DIG(OPS)42-1) and that given in this policy statement.

AIM

5. The aim of this instruction is to promulgate a policy for the development and use for Defence purposes of computer-based, commercial, military simulations and games.

SCOPE

6. This instruction addresses commercial-off-the-shelf, computer-based simulations, including military games and related entertainment software products, that demonstrate a utility to Defence and which hereafter for the purposes of this instruction are referred to as "commercial simulations".

VISION

7. Defence's vision for the exploitation of commercial simulations is as follows:

Defence uses commercial simulations where appropriate as an aid to training, experimentation and decision support.

8. As with any other simulations being considered for Defence use, those described as commercial simulations must be assessed for suitability in accordance with DIG (OPS) 42-1 and the Defence Simulation Proposal Guide (available via the ADSO web page).

RATIONALE FOR USING COMMERCIAL SIMULATIONS

Potential Benefits and Advantages

9. Commercial simulations are developed for a mass market and hence can be relatively inexpensive to procure because of economies of scale. They can also enjoy the test and validation benefits that the resulting scale of exposure to often very well informed critical review. The user interfaces of commercial simulations are generally easy and intuitive for new users. Products come supplied with straightforward user manuals and embedded tutorials.

10. The large number of users can often represent a source of additional support available via websites, newsgroups and email lists. Many commercial simulations now lend themselves to ready modification by users interested in improving the accuracy of data and improving the external look and feel of the game. New “virtual worlds” and scenarios can be created via in-built editing software, while other commercial simulations provide for ready adaptation by their developers to meet new user requirements.

Potential Drawbacks and Disadvantages

11. Commercial Simulations can vary enormously in quality given that their independent development is usually conducted by small groups of people. The algorithms that drive the various results, including combat results, can range from excellent to very poor, sometimes within the same simulation. The design and content of commercial simulations are driven primarily by market forces which are well beyond the ability of Defence to influence or control. Their fitness for purpose is therefore the first matter for detailed appraisal by the appropriate Defence subject matter experts from proposed user areas if consideration of the use of such simulations for Defence purposes is to be cost-effective.

USING COMMERCIAL SIMULATIONS

12. Given the potential benefits and disadvantages of commercial simulations, it is vital that they are validated for use on a case-by-case basis. It is the responsibility of the using agency to identify a simulation’s fitness for purpose, in accordance with the relevant section of DIG (OPS) 42-1 that addresses “Practical Issues for Simulation”. This is reproduced in Annex A. The Defence Simulation Proposal Guide provides detailed guidance based on Defence’s Simulation Policy for the development of the necessary business case. For illustrative purposes Annex B lists some commercial simulations (primarily military games) that, at the time of writing this policy statement, are under evaluation by the ADO and by partner military organisations overseas.

13. Some commercial simulations do prove to have utility for the Defence training and education domain. While such products have yet to demonstrate suitability for direct support to Defence decision-making, they can offer challenging experiences to users that may help to develop the relevant skills. Commercial simulations should therefore be regarded primarily as tools for training and education. In particular, commercial simulations can:

- a. enrich more traditional training methods,
- b. present demanding intellectual challenges,
- c. stretch and inform the imagination,
- d. hone specific skillsets, and

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- e. develop military decision-making acumen.

14. There is, moreover, growing evidence that the best way to connect to, educate and train incoming members to Defence from the “Y” generation is through the use of interactive, electronic media such as that offered by commercial simulations.

THROUGH-LIFE SUPPORT

15. All the normal considerations for through-life support apply. However the procurement of commercial simulations should generally be considered as expense items that have a short term utility of only one or two years. This is due to the dynamic nature of the entertainment software market in general. The rapid increase in computer and graphics capabilities each year means that commercial simulations are either updated on a yearly basis, or new ones are developed that offer significant advantages over the older products. It is therefore important to structure training and support packages in such a way that new commercial simulation products can be rapidly integrated into training programs.

DEVELOPMENT OF COMMERCIAL SIMULATIONS FOR DEFENCE USE

16. Given their nature some commercial simulations would benefit from further tailored development to make them suitable for Defence purposes. Often the investment of relatively small amounts of money would significantly improve the assessed suitability of a product. This can be an economical way to increase Defence capabilities, provided due recognition is given to the typical commercial simulation replacement cycle of two to three years. Where longer life-cycles of five to ten years seem likely to occur deliberate customisation for Defence purposes is required and easier to justify on economic grounds.

17. As a consequence of their typical rapid turn-over cycle a practical strategy can be to become involved with the development of commercial simulations early in their development process. Membership of test teams and early engagement with software developers can offer significant payoffs for Defence. Commercial developers may well see such “real-world” inputs from Defence as being in their own interests to incorporate and hence they could encourage more useful capabilities for mutual benefit.

18. Consistent with its co-ordinating role ADSO shall provide advice on engaging commercial simulation developers and should be notified when an area of Defence is considering the development of commercial simulations. ADSO shall maintain a register of the intentions and status of such activities as they arise across Defence.

PROCUREMENT OF COMMERCIAL SIMULATIONS

19. It is the responsibility of end-user agencies to procure the commercial simulations which they choose to use. However there may be commercial products with wide applicability where a centralised approach to the procurement of licences may be appropriate. In that case the ADSO should be approached to consider the co-ordination of the relevant procurement.

SPONSORSHIP AND REVIEW

20. ADSO is the sponsor of this instruction. ADSO is to review the instruction, and implement any necessary amendments, on an annual basis. Such amendments will be agreed in consultation with the Defence Simulation Forum

Annexes:

- A. Practical Issues for Simulation
- B. Commercial simulations currently of interest

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PRACTICAL ISSUES FOR SIMULATION

The following is the relevant section of the Defence Simulation Policy for the evaluation of simulations.

Quote

PRACTICAL ISSUES FOR SIMULATION

22. While simulation has broad applicability, analysis is required to determine whether simulation offers a suitable and viable solution for a particular situation. The decision to progress a simulation project needs to be informed by an assessment made against the following criteria:

- a. **User requirements**—who wants the simulation?—why?—to do what exactly? In particular, what questions are to be answered with the help of simulation?—or what training needs are to be met?
- b. **Representations**—how are people and things with their dynamic behaviours and interactions in various environments going to be represented inside the simulation?
- c. **Data availability and reliability**—how well can these representations be activated?—does the necessary data exist?—can the appropriate data be found?
- d. **Technology**—how can the ideas embodied in the answers to [subparagraphs a., b., and c.](#) of this paragraph be made to work effectively for the user via appropriate technologies?
- e. **Confidence building approaches**—how is ‘fitness for purpose’ to be assessed to establish both the overall credibility of simulation outcomes and the necessary levels of user confidence in them?
- f. **Cost/benefit**—how are the returns on investment to be determined and expressed in order to secure both the initial and the continuing resources needed to build, deploy and use the system?

23. These criteria prove to be the key to forming the necessary professional judgements about the long-term viability and success of a simulation project. Consequently, all proposals for future simulation projects within Defence are to be framed in accordance with these criteria. Existing projects are to be re-evaluated against the criteria where there is management benefit from doing so. ADSO is to provide guidance to assist those developing simulation proposals to complete the necessary assessments.

End Quote

COMMERCIAL SIMULATIONS CURRENTLY OF INTEREST

Background

The following products are under evaluation by the ADO and partner military organisations overseas. This list is not exhaustive.

Joint Commercial Simulations

Title	Comments	Licence
Harpoon3	Tactical to low operational level constructive simulation of modern warfare. Land units but no land manoeuvre or combat, land units are targets. Multiplayer/multisided	The ADSO has limited copies available. Unit purchase.
Uncommon Valour	Operational to strategic constructive simulation of WW2 in the South Pacific.	The ADSO has quantities of licences available. See the "South Pacific Campaign" military history CD.

Navy Commercial Simulations

Title	Comments	Licence
Harpoon3	Tactical to low operational level constructive simulation of modern warfare. Land units but no land manoeuvre. Multiplayer/multisided	The ADSO has limited copies available. Unit purchase.
Janes Fleet Command	Ship to battlegroup constructive (3D) simulation of modern warfare.	Unit purchase.
Dangerous Waters	Operator Station to battlegroup virtual/constructive simulation of modern warfare. Multiplayer	Unit purchase.

DRAFT

Army Commercial Simulations

Title	Comments	Licence
TACOPSANZAC	<p>Bn-Bde level constructive simulation of modern mechanised warfare.</p> <p>Multiplayer/multisided</p> <p>Versions used in the US, NZ and Canada.</p>	<p>There is a Defence licence for TACOPS ANZAC. Copies available from the Army Simulation wing or ADSO</p>
Combat Mission Afrika Corps	<p>Coy-Bn level constructive (3D) simulation of WW2 warfare in the Mediterranean</p>	<p>Defence licence for a modified version of the game available on the "Battle for Crete" military history CD.</p>
Steel Beasts Pro	<p>Vehicle to Bn level virtual/constructive simulation of modern mechanised combat.</p> <p>Multiplayer</p> <p>Versions used in the US, Netherlands,</p>	<p>Limited licences available.</p> <p>Unit purchase.</p>
Virtual Battlefied Systems 1 AKA Operation Flashpoint	<p>Individual to Pl level virtual simulation of modern land combat.</p> <p>Used in the US.</p>	<p>Limited licences available.</p> <p>Unit purchase.</p>
Full Spectrum Warrior	<p>Section level virtual simulation of modern MOUT warfare.</p> <p>Used in the US</p>	<p>Limited licences available.</p> <p>Unit purchase.</p>
America's Army	<p>Individual skills familiarisation trainer.</p> <p>Used in US</p>	<p>Free over the Internet.</p>
Decisive Action	<p>Div-Corps level constructive simulation of modern land combat.</p> <p>Multiplayer</p> <p>Used in the US</p>	<p>Limited licences available.</p> <p>Unit purchase.</p>

Airforce Commercial Simulations

Title	Comments	Licence
Harpoon3	Tactical to low operational level constructive simulation of modern warfare. Land units but no land manoeuvre. Multiplayer/multisided	The ADSO has limited copies available. Unit purchase.
Microsoft Flight Simulator	Basic flight training, basic navigation training, basic instrument training. Virtual simulation	Unit purchase.
Falcon 4	Virtual simulation of primarily F-16. Multiplayer	Unit purchase.
Air War Over Vietnam	Mission level constructive simulation. Vietnam era only	Unit purchase.

Unit Purchase. Units are responsible for procurement, but contact the ADSO as bulk purchases may be feasible.

Live Simulation: A simulation involving real people operating real systems.

Virtual Simulation: A simulation involving real people operating simulated systems. Virtual simulations inject human-in-the-loop in a central role by exercising motor control skills (e.g., flying an airplane), decision skills (e.g., committing fire control resources to action), or communication skills (e.g., as members of a C4I team).

Constructive Simulation: Simulations that involve simulated people operating simulated systems. Real people stimulate (make inputs) to such simulations, but are not involved in determining the outcomes.