

Analytical Wargaming

Beginner's Guide and Basics of DCMP Design

Louis Jeffries
Junior Analyst, Wargaming and OA Team
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Overview

- What is analysis, and why do it? – Definitions and Reasons For
- How to begin analysis? – Practical Tips and DCMP Design
- How to use analysis? – Drawing Insights



What is analysis, and why do it? – Definitions and Reasons For



- *‘No plan of operations extends with certainty beyond the first encounter with the enemy’s main strength’*
– Helmuth Moltke the Elder, 1800-1891

- *‘Everyone has a plan ‘til they get punched in the mouth’*
– Mike Tyson, 1966 -



- *‘Peace-time plans are of no particular value, but peace-time planning is indispensable’*
– Dwight D. Eisenhower, 1890-1969

What is analysis, and why do it? – Definitions and Reasons For

‘[Analysis] is a scientific approach to the solution of problems in the management of complex systems that enables decision makers to make better decisions’- The OR Society

- Analysis forms part of a data-driven scientific approach
- Analysis handles and considers complex information, attempts to make sense of it
- Analysis requires a defined research question
- Analysis can be applied to help answer either exploratory or specific research questions
- Wargaming is one of many methods used to conduct analysis; a tool in an analyst’s toolbox
- Analysis adds validity to Wargame outcomes and insights

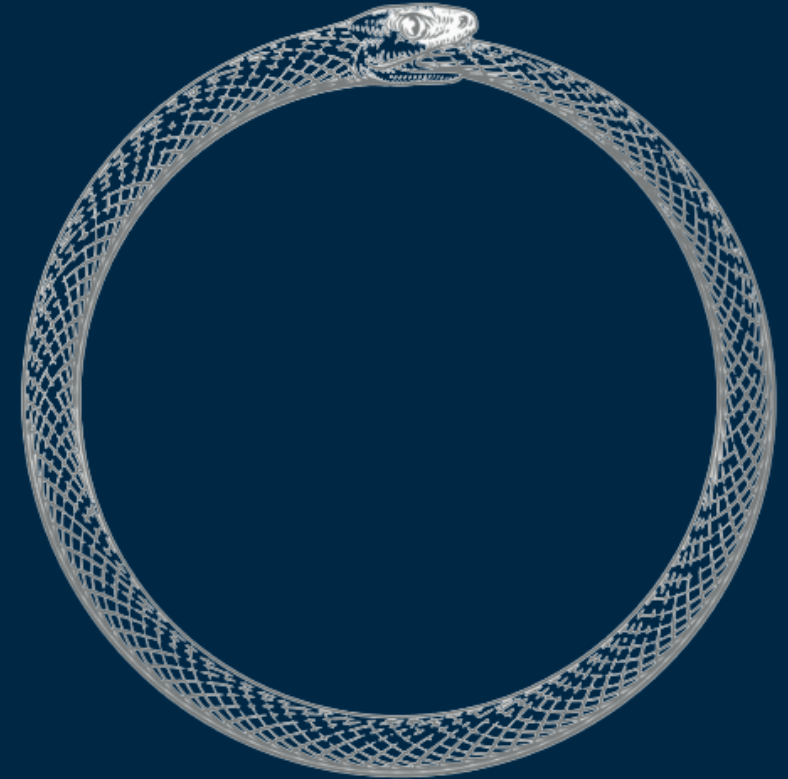
What is analysis, and why do it? – Definitions and Reasons For

- Types of Wargaming:
- Analytical Wargaming
 - A game that is undertaken as part of an analytical process whose purpose is gaining insights into a tightly bounded unstructured problem
- Exploratory Wargaming
 - A game that is undertaken as part of an analytical process whose purpose is gaining insights into an unstructured problem space

You apply the same analytical framework to both types, but you will need to refocus or redefine your research question(s)

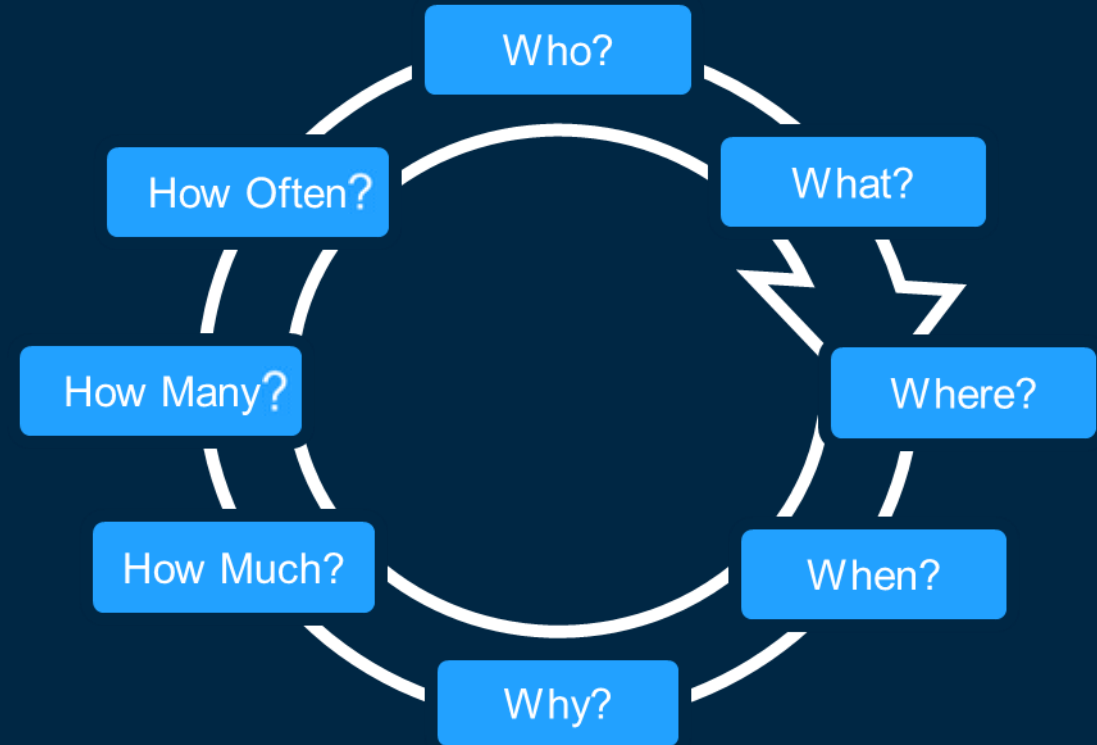
How to begin analysis? – Practical Tips and DCMP Design

- Define your objectives and research questions
- A. T. B. Q. – Answer the Bloody Question(s)!
 - Make analysis question-driven and question-focused
- Consider variables – dependent and independent
- Game design – ‘Ouroboros’ – Design and Analysis
 - Check with the ‘8 Questions’ method
- DCMP – Data Capture Management Plan



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How to begin analysis? – Practical Tips and DCMP Design

- DCMP – Data Capture Management Plan
 - A ‘living’ design document with a symbiotic relationship to your game design

Objectives	Research Question(s)	Subjects of Analysis	Metrics	Collection Methods	Focus Questions	Scenario Requirements	Mechanic Requirements
Aims of research / wargame	Question(s) designed to answer objectives (A. T. B. Q.!) A careful rewriting / rewording of the objective that ensures the answer of the objective when asked	Independent and Dependent variables	How you measure or are choosing to measure your Subjects of Analysis	How you will capture this data / in what format will it present itself or be recorded in?	Questions you will ask your participants to prompt discussion and help you A. T. B. Q.	The scenario must be driven from the Research Question; what elements does your scenario need to include?	Mechanics must be relevant to your Subjects of Analysis; what variables should your Mechanics consider?

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To determine the differing level of lethality between utilising a tracked force over a wheeled force	How does the lethality of a force differ between using tracked vehicles and wheeled vehicles?	Tracked force vs. wheeled force (ORBATs) – independent variable Lethality – dependent variable	Measuring constituents of lethality; number of RED casualties, number of BLUE casualties, number of vehicle breakdowns, ease of repair, ease of concentration / manoeuvre...	Data Capturer Players OA tools	What were your (player) expectations of lethality? Did these differ across ORBATs, why? Have events made you (player) think differently? How is operational tempo impacted by repair quality and time? – Quantitative and Qualitative answers!	Land Domain Consider entire land operation, from beginning to end – mobilisation to demobilisation Potentially consider different tactical locales / terrain Potentially consider different levels of engineering support Potentially consider... (8 Qs)	Have to fix your independent variables; mechanic must incorporate two variations (two ORBATs) Manual - die rolls to model combat, die rolls to simulate effectiveness of repair (percentage) – make realistic (rely on SME knowledge) OA tool driven – e.g. Combat Calculator (big spreadsheets, complex!) which accounts for different factors via historical analysis

How to use analysis? – Drawing Insights

- Data Collation

- Qualitative- ensuring you collect in all notes and observations from players and other participants- use DCMP to check!
 - Consider abstraction of reality to bound complex problems and hone analytical/research question focus- do this within game design phase
- Qualitative- Player and Observer Summary- top three insights from each group- can be discussed in plenary each day
- Qualitative- ‘Parking Lot’ board- summary of wargame insights and thoughts that occur during the wargame; post-its for participants- useful for drawing out/identifying themes and providing avenues for further research
- Quantitative- where applicable, ensure collection of all quantitative data; not all wargames will use or require it
 - Care must be taken when using quantitative data; though a numerical ‘truth’ it is still indicative and not predictive within the context it is utilised in

How to use analysis? – Drawing Insights

- Drawing findings
 - Quantitative- presenting charts, tables and graphs- visualise the trends that numbers indicate
 - Indicative and causational findings
 - More ‘data representation’- what findings are most strongly indicated
 - Qualitative- presenting themes, key points, grouping data into relevant categories which answer the focus questions from the DCMP
 - SWOT analysis as second-level on collected data; one of many tools/options
 - More ‘data selection’- what findings are most applicable where to answer specific questions
 - Always be aware of variables/causational findings and question throughout
 - Verification and validation
 - Supporting from/with other research: comparisons, historical cases and relevant models
 - Fitness for purpose; focus on DCMP questions



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For more information, please contact Philip Dixon (QT&S Recruitment Manager) at philip.dixon@t-s.qinetiq.com

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Any Questions?

Louis Jeffries, louis.jeffries@t-s.qinetiq.com