

Cyber Security Strategy Game

Background:

The UK Cyber Security Strategy outlines the Government's plans for ensuring a secure and prosperous cyberspace for UK citizens and businesses. This game models aspects of the strategy and challenges players to make decisions and manage resources in an adversarial setting.

Setup:

The game pits two sides, the UK and Russia, against each other. Each side is divided into five Entities:

UK

Government
Electorate
UK Plc
GCHQ
EDF Energy

Russia

Government
Online trolls
Energetic Bear
Special Communications Service
Rosenergoatom

Each Entity has two sets of counters it must manage: Resource (representing wealth) and Vitality (representing well-being).

Rules of play:

Basics:

How to win the game:

- Earn more Victory Points than the opposing team.

How the game is played:

- The game lasts 12 turns: January-December 2020.
 - A turn consists of one team performing Actions with all their Entities, after which the other team performs Actions with all their entities.
- Each turn, each Entity may perform one of five courses of Action:
 - Distribute: transfer Resource to any single connected Entity
 - Revitalise: spend Resource to gain Vitality
 - Attack: spend Resource to attack along an attack vector
 - Note: Teams may not attack in January
 - (GCHQ/SCS ONLY) Access Black Market: bid on black market goods
 - Abstain: do nothing this turn

Details:

Turns:

- At the start of each team's turn, the Government entity is granted 3 Resource.
- There is a time limit of 3 minutes per team each turn. Any actions not performed within this limit are forfeited.
- At the end of each turn, teams must fill in their respective Record Keeping Sheets.

Distribute:

- Resources can be transferred between Entities connected by thin black lines.
 - Arrows denote one-way transfer relationships.
- The maximum number of Resource that can be transferred in one Action is 5.
- There is no limit on how much Resource one Entity can possess.

Revitalise:

- Cost of Vitality goes up exponentially to the amount converted:

Vitality	Cost (Resource)
1	1
2	3
3	6
4	10

- There is no limit on how much Vitality an Entity can possess.

Attack:

- An Entity can attack along the attack vector attached to it – purple for UK, orange for Russia.
- The attacking Entity must spend Resource to perform an attack: minimum 1, maximum 6.
- Damage to the attacked Entity's Vitality is calculated by the following formula:

$$\text{Damage} = ((\text{Resource spent}) - (\text{Die roll})) - 1$$

Where (*Die roll*) is determined by rolling one six-sided die.

- In the event of a negative result, the attack backfires and the attacker suffers damage to their Vitality.
- Combat resolution is summarised in the following table. Green denotes damage inflicted on the attacked, red denotes damage backfired on the attacker.

		Die Roll					
		1	2	3	4	5	6
Resource spent	1	-1	-2	-3	-4	-5	-6
	2	0	-1	-2	-3	-4	-5
	3	1	0	-1	-2	-3	-4
	4	2	1	0	-1	-2	-3
	5	3	2	1	0	-1	-2
	6	4	3	2	1	0	-1

- **Residual damage** is also suffered by any Entities directly connected to the damaged Entity.
 - This is calculated in the ratio of 1:2.

Access Black Market:

- GCHQ or SCS can spend Resource they have to bid on items in the Black Market.
 - If a team bids on an item and the other team does not increase on that bid in their immediately following turn, the bid winner receives the item on their subsequent turn.
 - Multiple items can be bid on in one turn.
- Items can be hoarded for later use or played with immediate effect.
- All items can be bought by either team.

End of game:

- If an attack results in any Entity being reduced to 0 Vitality, the attacker is awarded 10 Victory Points and the game immediately ends.
 - Remaining Victory Points up to that point are tallied up after full effects of attack have been finalised (i.e. residual damage).
 - Note: It is possible to launch a successful game-ending attack and still lose the game.
- At the end of December each team states their Objectives and Victory Points are tallied up. The team with the most Victory Points is declared the winner.