

Office for Defence Planning - German Armed Forces

Munich

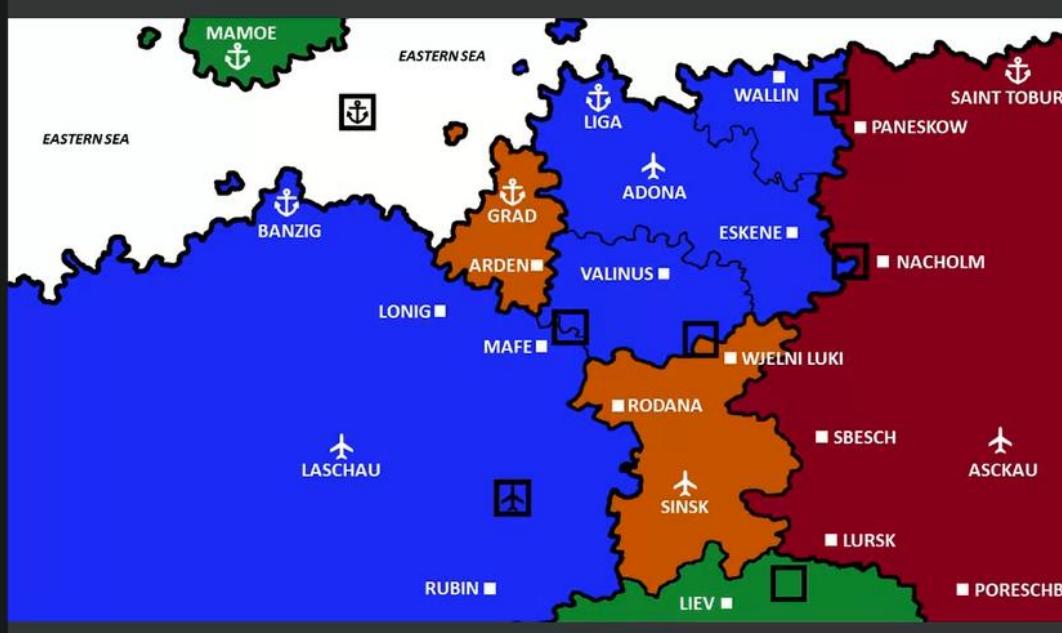
# Leveraging Large Language Models for Enhanced Wargaming in Multi-Domain Operations

Captain Max MELTSCHACK  
First Lieutenant Dominic WELLER

# BLUE PLAYER TURNS

Communication Score:100%      Political Will:100Points

Escalation: Morale



Announcements

Input

Military      Cyber / Hybrid      Political / Economic      Next Move

Resources this turn: 1000 Points

Turn: 1 2 3 4 5 6 7 8 9 10

End Turn

## BLUE PLAYER TURNS

Communication Score:100%      Political Will:100Points

Escalation      Morale

Announcements

Input

**EASTERN SEA**

MAMOE      EASTERN SEA      SAINT TOBURG

LIGA      WALLIN      PANESKOW

BANZIG      LASCHAU

JUENI LUKI      NACHOLM

SBESCH      ASCKAU

LURSK      PORESCHBA

**Military Playing Card**

**Troop movements in the allied nations BLUE**

Team BLUE deploys an armored infantry brigade with a tank battalion, two armored infantry battalions and an infantry battalion as well as companies of other combat support forces to ensure local superiority.

-90 Ressource Points

30 Impact Points      +1.3 Escalation Points

**Cyber / Hybrid Playing Card**

**Expansion of satellite communication capability**

By stationing their own communication satellites in low-Earth orbits, the troops of Team BLUE can access additional communication channels.

-100 Ressource Points

+30% Communication Score      +0.0 Escalation Points

**Political / Economic Playing Card**

**Diplomatic efforts**

To counter the political tensions in the conflict region, political consultations are held with Team ORANGE in the city of RODANA. The Escalation Score drops by -1.0 points.

+0 Ressource Points

+10% Political Score      -1.0 Escalation Points

**Military**      **Cyber / Hybrid**      **Political / Economic**      **Next Move**

Resources this turn: 1000 Points

10

End Turn

# Playing Cards Categories

# BLUE PLAYER TURNS



Communication Score:100%

Political Will:100Points



## Escalation Score

Military

Cyber / Hybrid

Political / Economic

Next Move

Resources this turn: 1000 Points

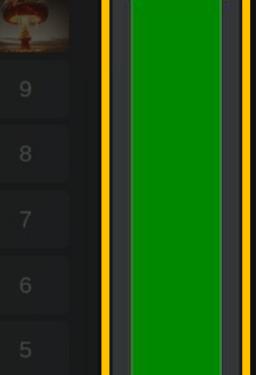
Turn

**1** 2 3 4 5 6 7 8 9 10

End Turn

## BLUE PLAYER TURNS

Escalation



Morale



Communication Score: 100%

Political Will: 100 Points

Announcements

Input

Military

Cyber / Hybrid

Political / Economic

Next Move

Resources this turn: 1000 Points

Turn

1 2 3 4 5 6 7 8 9 10

End Turn



Communication Score: 100%

Political Will: 100 Points

Morale Score

# BLUE PLAYER TURNS

Escalation

Morale

Communication Score:100%

Political Will:100Points

Announcements

## Communication Score



Military

Cyber / Hybrid

Political / Economic

Next Move

Resources this turn: 1000 Points

Turn

1

2

3

4

5

6

7

8

9

10

End Turn

STO-MP-SAS-192

14P - 6

# BLUE PLAYER TURNS

Escalation



Morale

Turn	Morale Level
1	Red
2	Yellow
3	Yellow
4	Green
5	Green
6	Green
7	Green
8	Green
9	Green
10	Green

Communication Score: 100%

Political Will: 100 Points



## Political Score

Announcements

Input

Military

Cyber / Hybrid

Political / Economic

Next Move

Resources this turn: 1000 Points

Turn

1 2 3 4 5 6 7 8 9 10

End Turn

STO-MP-SAS-192

14P - 7

# BLUE PLAYER TURNS

Escalation Morale

Communication Score: 100%

Political Will: 100 Points

Announcements

Input

MAMOE EASTERN SEA LIGA WALLIN SAINT TOBURG

BANZIG GRAD ADONA ESKENE PANESKOW

LONIG ARDEN VALINUS NACHOLM

MAFE WJELNI LUKI RODANA SBESCH ASCKAU

LASCHAU SINSK LURSK PORESCHBA

RUBIN LIEV

Escalation: 9  
Morale: 8  
7  
6  
5  
4  
3  
2  
1

Communication Score: 100%

Political Will: 100 Points

Announcements

Input

Military Cyber / Hybrid Political / Economic Next Move

## Ressource Score

Resources this turn: 1000 Points

Turn 1 2 3 4 5 6 7 8 9 10

End Turn



## BLUE PLAYER TURNS

Escalation Morale

Communication Score: 100%

Political Will: 100 Points

Announcements

Input

Key Strategic Locations

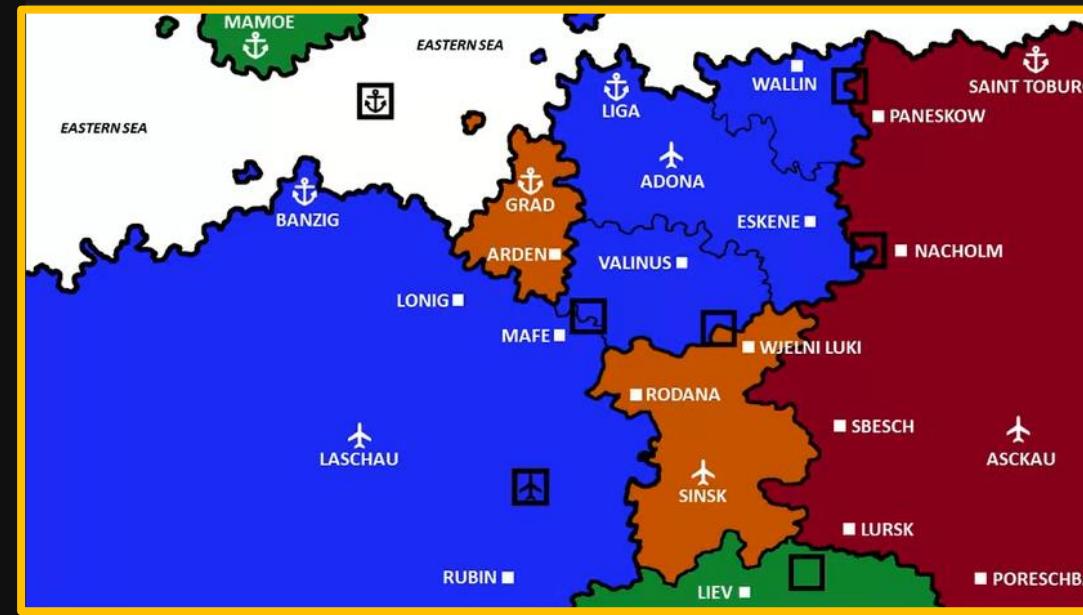
Military Cyber Hybird Economic

Next Move

Resources this turn: 1000 Points

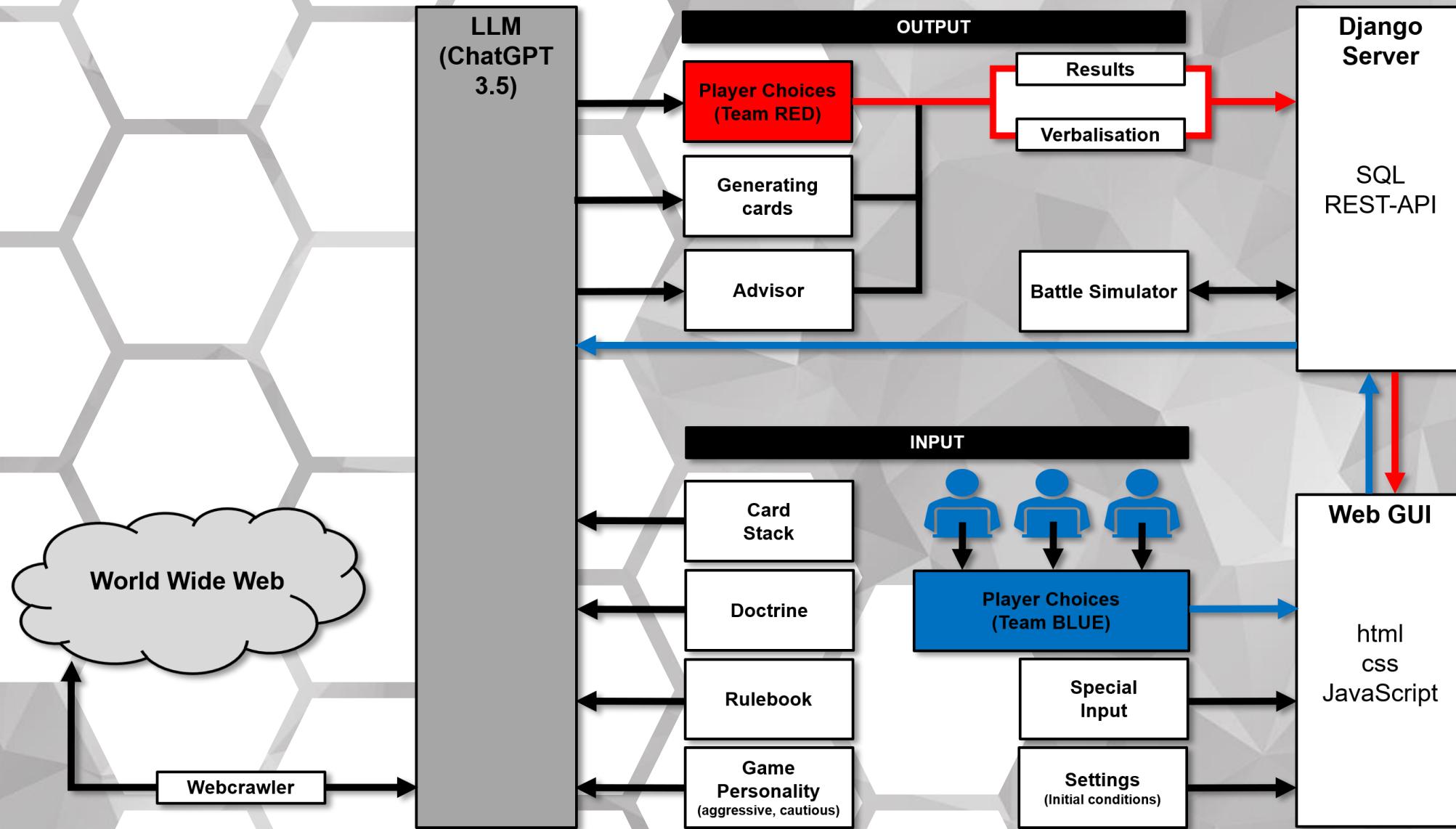
Turn 1 2 3 4 5 6 7 8 9 10

End Turn



The map displays a complex political or military situation with overlapping territories. The blue region covers the largest area, including the Eastern Sea and parts of the adjacent land. The orange region is concentrated in the center. The red region is in the upper right. The green region is at the bottom. Various icons representing different military or political entities are scattered across the map, such as anchors, planes, and symbols.

# ARCHITECTURE OF THE DEMONSTRATOR



## GENERATING CONTENT

## PLAYING CARDS CREATED BY LLM

Cyber / Hybrid Playing Card		Cyber / Hybrid Playing Card		Cyber / Hybrid Playing Card	
<b>Critical Infrastructure Breach</b>		<b>Stealthy Data Exfiltration</b>		<b>Substation Network Breach</b>	
RED executes a coordinated cyber assault aimed at disrupting the water supply system in BLUE's city of LONIG, resulting in contamination of the city's water sources and endangering public health.		RED conducts a covert cyber operation targeting sensitive government databases in BLUE's city of MAMOE, stealthily exfiltrating classified information and compromising national security.		RED orchestrates a sophisticated cyber intrusion into the substation network of BLUE's city of RUBIN, triggering a series of malfunctions that disrupt power distribution and compromise industrial operations.	
0		0		0	
Ressource Points		Ressource Points		Ressource Points	
-6%	+0.8	-11%	+0.9	-13%	+0.5
Communication Score	Escalation Points	Communication Score	Escalation Points	Communication Score	Escalation Points
Cyber / Hybrid Playing Card		Cyber / Hybrid Playing Card		Cyber / Hybrid Playing Card	

## ACTION MASKING

Escalation



9

8

7

6

5

4

3

2

1

## Baltic Tensions Escalate: Military Buildup and Trade Curbs Spark Concerns

The Baltic region is on edge as significant military movements in the East and strict trade restrictions fuel rising tensions.

Communication breakdowns suggest increasing instability, with fears of a broader conflict looming. Observers warn the situation could rapidly deteriorate.

Chat GPT 3.5 Turbo

Resources this turn: 800 Points

Turn

1

2

3

4

5

6

7

8

9

10

End Turn

## +++++ News Update +++++

Tensions escalate as Red deploys troops and imposes agricultural import restrictions on Blue countries, impacting both economies negatively. Meanwhile, communication disruptions have been reported across the region due to unidentified electromagnetic interference, causing concerns over potential cyber-hybrid activities. The political will of both factions remains high, with Red's escalation score increasing and Blue maintaining a steady stance despite recent challenges.



MISTRAL 7B

News Update:  
Tensions escalate as Red deploys troops and imposes agricultural import restrictions on Blue countries, impacting both economies negatively.  
Meanwhile, communication disruptions have been reported across the region due to unidentified electromagnetic interference,

Input

# PLAYING CARDS SELECTED BY LLM

Military Playing Card		Political / Economic Playing Card		Cyber / Hybrid Playing Card	
<b>Troop movements in the East</b>		<b>Import restrictions on agricultural products</b>		<b>Interference in the electromagnetic spectrum</b>	
Team RED is deploying a mechanized brigade with three mechanized battalions with BMP-2Ms and a tank battalion with T-80 tanks, including an anti-tank, artillery and anti-aircraft squadron each.		In order to emphasize its political demands, Team RED imposes import restrictions on agricultural products from Team BLUE countries.		Team RED is increasingly carrying out jamming attacks in the electromagnetic spectrum with its cyber units, as a result of which Team BLUE's communication with its own troops is restricted.	
Location: Liev					
0		-100		0	
Ressource Points		Ressource Points		Ressource Points	
30	+1.3	0%	+0.3	-10%	+0.2
Impact Points	Escalation Points	Political Score	Escalation Points	Communication Score	Escalation Points
Militärisch Playing Card		Political / Economic Playing Card		Cyber / Hybrid Playing Card	

## Explanation

I chose card '14' (Massive troop movements in the east) as it is a military action that increases my own strength on the battlefield. Card '20' (Import restrictions on agricultural products) is chosen to put economic pressure on Blue, reducing their resource score and potentially weakening them politically. Lastly, card '17' (Interference in the electromagnetic spectrum) is selected as it disrupts Blue's communication capabilities, further escalating tensions and potentially causing confusion within their ranks. I decided not to attack any location at this time.

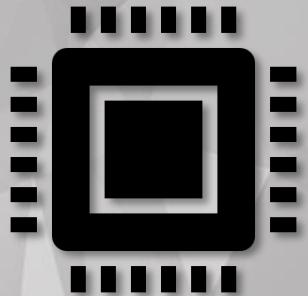
## RULE EXPLANATION

ADVISOR FUNCTIONS



How many more cards can I play?

You can still play one more card in this round as you've already played two cards. Remember, you can only play a maximum of three cards per round from any combination of Military, Cyber/Hybrid, or Political/Economic categories.



## ADVISOR FUNCTIONS

Communication Score: 115%      Political Will: 85 Points



Escalation

Morale

9
8
7
6
5
4
3
2
1

Resources this turn: 800 Points

Turn 1 2 3 4 5 6 7 8 9 10

**ACTION RECOMMENDATION**

News Update:  
Tensions escalate as Red deploys troops and imposes agricultural import restrictions on Blue countries, impacting both economies negatively. Meanwhile, communication disruptions have been reported across the region due to unidentified electromagnetic interference,

Input

1. Deploy an armored infantry brigade with a tank battalion, two armored infantry battalions and an infantry battalion as well as companies of other combat support forces to ensure local superiority  
*(Impact Points: 30, Escalation Points: 1.3, Communication Points: 0, Political Points: 0, Resource Points: -90).*
2. Increase communication skills by acquiring modern radio communication equipment for Team BLUE's armed forces  
*(Impact Points: 0, Escalation Points: 0.0, Communication Points: 20, Political Points: 0, Resource Points: -60).*
3. Expand satellite communication capability by stationing own communication satellites in low-Earth orbits to access additional communication channels  
*(Impact Points: 30, Escalation Points: 0.0, Communication Points: 0, Political Points*

1. Deploy an armored infantry brigade with a tank battalion, two armored infantry battalions and an infantry battalion as well as companies of other combat support forces to ensure local superiority (Impact Points: 30, Escalation Points: 1.3, Communication Points: 0, Political Points: 0, Resource Points: -90).

Input

Military

Cyber / Hybrid

Political / Economic

Next Move

Resources this turn: 800 Points

Turn 1 2 3 4 5 6 7 8 9 10

End Turn

## ACTION RECOMMENDATION



# RESULTS



**SCALABILITY**



**IMMERSION**



**ADVISOR FUNCTIONS**



**SCARCITY OF SMEs**



**OPFORCE REPRESENTATION**

**Thank you for your  
attention and  
interest.**