

Hosted by:



*Emiliano PELLEGRINI*  
*Lieutenant Colonel, OF-4, ITA Army Aviation*  
*Combat Air Branch*  
*Attack Helicopters and Air Land Integration SME*

# Evaluating Russia's Rotorcraft Use During Ukrainian-Russian Conflict (Feb. 2022 – Feb. 2024)

***-SECOND PART-***



Joint Air Power  
Competence Centre

...if you attended the first part of the briefing this morning...

PLEASE RISE UP THE HAND.

THANKS



Joint Air Power  
Competence Centre

# Disclaimer

The views and opinions expressed or implied in this presentation are those of the author(s) concerned and should **not be considered as carrying the official sanction** of the North Atlantic Treaty Organization (NATO).

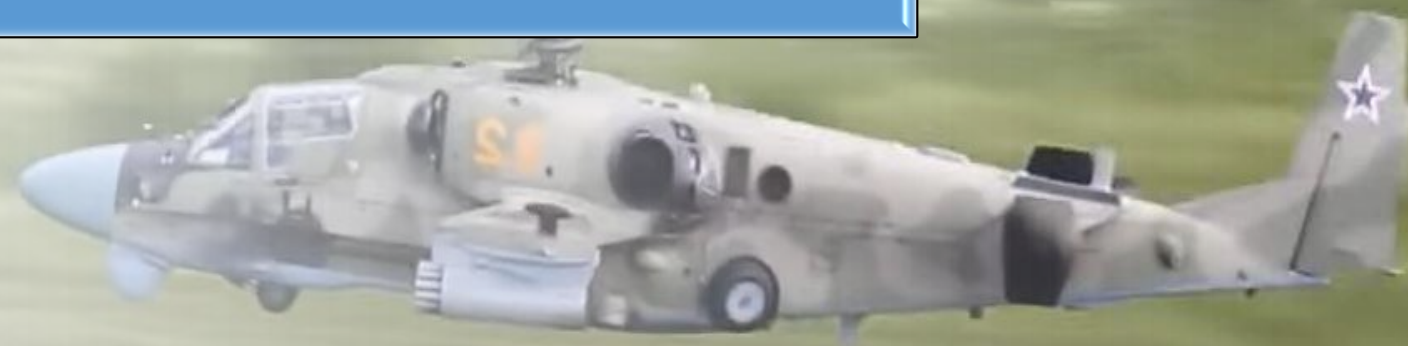


# Summary – Second year of conflict



Joint Air Power  
Competence Centre

- Fast recap about RUS RW assets
- Reports from last year of war (Feb.2023-Feb. 2024)
- Analysis of main tech updates
- Doctrinal and C2 changes
- Logistical adaptations
- Conclusions



# ATTACK/C2 HELICOPTER KA-52 HOKUM-B

## Small, Fast, Agile

- + Survivability
- + Lethality

## Main missions

- Close Air Support (CAS)
- Battlefield Air Interdiction (BAI)
- Battlefield reconnaissance (SCOUT)
- Deep Operations
- Air to Air Combat (AAC)
- Command and Control (C2)
- Target designation and sharing (C2)



**Joint Air Power  
Competence Centre**

# ATTACK HELICOPTER Mil-Mi-28 HAVOC

- **A pure attack helicopter:**
  - ✓ All weather
  - ✓ Day- night
  - ✓ Two tandem seat
  - ✓ No secondary transport capability
  - ✓ Able to conduct a loop with standard load
- **Main performable missions:**
  - ✓ Close Air Support (CAS)
  - ✓ Battlefield Air Interdiction (BAI)
  - ✓ Battlefield reconnaissance (SCOUT)
  - ✓ Deep Operations



Joint Air Power  
Competence Centre



# ATTACK HELICOPTER Mil Mi-24/35 HIND/D

- Helicopter gunship
- Transport capacity up to 8x pax
- Attack Helicopter
- Payload 2400 kg
- Updated with new generation of navigation and target acquisition systems
- Protected by armour plating elements
- Low cost / High effectiveness

State of the art NAV  
and TGT SYS

2 x Barrel 23 mm  
Cannon

Missile, Rockets  
and cannon PODs  
/ fuel tanks



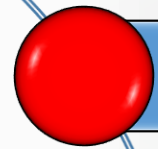
Joint Air Power  
Competence Centre



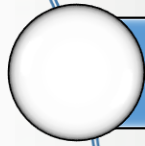
# Summary – Second year of conflict



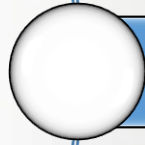
Joint Air Power  
Competence Centre



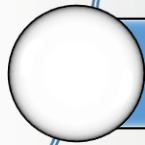
Reports from last year of war (Feb.2023-Feb. 2024)



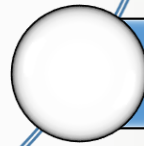
Analysis of main tech updates



Doctrinal and C2 changes



Logistical adaptations



Conclusions





# Since Last Year's Report...

...RUSSIAN ATTACK HELICOPTERS HAVE BECOME A KEY ELEMENT IN THE CONDUCT OF OPERATIONS:



Joint Air Power  
Competence Centre

...the 'single most influential asset in the conflict'....

...KA 52 'Putin's vulture'...

Defence Intelligence

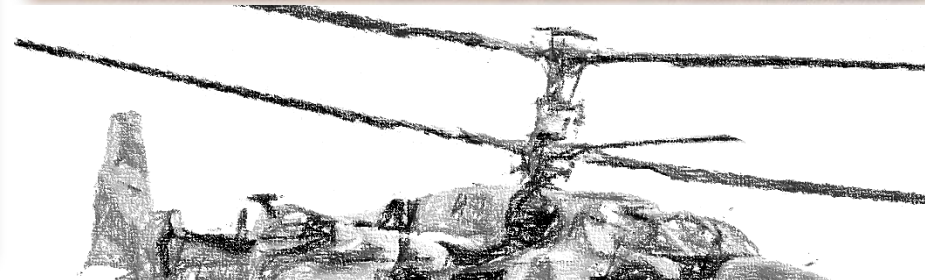
UPDATE ON UKRAINE  
27 July 2023

### INTELLIGENCE UPDATE

- As Ukrainian forces continue major offensive operations in Zaporizhzhia Oblast, one of the single most influential Russian weapon systems in the sector is the Ka-52 HOKUM attack helicopter. Russia has highly likely lost around forty Ka-52s since the invasion, but the type has also imposed a heavy cost on Ukraine.

**RY** In recent months, Russia has highly likely augmented the force in the south with at least a small number of brand new, Ka-52M variants: a heavily modified aircraft, informed by lessons from Russia's experience in Syria. Evidence supporting the M variant's use in Ukraine includes photos posted on social media of aircrew posing next to the new aircraft and thanking well-wishers for sending them morale items.

- Another key improvement to the Ka-52 fleet is the integration of a new anti-tank missile, the LMUR, which has a range of approximately 15km. Ka-52 crews have been quick to exploit opportunities to launch these weapons beyond the range of Ukrainian air defences.



# Year Two –Highlights-

...RUSSIAN ATTACK HELICOPTERS HAVE BECOME A KEY ELEMENT IN THE CONDUCT OF OPERATIONS:



Joint Air Power  
Competence Centre

... the lethality of attack helicopters in the last year has significantly increased ...



# Comparing dates



## DOWNED HELICOPTERS

- February 2022 > 2023 = ~42
- February 2023 > 2024 = ~19

**ABOUT 52% LESS THE FIRST YEAR**



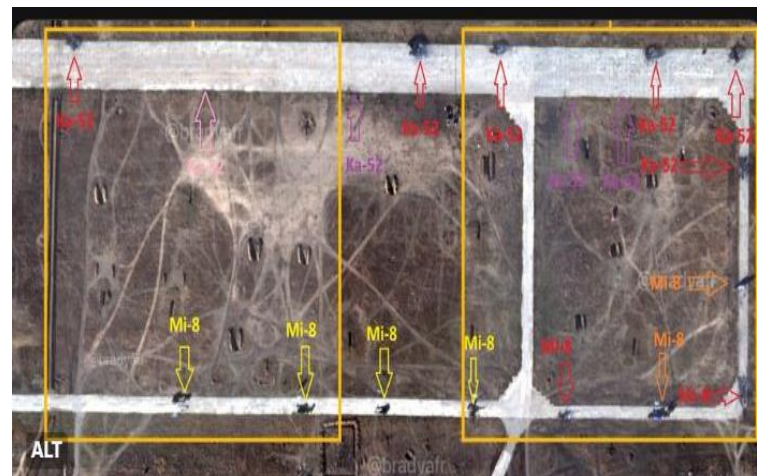
**Joint Air Power  
Competence Centre**



## HELICOPTERS DESTROYED / DAMAGED ON GROUND

- February 2022 > 2023 = ~17
- February 2023 > 2024 = ~28

**ABOUT 40% MORE THE FIRST YEAR**



...from easy target...



Feb-2022 > Feb 2023

First Year



Joint Air Power Competence Centre

...to worst enemy!



Feb-2023 > Feb 2024

Second Year



# Results



**Joint Air Power  
Competence Centre**

MoD RUSSIA



V  
I  
D  
E  
O

# Main Developments areas

- improvements in certain technological aspects of helicopters;
- adaptation of doctrine to the new capabilities offered by new technologies;
- exploitation and improvement of logistical capabilities.



Joint Air Power Competence Centre



# The best war teacher...



**Joint Air Power  
Competence Centre**

# ...the battlefield!

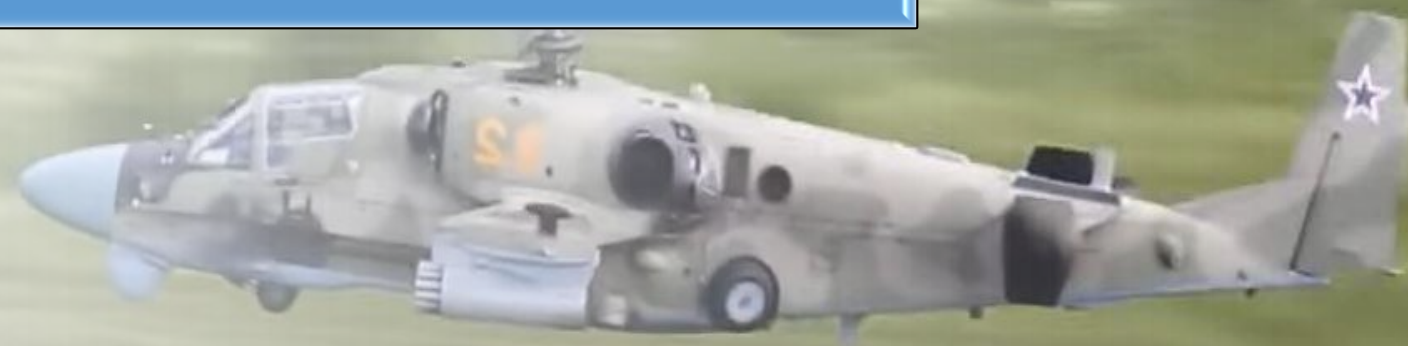


# Summary – Second year of conflict



Joint Air Power  
Competence Centre

- Reports from last year of war (Feb.2023-Feb. 2024)
- Analysis of main tech updates
- Doctrinal and C2 changes
- Logistical adaptations
- Conclusions



# MAIN TECH UPDATES

NEW VERSION OF MI -28 > MI-28 NM (HAVOC)



Joint Air Power  
Competence Centre

NEW VERSION OF KA-52 > KA-52 M HOKUM-B

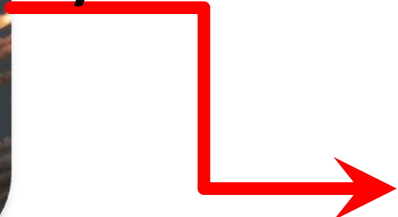


# MAIN TECH UPDATES

## FIRST YEAR OF WAR (Feb.2022-2023)

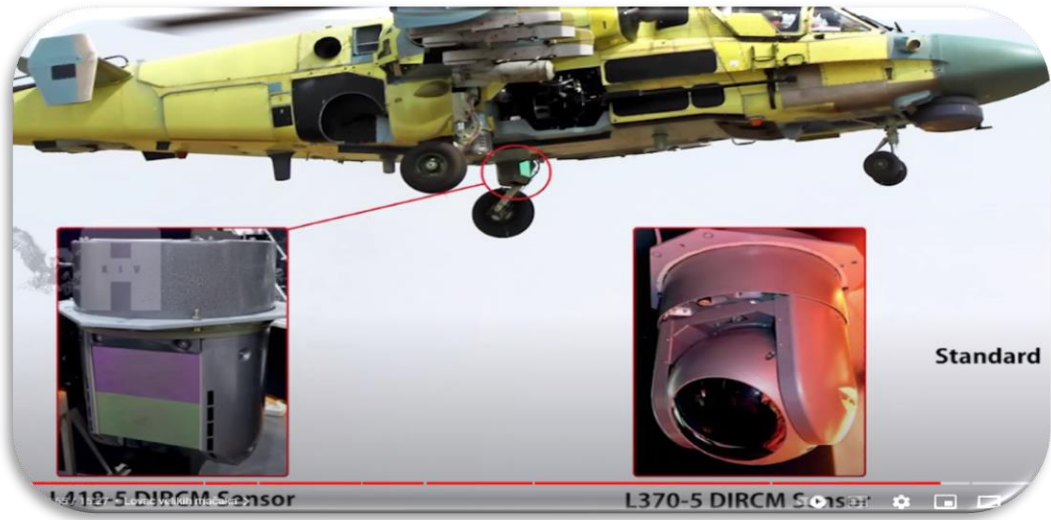
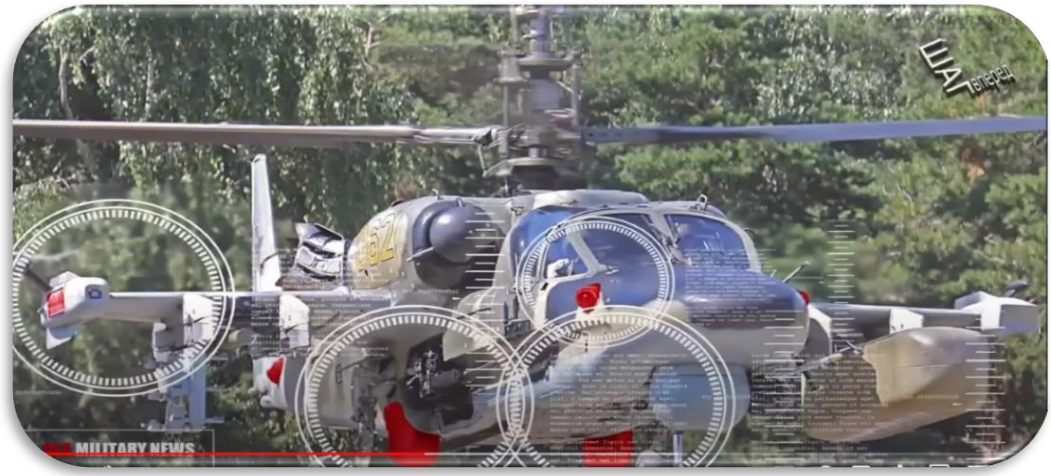


Poor efficiency of self-protection systems



New and updated self-protection systems

## SECOND YEAR OF WAR (Feb.2023-2024)



# MAIN TECH UPDATES



Joint Air Power Competence Centre



Vitebsk-25  
Air defence  
System



THE SAME SYSTEM (SAME COMPONENTS) FITS ALL DIFFERENT TYPE OF HELICOPTERS

# MAIN TECH UPDATES



**Joint Air Power  
Competence Centre**

THE SAME SYSTEM (SAME COMPONENTS) FITS ALL DIFFERENT TYPE OF HELICOPTERS

# MAIN TECH UPDATES

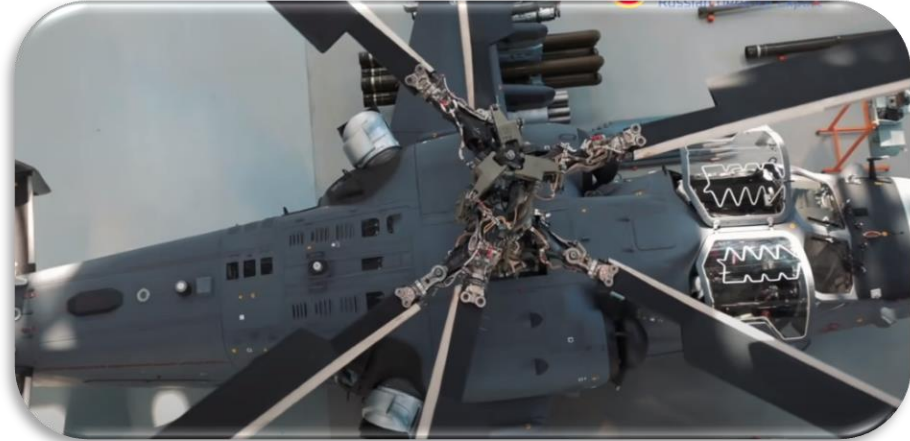


## FIRST YEAR OF WAR (Feb.2022-2023)

## SECOND YEAR OF WAR (Feb.2023-2024)



Poor efficiency rotors antivibration system



Updated vibration reduction system (KA-52 M)



Poor efficiency of night vision and acquisition system



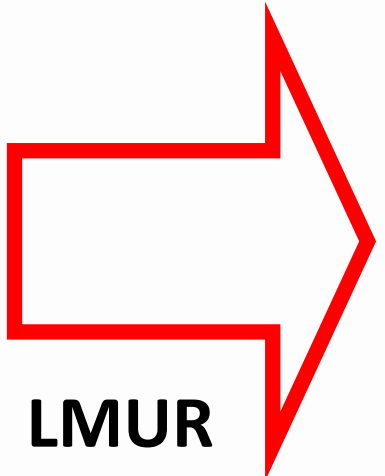
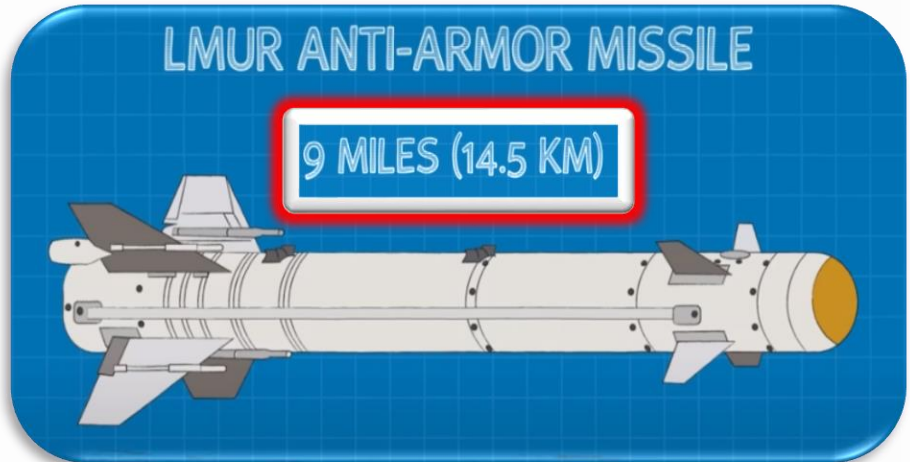
New night vision and acquisition system

# MAIN TECH UPDATES

FIRST YEAR OF WAR (Feb.2022-2023)



SECOND YEAR OF WAR (Feb.2023-2024)



**LMUR**  
**L**ightweight  
**MU**lti**R**ole  
Anti Armour  
Missile



Joint Air Power Competence Centre

# Passive protection

## ARMORED PROTECTIONS



## NO TAIL ROTOR



Joint Air Power  
Competence Centre

## PILOTS EJECTION SYSTEM



## TWO CONTRAROTATING COAXIAL ROTOTRS





Forces | News



clideo.com



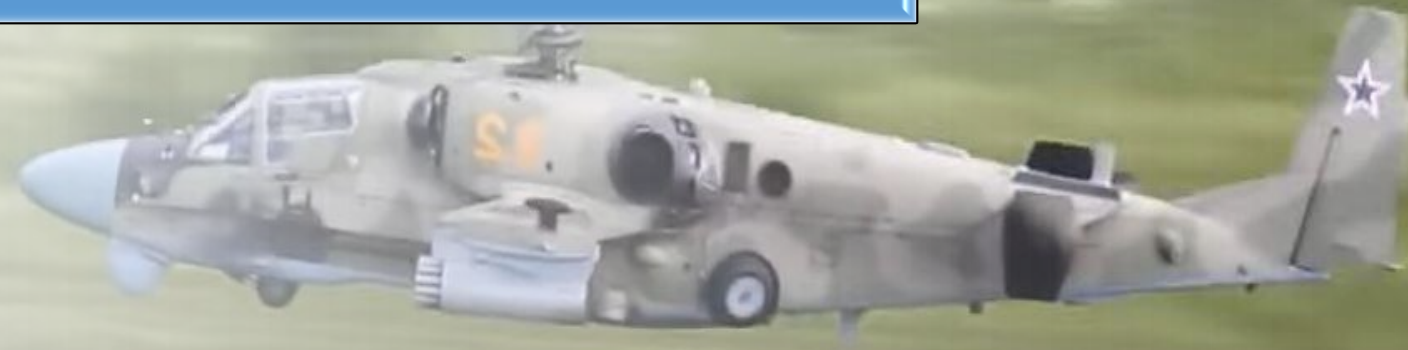
V  
I  
D  
E  
O

# Summary – Second year of conflict



Joint Air Power  
Competence Centre

- Reports from last year of war (Feb.2023-Feb. 2024)
- Analysis of main tech updates
- Doctrinal and C2 changes
- Logistical adaptations
- Conclusions



# C2 and Doctrinal ADAPTATION

USE OF COMBINED CAPABILITIES: **EW + ATTACK**



INCREASE IN NIGHT MISSIONS



USE OF UAS TO DIRECT AND OBSERVE HELICOPTERS MISSIONS (Feb.2023-2024)



Joint Air Power Competence Centre



Joint Air Power  
Competence Centre

V  
I  
D  
E  
O



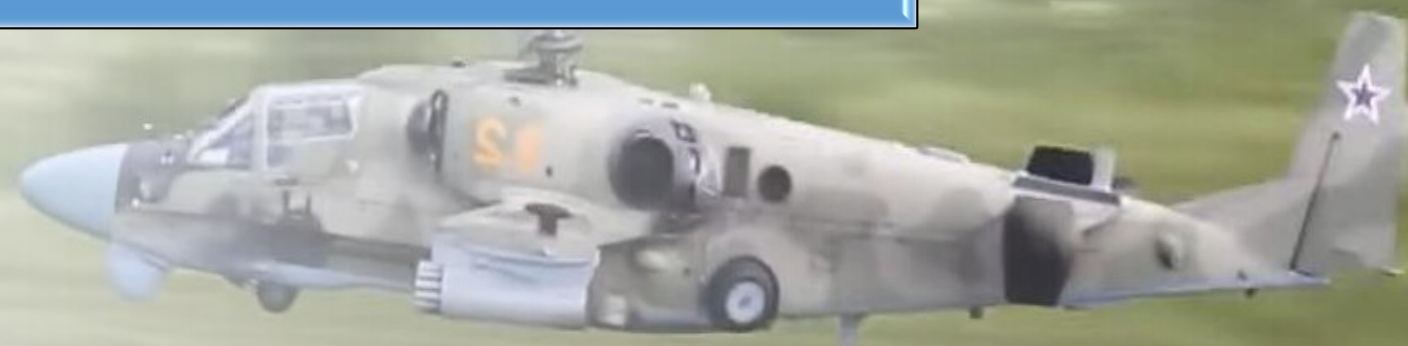
clideo.com

# Summary – Second year of conflict



Joint Air Power  
Competence Centre

- Reports from last year of war (Feb.2023-Feb. 2024)
- Analysis of main tech updates
- Doctrinal and C2 changes
- Logistical adaptations
- Conclusions



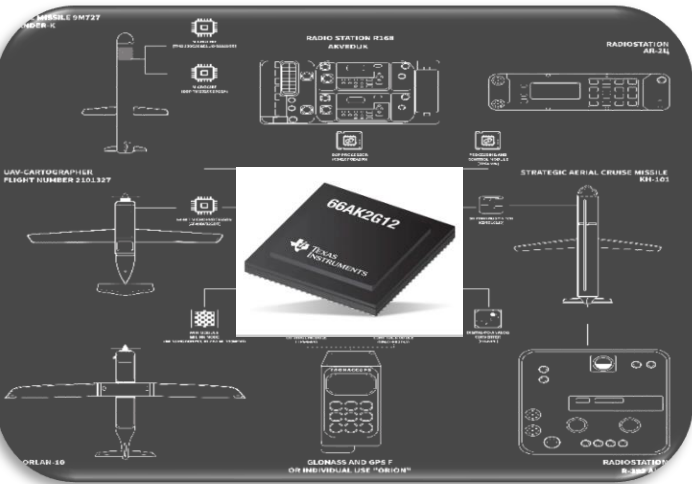
# LOGISTICAL ADAPTATIONS

FIRST YEAR OF WAR (Feb.2022-2023)

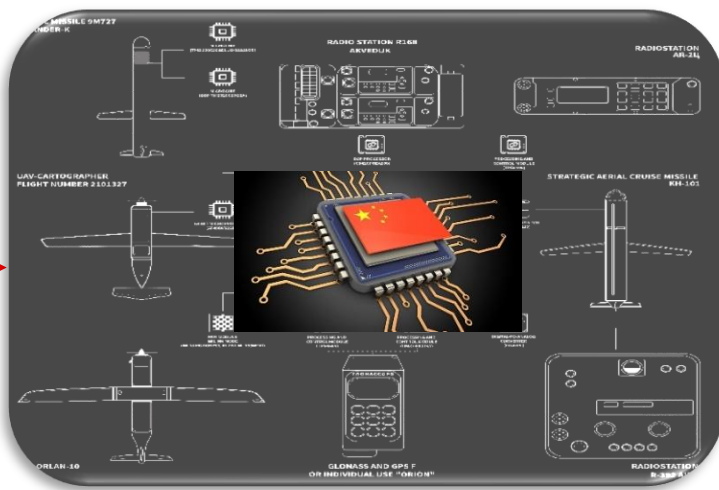
SECOND YEAR OF WAR (Feb.2023-2024)



Joint Air Power Competence Centre



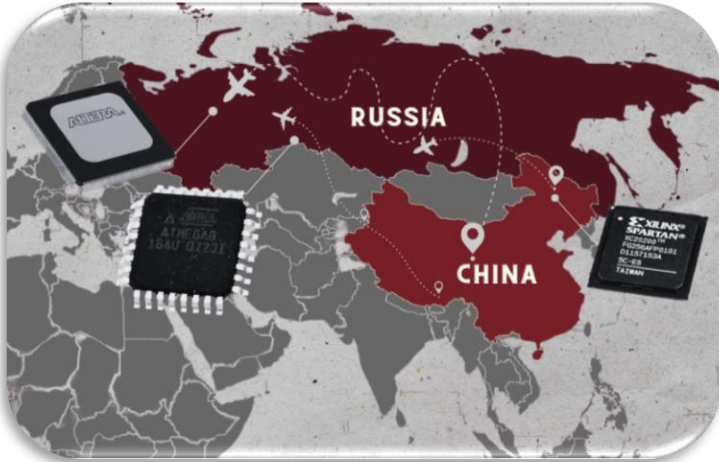
Western made components into Russia weapons and systems



Western made components replaced with other countries made components



Embargo effects



New supplies routes reduced Embargo effects

# LOGISTICAL ADAPTATIONS

FIRST YEAR OF WAR (Feb.2022-2023)

Outdated maps were provided to troops

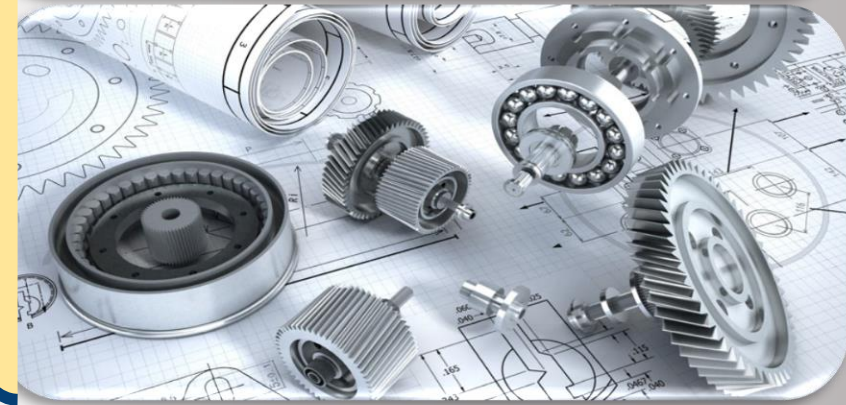
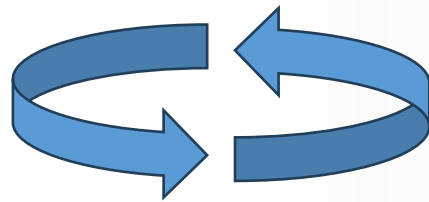


Joint Air Power  
Competence Centre

SECOND YEAR OF WAR (Feb.2023-2024)

Satellites provide new and updated maps

# LOGISTICAL ADAPTATIONS



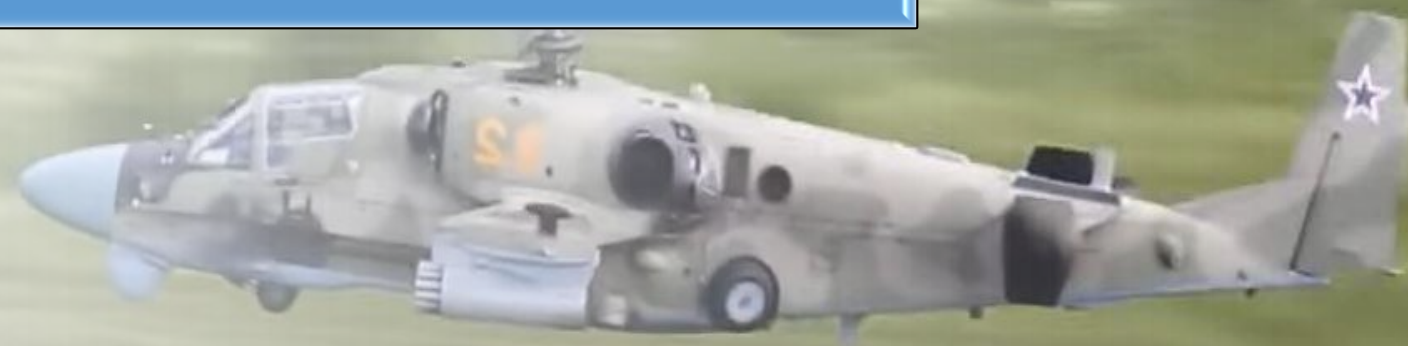


# Summary – Second year of conflict



Joint Air Power  
Competence Centre

- Reports from last year of war (Feb.2023-Feb. 2024)
- Analysis of main tech updates
- Doctrinal and C2 changes
- Logistical adaptations
- Conclusions





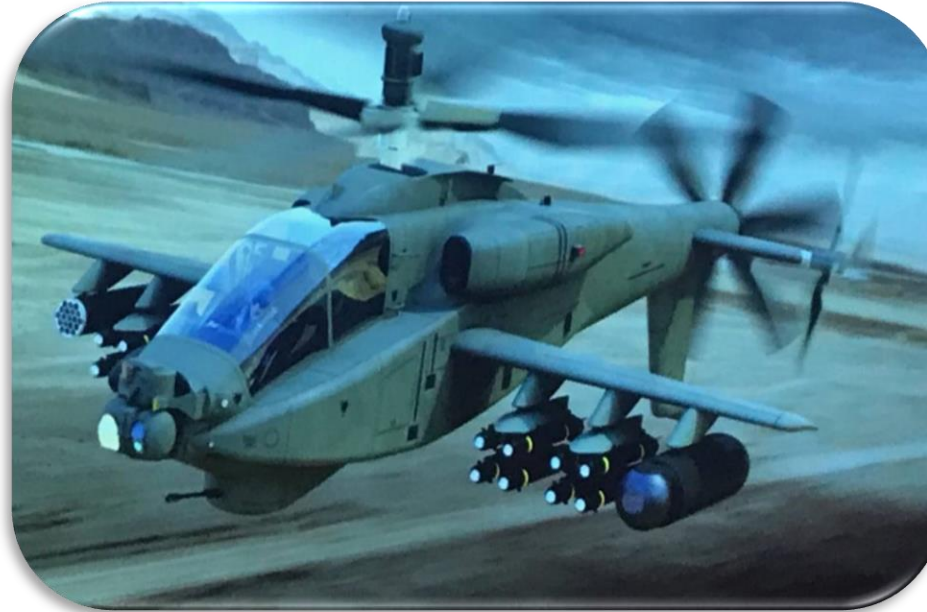
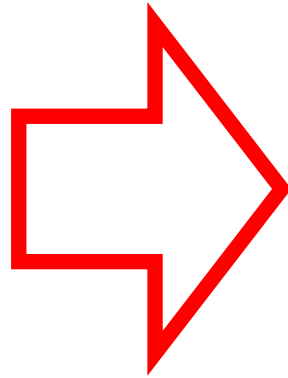
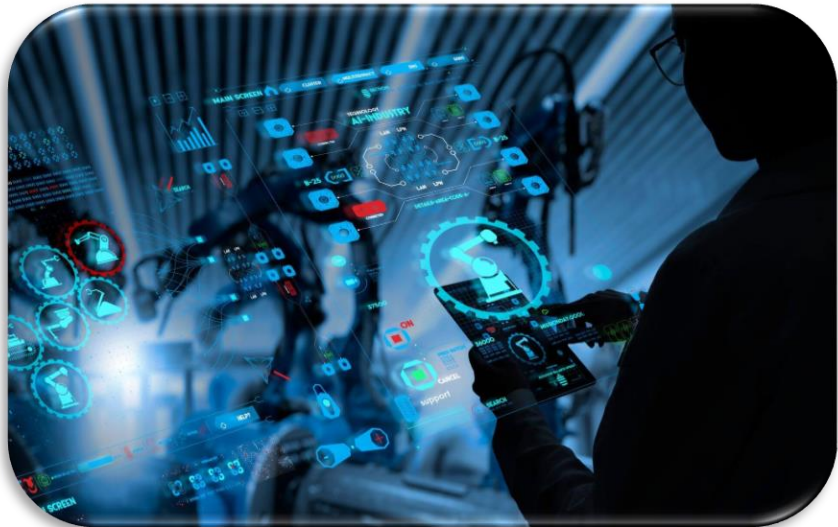
Joint Air Power  
Competence Centre

Confirms the validity of the attack helicopter as a fundamental asset in current conflicts



**Joint Air Power  
Competence Centre**

# SPEED UP DOCTRINAL REVISION PROCESSES AND TECHNOLOGICAL INCORPORATION



**Joint Air Power  
Competence Centre**

# DRIVE INDUSTRY TOWARDS REAL WAR REQUIREMENTS



Joint Air Power  
Competence Centre



# INCREASE FOCUS ON FORCE PROTECTION:

- AIRPORT FACILITIES
- TAKE-OFF/LANDING AREAS
- LOGISTICAL AREAS
- MAINTENANCE AREAS



Joint Air Power  
Competence Centre



**S P A R E**



# INCREASE STANDARDIZATION:

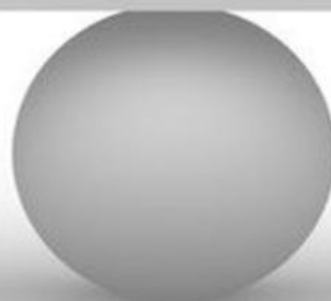
-AMMUNITIONS

-SPARE PARTS

-MECHANICAL FLUIDS



**Joint Air Power  
Competence Centre**



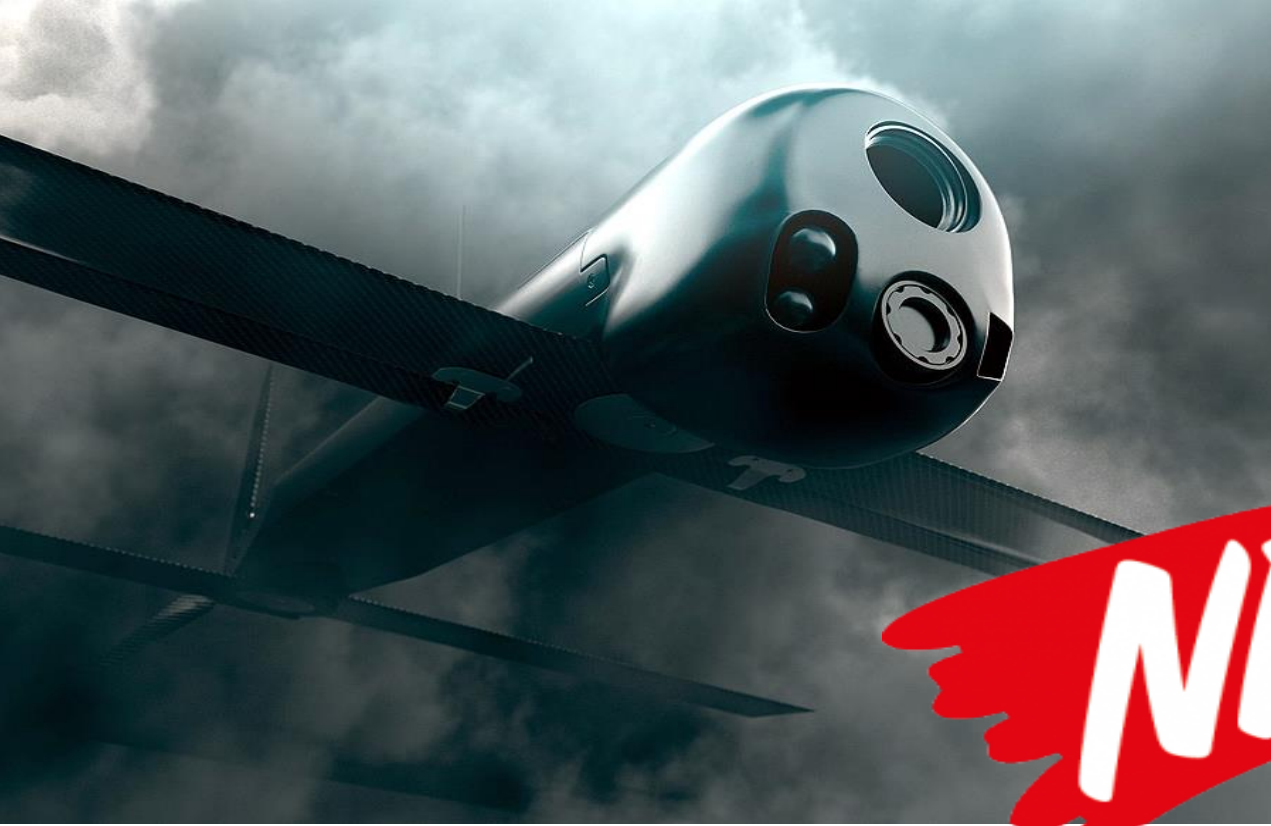
**SET THE RIGHT BALANCE BETWEEN TECHNOLOGY AND QUANTITY**

# But Ukraine has Improved too...



Joint Air Power  
Competence Centre

## KAMIKAZE DRONE



## LOITERING AMMUNITION





# MI-28 downed by a drone.

# WARNING

CONTAINS SCENES  
SOME VIEWERS MAY  
FIND DISTRESSING

V  
I  
D  
E  
O

Looking toward year 3.....



Here's what I'll be  
working on...

...the new challenge for  
helicopters come from  
the skies!!!!

This Briefing is IN- LINE with ....



# JAPCC REQUEST FOR SUPPORT

## Fill the Request for Support Format...

## ... and send it!!!!



[www.japcc.org](http://www.japcc.org)



### Request for Support

The JAPCC will perform an assessment of the request with regard to the JAPCC Mission and Focus Areas. Furthermore, the JAPCC will assess the available capabilities and capacities within the staff to fulfil your request.

Request Form			
Organization		Division/ Branch	
POC Name (Last, First)		NATO Rank (if applicable)	
Phone		E-Mail	
Date			
Requirement (Description of Support Requested)			
<small>Continue on Reverse</small>			

Joint Air Power Competence Centre

Request for Support



**Air Power is like oxygen.  
When you have enough you don't  
have to think about it...**

**...when you don't have enough it's the  
only thing you can think about."**



Thanks for  
the attention.  
Questions?