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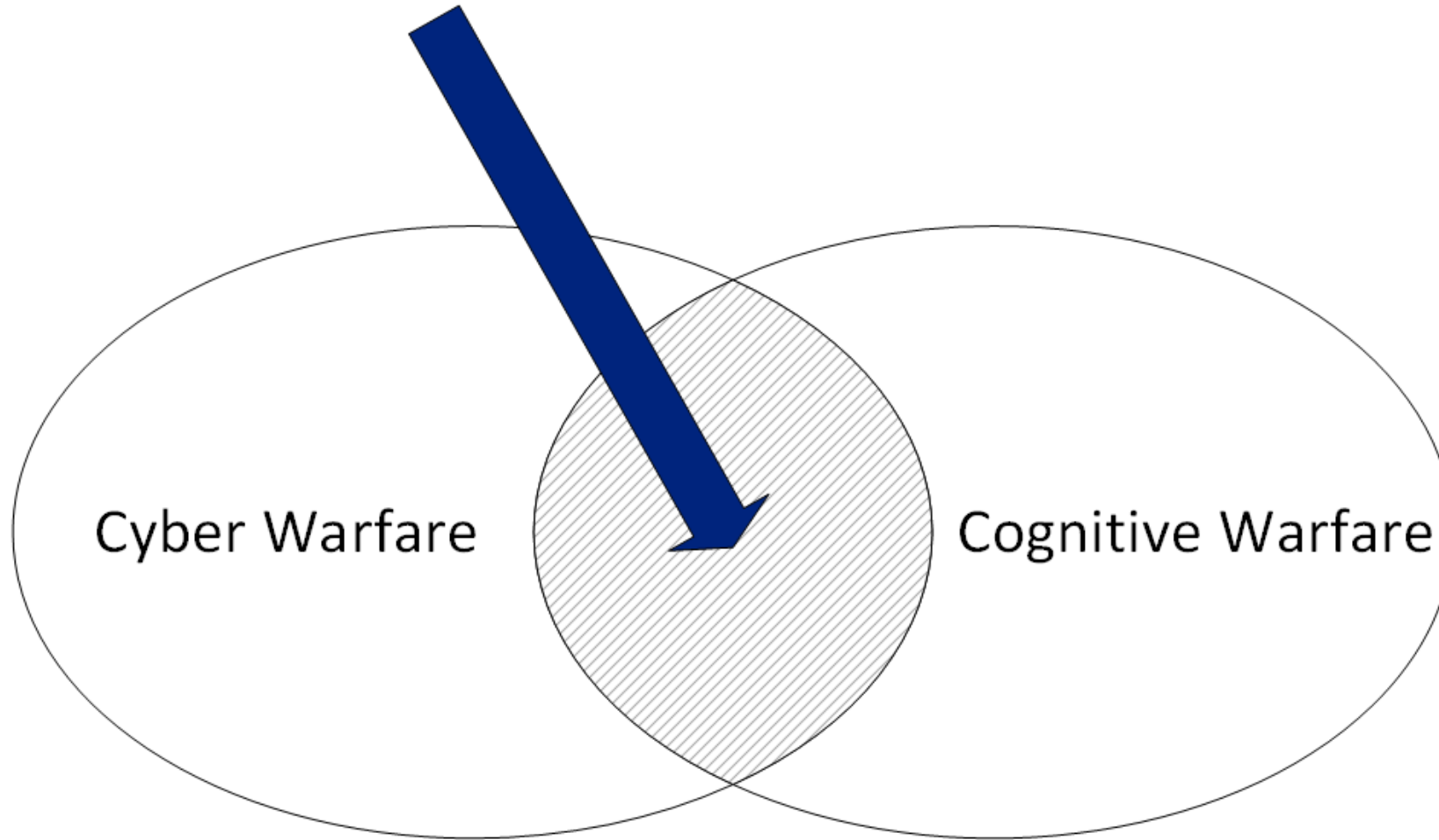
# Cognitive Warfare

Problem for the Brain, Opportunity for the Machine

# Cognitive Warfare: Machine-Enabled Threat

- „An unconventional form of warfare that uses cyber tools to alter enemy cognitive processes, exploit mental biases or reflexive thinking, and provoke thought distortions, influence decision-making and hinder actions, with negative effects, both at the individual and collective levels“ (Claverie, Cluzel 2022)
- Hightly intertwined with cyberspace
- CW more dangerous with new knowledge and technologies

Overlap containing  
opportunities for CW detection



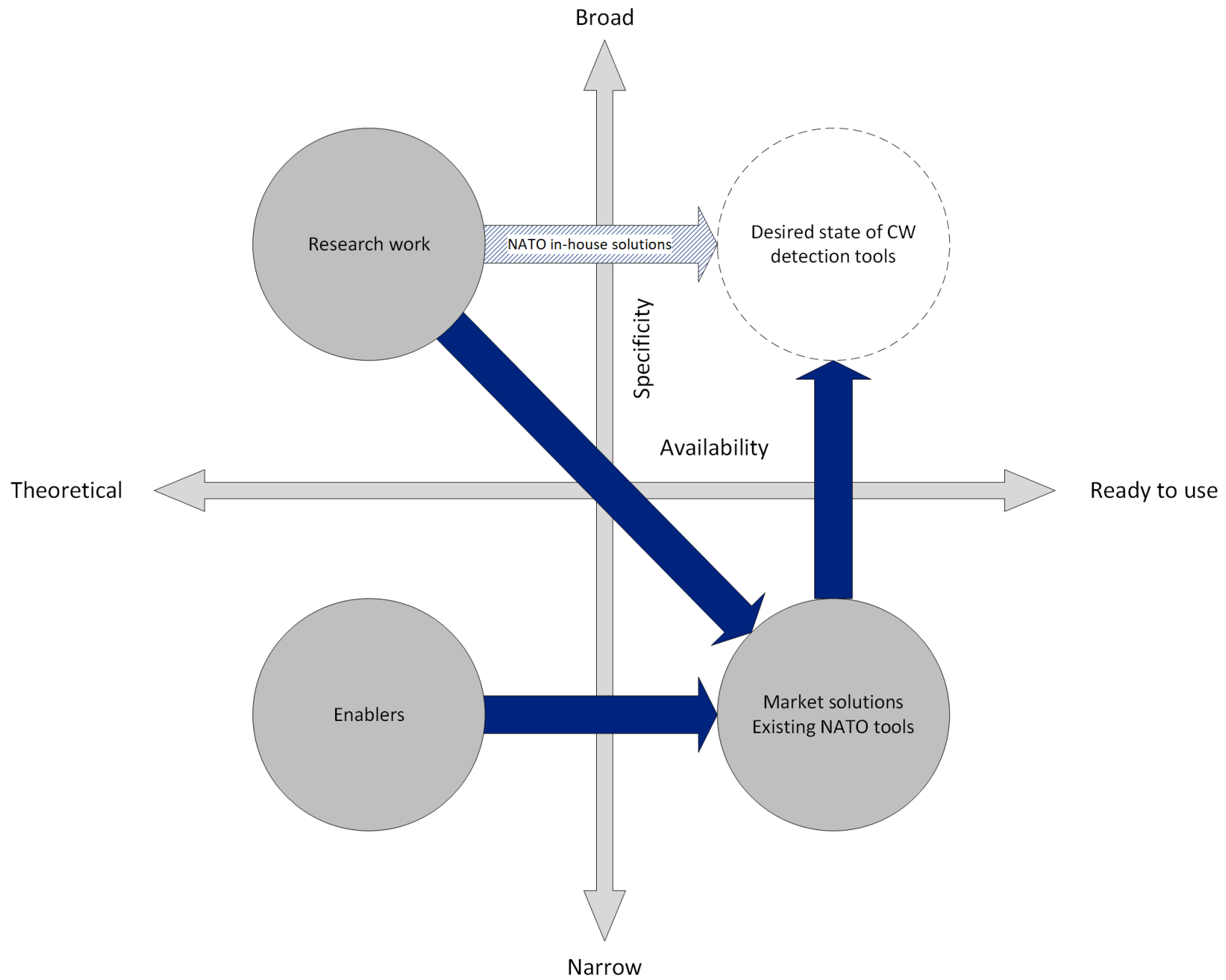
# Cyberspace – Opportunity for Defence

- Existing experience and tools
- Cyber warfare and CW often in concert
- Improvements in situational awareness and sensemaking as the top priority
- Automated solutions possible and desirable

# Machines as Means of Defence

- Importance of OODA loop
- From *complexities* to *mysteries* to *puzzles*

Type of Issue	Description	Intelligence Product
Puzzle	Answer exists but may not be known	<i>The solution</i>
Mystery	Answer contingent, cannot be known, but key variables can, along with sense for how they combine	Best forecast, perhaps with scenarios or excursions
Complexity	Many actors responding to changing circumstances, not repeating any established pattern	“Sensemaking”? Perhaps done orally, intense interaction of intelligence and policy



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# Al Ahli Hospital Explosion

Case for AI and ML for CW sensemaking  
and situational awareness



# The Situation

- October 7 attack of Hamas on Israel
- Bombing runs and blockade of Gaza by Israel
- October 17 explosion at Al-Ahli Hospital in Gaza
- Slow reaction of Israel, media primarily worked with Hamas' information



Hamas' military wing al-Qassam Brigades said in a social media post at 7 p.m. that "al-Qassam Brigades strikes occupied Ashdod with a barrage of rockets." Minutes later, it posted that "al-Qassam Brigades strikes Tel Aviv in response to Zionist massacres against civilians."

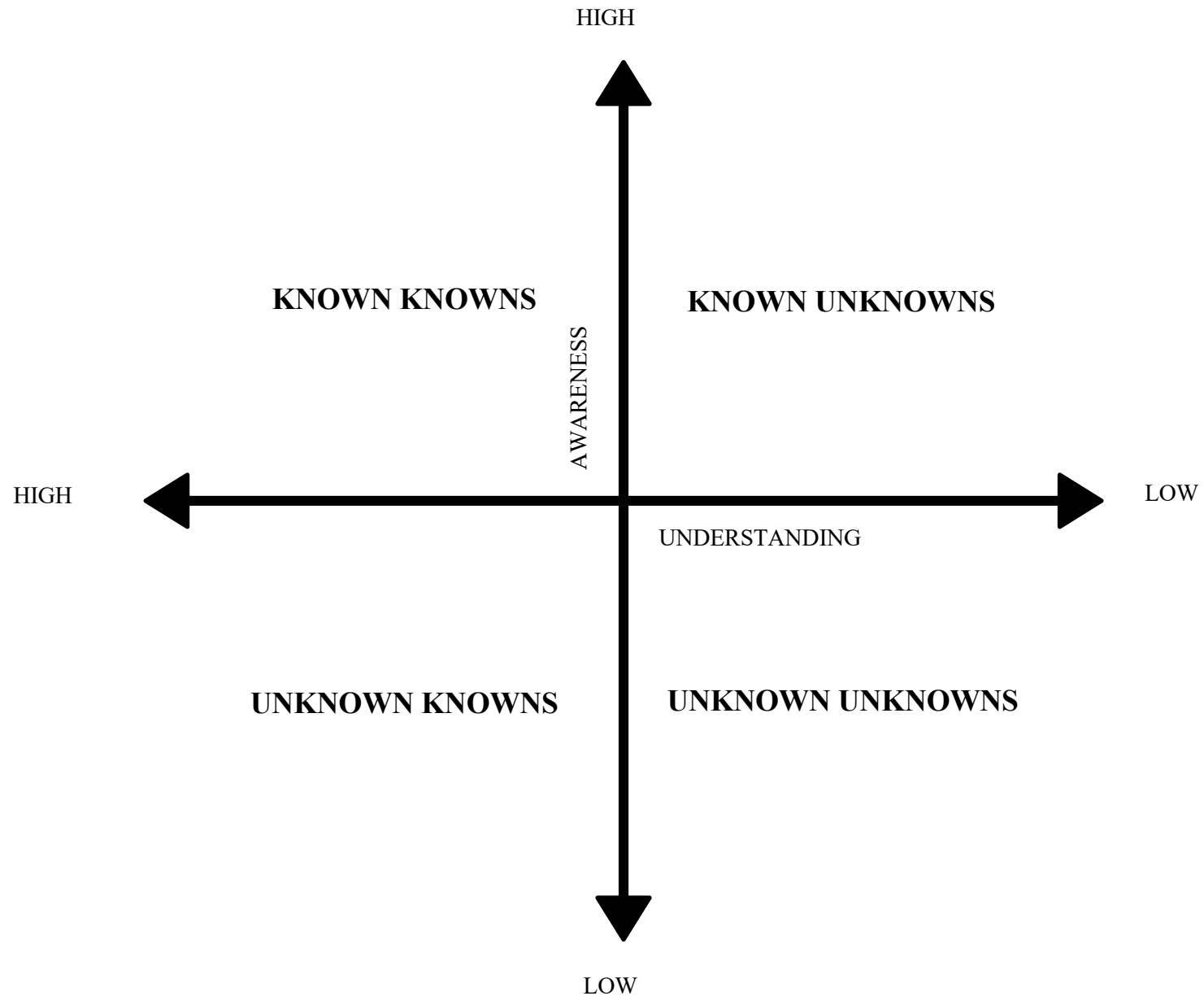


October 17, 2023

- **18:15:** Hamas fired a barrage of rockets at the Israeli homefront, triggering sirens in Southern Israel, including Ashklon and Rishon LeTzion.
- **18:59:** The Palestinian Islamic Jihad (PIJ) fired a barrage of ten rockets at Israel from a cemetery near the Al-Ahli Baptist Hospital in Gaza. This triggered rocket sirens as far north as Ramat Gan, Bat Yam and Beni Brak.
- **18:59:** Reports immediately emerged of an explosion at the hospital.
- IDF intelligence would later reveal that at this point, Hamas already understood that the hospital was hit by errant rocket fire. Hamas intentionally decided to leverage the international media to launch a global media campaign based on an absolute falsehood. Hamas intentionally inflated the body count in order to further galvanize international support.
- In an internal Hamas phone call, an operative admits that their rocket fire at Israeli civilians misfired (see below).
- The IDF launches an immediate internal investigation into the incident.
- **00:39:** Following careful examination, the IDF releases an official denial of any involvement in the explosion at the hospital:

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# **Challenges for CW-related AI and ML Solutions**



## Known Knowns

- International Law
- Ethical aspects
- Values of liberal democracy
- Hobessian dilemma –  
*freedom vs. security*

## Unknown Knowns

- Insufficient knowledge  
of state-of-the-art
- Strife for novelty for personal  
gains
- Reinventing the wheel

## Known Unknowns

- Research gaps
- Missing practical tools
- Incorrect assessments of technology potential

## Unknown Unknowns

- Most dangerous
- Fast advancements in science
- Quantum computing and the study of the human brain?

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**Where to go from here?**

# Directions for Research

- Focus on conceptualization
- CW should not be political concept – boundaries necessary
- Emphasis on quantitative research
- Indicators for CW as *enablers* for any functional solutions

# Indicators and Warnings for CW in Cyberspace

– SAS-185 Research Task Group

– Objectives

1. State of art research
2. Analytical framework & quantitative indicators development
3. Case studies of available software solutions
4. Requirements gathering for the software
5. TAP proposal for the software creation/modification
6. Validation of the framework

– Enabler for any future software solutions for monitoring CW



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**Thank you!**

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# Sources

Claverie, Bernard, and François Du Cluzel. 2022. “‘Cognitive Warfare’: The Advent of the Concept of ‘Cognitics’ in the Field of Warfare.” NATO Collaboration Support Office. <https://hal.science/hal-03635889/document>.

# Images

## Slide 5

- G. F. Treverton, Addressing “Complexities” in Homeland Security. Center for Asymmetric Threat Studies (CATS), National Defence College, 2009.

## Slide 7

- [https://i.guim.co.uk/img/media/b86e8d6d4133d481c4877d845a149af7031e3660/0\\_105\\_6000\\_3600/master/6000.jpg?width=1200&height=1200&quality=85&auto=format&fit=crop&s=17594634535c8270d3adab50b9cc758f](https://i.guim.co.uk/img/media/b86e8d6d4133d481c4877d845a149af7031e3660/0_105_6000_3600/master/6000.jpg?width=1200&height=1200&quality=85&auto=format&fit=crop&s=17594634535c8270d3adab50b9cc758f)

## Slide 8

- <https://www.politico.com/news/2023/10/23/gaza-hospital-new-york-times-00122986>

## Slide 9

- Israel Defence Forces, “Gaza Hospital Blast: Initial IDF Al-Ahli Report.” [Online]. Available: <https://www.idf.il/en/mini-sites/hamas-israel-war-articles-videos-and-more/al-ahli-al-ma-amadani-hospital-initial-idf-aftermath-report-october-18-2023/>.