

Army Applications for Integrated Computational Imaging Systems

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Transformation (with a big T!)



Honorable Donald Rumsfeld
Secretary of Defense

Speech at The National Defense University
Defense Transformation
of the U.S. Military
31 January 2002

Speech
Photo Gallery

The screenshot shows a Washington Post article from April 20, 2003. The article is titled "Rumsfeld Stands Tall After Iraq Victory" and is written by Thomas E. Hicks. The main text discusses Rumsfeld's role in the military establishment during the Iraq war. A red box highlights a quote from the article: "He now is in position as never before to reshape the U.S. military along the lines he has talked about since taking office, 'transforming' it into a more agile and precise force built not around firepower but around information, and willing to take risks to succeed." The article also includes a sidebar with navigation links and a "WAR IN IRAQ" section.

<http://www.defenselink.mil/speeches/2002/s20020131-secdef.html>
<http://www.washingtonpost.com/wp-dyn/articles/A58343-2003Apr19.html>

Situational Awareness and Information Superiority

**See First
Understand First
Act First
Finish Decisively**

Previously

Current Force

- *Make Contact*
- *Develop the Situation*
- *Maneuver the Force*

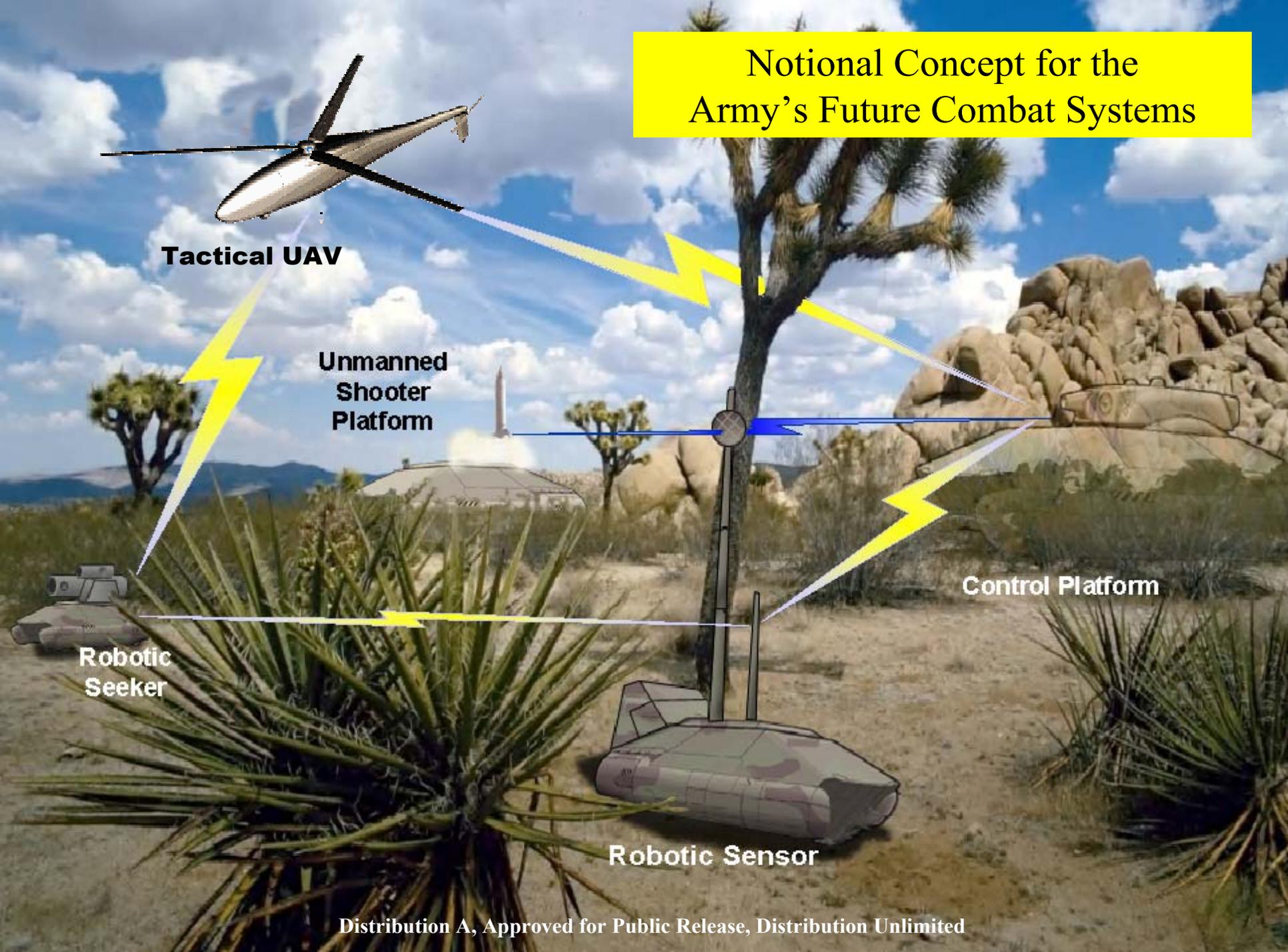


Objective Force

- *Understand the Situation*
- *Maneuver the Forces*
- *Make Contact*

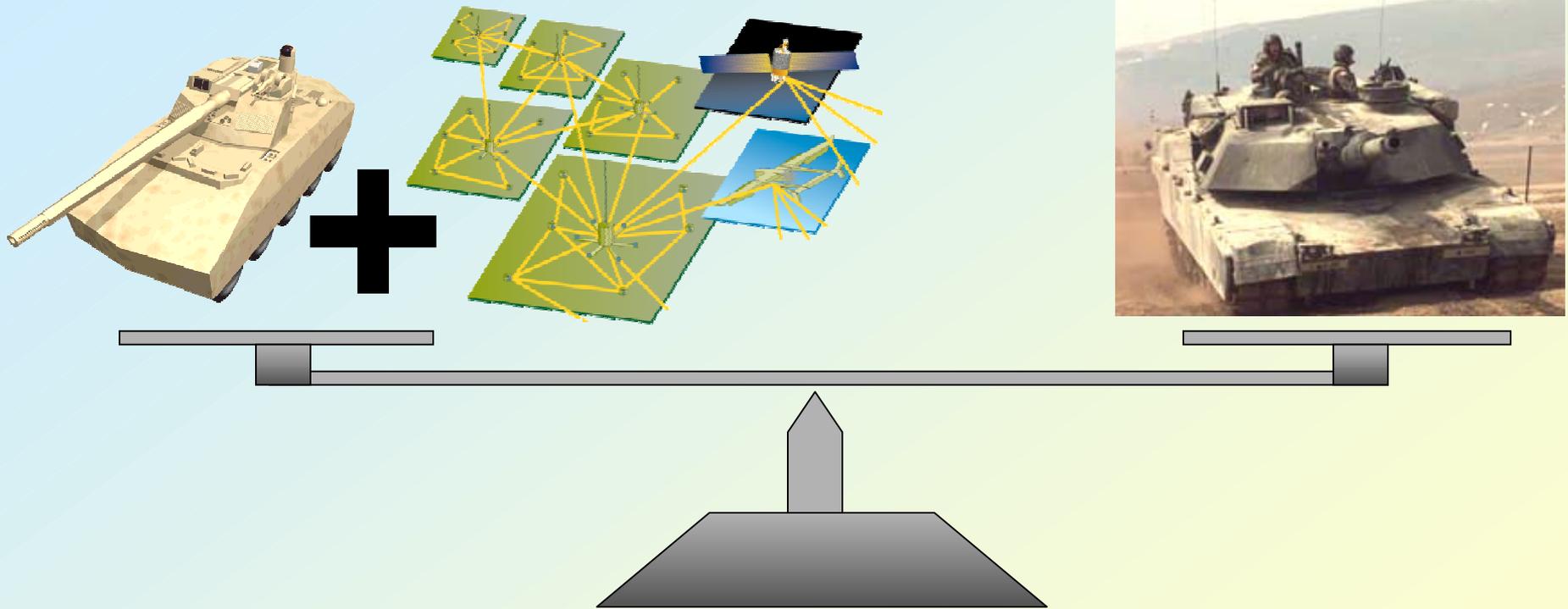
Future

Notional Concept for the Army's Future Combat Systems



Sensor Networks . . .

Trading information for Armor



Highly robust & timely information will provide a crucial edge in defense & offense for future light forces

Essential Technology Enablers

Sensors

Imaging
Non-imaging

Sensor Fusion

Node Level
Network Level

Robust Comms Links

Selectable Bandwidth
LPI/LPD

**Self-Organizing,
Ad-Hoc Networks**

**Decision
Support Tools**

- **Battlespace Environmental Effects Understanding**
 - **Energy efficient processors & algorithms**
 - **Low cost sensor & communications elements**

Sensor Implications of FCS



- FCS requires netted sensors, adaptive sensors, and adaptive arrays of sensors
- FCS requires tools for managing sensor arrays to insure information gets to where it is needed
- ➔ Due to streaming video operation and bandwidth constraints, only 4 UAVs could be operated simultaneously in Afghanistan
- Boeing, as Lead Systems Integrator, is committed to on-board processing to reduce bandwidth and latency

Army Applications for Imagers



Time is of the essence when detecting, tracking,
and targeting mobile threats

→ reduce the sensor-to-response time

