

# Defense Trade Advisory Group DTAG FALL 2013



Working Group 3

Commercial Unmanned Aerial Vehicles

**Presented: 16 January 2014**



# DTAG Team 3 (UAV) Members

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Thank you to the Team and the DTAG Members and Leadership.



# WG3 Task Description

Provide a proposal for an effective export control system (process) for non-lethal, [MTCR] non-Category I UAVs that would facilitate their use in non-military roles. (*UAVs Adjacent Market Use*)

## Clarifications of Scope:

- In Scope
  - UAVs
  - MTCR Category II
  - Adjacent markets/end-uses, focus area
  - Include UAV/UA Systems constituent parts
- Out of Scope
  - Unmanned Ground and Underwater Vehicles
  - MTCR Category I
  - Optionally Piloted Vehicles (OPV)
  - Larger USG policies (e.g., privacy concerns, overfly rights, safety)



# Export Control Areas of Concern

- Civil end-uses are overtaking military-specific
  - Technological development is civil/commercial
  - Public policy, driven by statutory change has directed regulatory reform to facilitate the movement of UAVs to civil airspace for civil applications.
  - UAV market is growing rapidly and includes both unmanned and manned-with-autonomy
- ITAR licensing and MTCR requirements are arduous, even for MTCR Cat. II items
  - Review criteria difficult to predict & results in overly restrictive provisos
  - Denials and restrictive provisos require resubmissions and reclaims
  - Process is time consuming and results in loss of US competitiveness
  - Burdening the development of the civil market with the regulatory apparatus associated with defense products is contrary to public policy



# Export Control Areas of Concern

- Foreign availability is currently significant and escalating
  - US export uncertainty drives customers to non-US providers (in all aspects including platform, payloads, subsystems, software, parts, maintenance)
- Inability of US industry to compete diminishes national security
  - Many recent examples of US export controls preventing foreign interest in US products
  - ITAR barriers negatively impact international sales, R&D, etc.



# Illustrative Applications of Commercial UAVs

- Disaster Relief
- Commercial Package Delivery
- Mapping, Demographics, Traffic Patterns
- Law Enforcement
- Firefighting
- Agricultural
- Border Patrol
- Paparazzi, Event Photography
- Coast Guard
- Cargo – moving supplies to remote areas and heavy lift capability like pipelines or logging activities

# UAV Manufacturers



# UAV Manufacturers





# UAV Manufacturers



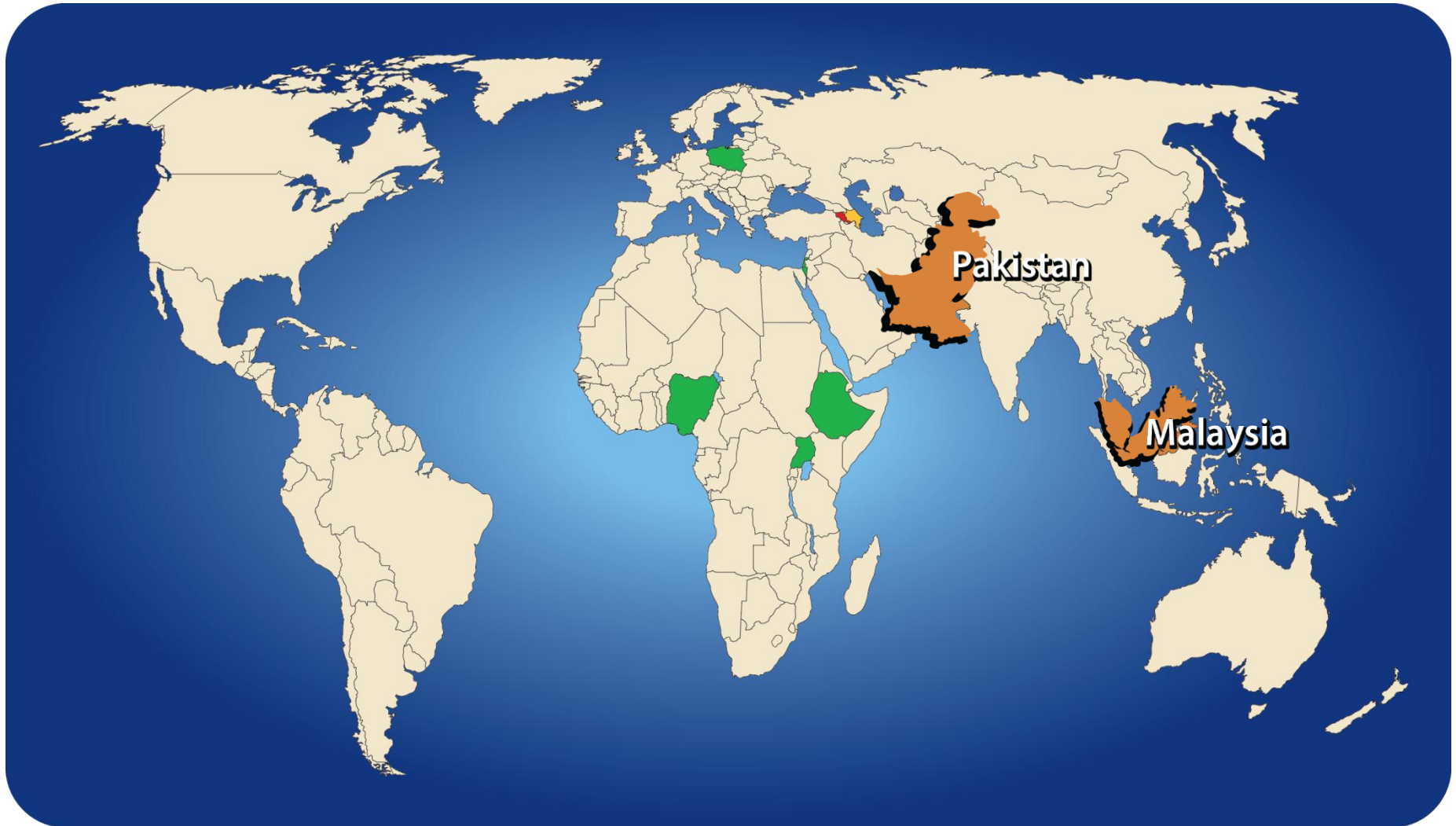
# UAV Manufacturers



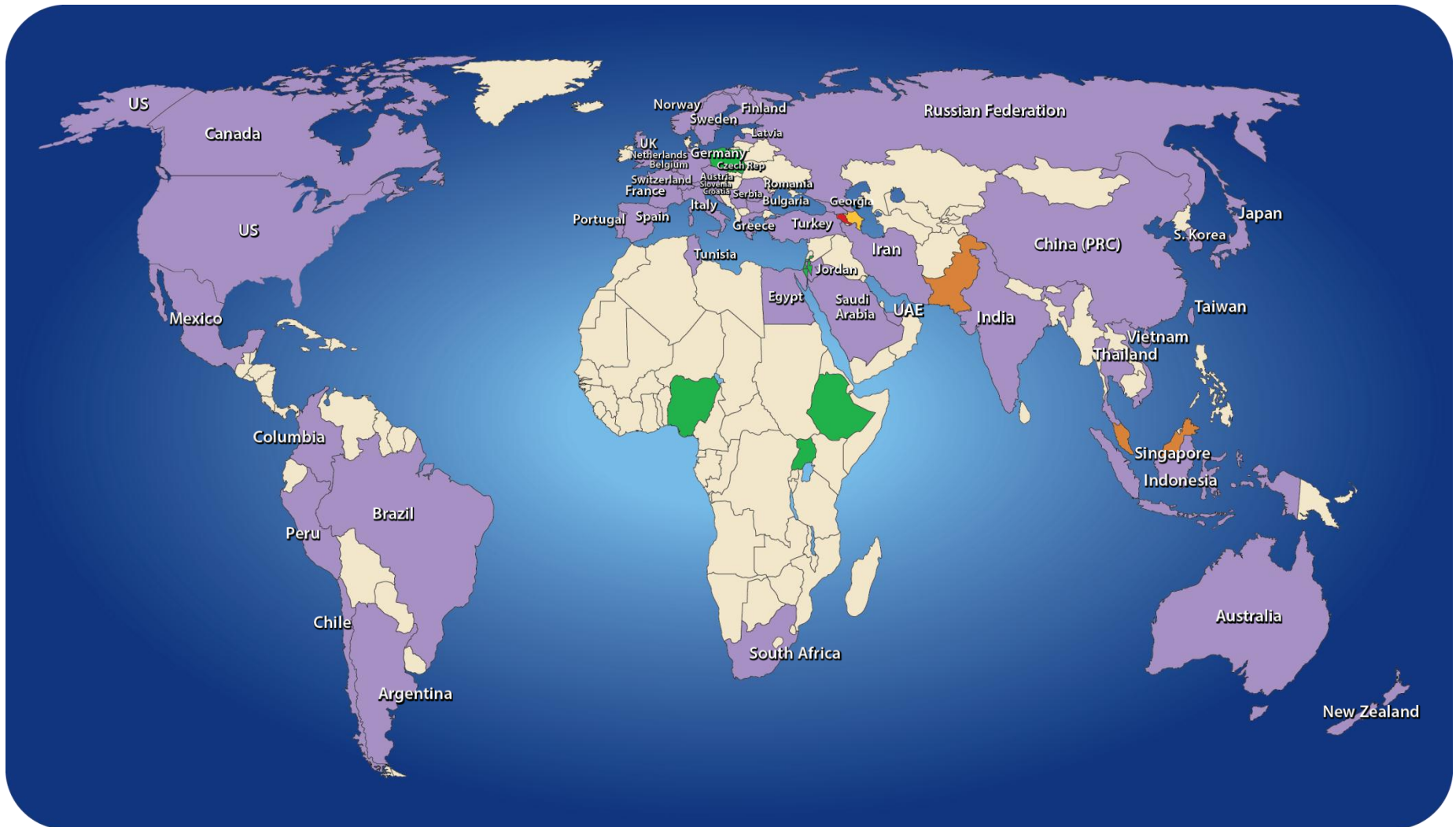
# UAV Manufacturers



# UAV Manufacturers



# UAV Manufacturers Worldwide





# USG Public Policies on UAVs

- **FAA UAV Roadmap Published in November 2013**
  - FAA Modernization Act of 2012, PL 112-95, Congressional legislation requiring FAA to develop a plan
  - Public policy anticipates a large civil market; by inference some will be exported, thus we need an export policy congruent with public policy
  - Testing sites were announced in December 2013
- **DoD Unmanned Systems Integrated Roadmap 2013-2028 – Released Dec 2013**
  - Addresses autonomous military vehicles of all kinds
  - Section 8.5 outlines some export control reform efforts including:
    - Security Cooperation, Defense Exportability Features, ECR Efforts, Technology Security and Foreign Disclosure
  - Some military branches have their own UAV Roadmap
  - No corresponding roadmap for civil/commercial development



# Future Trends

- Broader civil and commercial use of UAVs
- Sensor payloads today; cargo payloads in the future
- Unmanned Ground Vehicles (UGV) and Unmanned Undersea Vehicles (UUV) becoming more prominent
  - UGV and UUV face the same regulatory hurdles
- UAV capabilities from foreign providers will continue rapid escalation

**USG controls need to reflect timely international commercial developments to permit US firms to remain competitive**



# Current Regulatory Regime

- Perceived threat that all UAVs are weapons of mass destruction (WMDs), resulting in:
  - Presumption of denial (for MTCR Cat I)
  - Conflicting and onerous controls
- UAVs are covered in both EAR and ITAR
  - Implementation of new USML Cat VIII became effective Oct 2013
- Lengthy review process – US business lost
  - Standard ITAR request/issuance mechanism (D-Trade, LO assignment)
  - Staffed to multiple military services and DoD agencies and Extensive Interagency Review Team (and MTEC and MTCR review)
  - License processing timelines for UAVs have increased for various reasons including extra review and scrutiny





# Licensing Review Results

- Industry needs clear licensing & review criteria
  - USG needs to clarify exactly what capabilities it seeks to control and refine export regulations to focus on only the most critical capabilities
  - Provisos are often unrelated to the request and are unpredictable
- Timing is critical for resolution of licensing issues quickly (establish a processing time metric and stick with it)



# Team Findings

- Market demand & technological development pervasive in civil sector with commercial aircraft heritage
  - Civil UAV market responds to customer requirements (e.g. longer range, longer flying time)
  - Changes in UAV technologies (e.g., solar power vs. fuel)
  - Civil/Commercial UAV markets rapidly expanding
- USG/DOD soliciting commercial products, not specifically designed for military
  - Reduce cost & leverage technological (civil) development
- Foreign availability
  - UAVs are widely available throughout the world
  - Foreign market access is driving foreign technological development

U.S. business is precluded from selling to the rest of the world what the rest of the world is selling already!

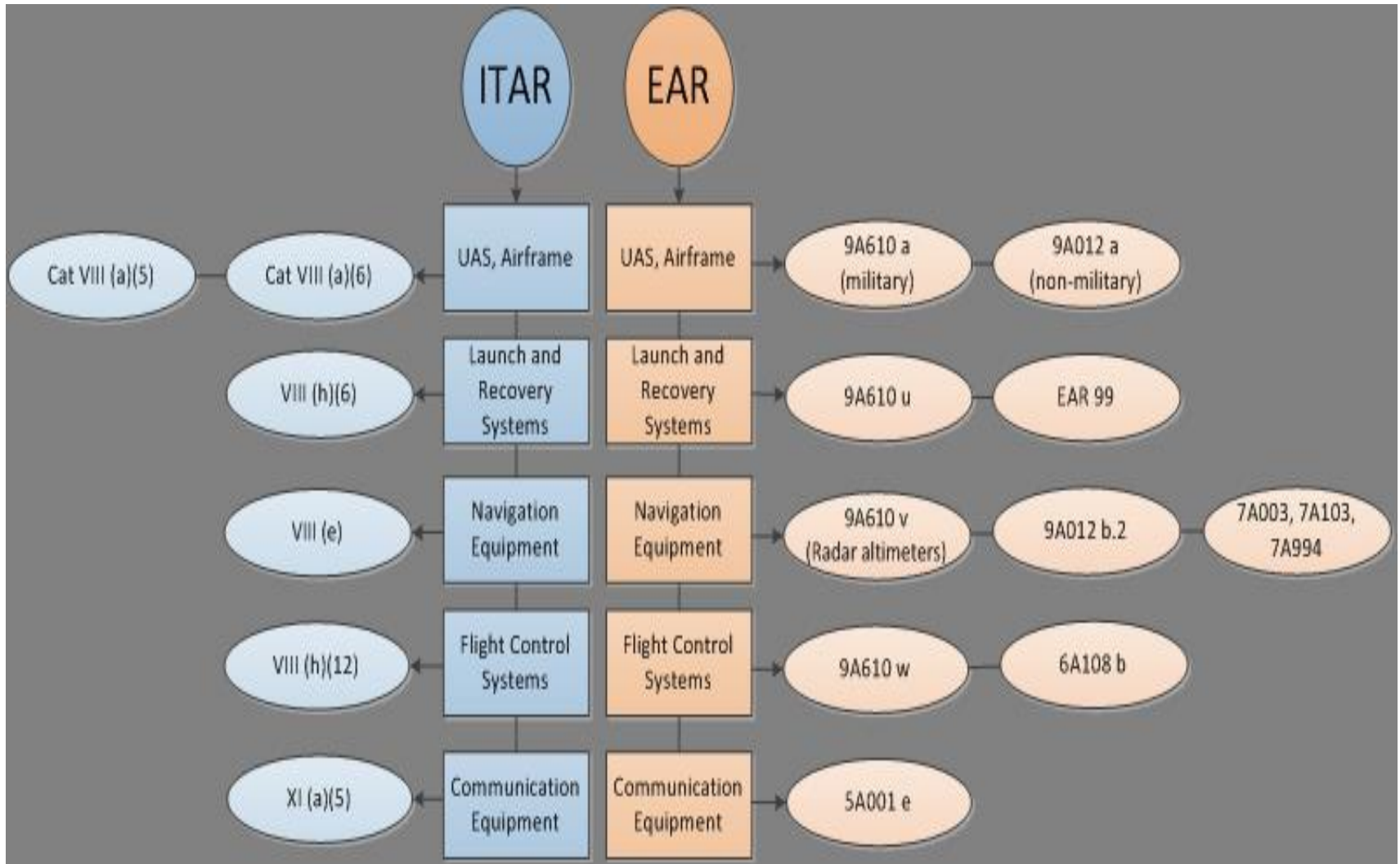


# Recommendations - Regulatory

- Clarify “military” in unambiguous terms (ref: USML VIII(a)(5) - Unarmed military unmanned aerial vehicles)
  - Take into account Wassenaar definition & new ITAR definition of military aircraft
  - “Military” could include the following uses of the vehicle such as combat, military reconnaissance, assault, and military training
- Exclude items that are not inherently military
  - Non-combat aircraft
  - Not configured, fitted with equipment or attached designed or modified for a military use
  - Certified for civil use by the civil aviation authority in a Wassenaar Arrangement Participating State
  - Does not incorporate weapons specified by the US Munitions List unless inoperable and incapable of being returned to operation.



# Current Export Regulations, Post-ECR





# Recommendations – Licensing Policy

- Review ITAR restrictions
  - Some “military” capabilities have commercial applications (e.g. Infrared by border control, multispectral for environmental monitoring, communications relays for broadband in remote areas, synthetic aperture radar for search & rescue)
  - Many US procurement programs now require CCL-controlled products (cost effective, technological advancement)
- Interagency Review Committee recommendations
  - Change the opening perception that all UAVs are WMDs
  - Shorten the timeline for review
  - More Transparency - Open more dialog with license applicants before issuing a restrictive or denied license response which causes the applicant to start the process all over again
- Expedited Licensing for MTCR member countries



# Proposed Expedited Licensing for UAVs

- Cat VIII(a)(5) UAV
  - Sale to MTCR member nations only
  - End-user can be MoD or non-MoD
  - If end-user not an MoD, provide justification for selling the USML VIII(a)(5) UAV rather than a 9A610a or 9A012a system
  - Re-exports only to another MTCR member nation
  - Destination limited to MTCR member nation of end-user
- Cat VIII(a)(6) UAV
  - Recommend consideration of expedited licensing
    - Anything that doesn't qualify for expedited processing would go through normal process*



# Recommendations - Future Work

- Discuss/renegeotiate MTCR terms with member countries
  - Continue attempts to modernize & reform MTCR terms and agreement to continue to meet non-proliferation objectives and principles
    - Informed by changes in public policy
    - Technology development has progressed beyond when the MTCR was established
- Study Group or DTAG Group to:
  - Review expedited licensing for VIII(a)(6)
  - Leverage precedent in 7A994 (QRS-11) (and RLG) regarding export treatment of a USML item incorporated into an otherwise commercial UAV



# Summary/Conclusion

- We acknowledge this is not an easy area to control for export and import in a business-enabling manner that protects national security
- US export controls/restrictions should be adjusted to reflect shifts in public policy and changes in technology
- Inability of US firms to compete internationally diminishes our national security
- Clear and timely licensing review criteria and process including expedited licensing for MTCR members

Industry and Government need to work together  
to create a better and more efficient way to process  
UAV-related export requests

Thank You... Questions?





# Backup – Slide Notes

- Notes pg. 2

Thank you to everyone on the team as well as the DTAG Leadership – Sam Sevier, Bill Wade, and Kim DePew

- Notes pg. 3

As you will see in the upcoming slides, this was not an easy task, particularly since we have not yet seen the full impact of changes from Export Control Reform and the UAV market, technological development, and public policy are changing so rapidly.

The tasking did not include Cat I, but it does impact civil/commercial applications and should be addressed very soon – all the rest of these nuances should also be addressed very soon since technological development is moving so quickly

- Notes pg. 4

In the early 80s during technology development of computers – the processing power of commercial computers available in stores was exceeding military nomenclature versions and export control couldn't keep up with technological development. We are seeing the same thing in the UAV sector. Civil end-uses are rapidly overtaking military-specific missions.

The historical ITAR licensing and MTCR requirements have been difficult for industry to implement – the process is unpredictable, time consuming, and often results in overly restrictive provisos. Foreign UAVs are readily available and customers are going to them, particularly for civil/commercial end-use cases.



# Backup – Slide Notes

- Notes pg. 5

If US industry cannot compete in the UAV marketplace, we lose technological development and diminish national security.

- Notes pg. 6

There are so very many opportunities for use of unmanned air vehicles in the civil and commercial sector. UAVs have been used for disaster relief, fire fighting, search air rescue, and so many other uses. Who knows what unique and different end-uses will be feasible in the near future.

- Notes pg. 7-13

UAV manufacturing is Global...(FLIP) Armenia has begun manufacturing and supplying their military with UAVs, and they have purchased 4 Ptero-E5s from Russia that can remain in the air for 8 hours...(FLIP) Their arch-enemy, Azerbaijan has acquired UAVs from Israel,...(FLIP) and last year began a joint venture with Israel to begin assembling them in Azerbaijan. The value of UAV exports by Israel has been estimated at 4.6 Billion from 2005-2012 (US sales during the same time were between 2-3B). Israel also supplies other small countries such as...(FLIP) Poland, Uganda, Ethiopia, and Nigeria...(FLIP) Malaysia and Pakistan are jointly manufacturing tactical UAVs capable of up to 20 hours of operation, controlled within a radius of 200km. More than 15 of this model have been sold to the Defense Ministry since 2007...(FLIP) On November 22, 2013, China successfully flew a stealth drone for the first time. A correspondent for the BBC who attended the air show where the demonstration was held was quoted as stating that it was clear that “Beijing has developed a variety of UAVs matching virtually every category deployed by the US.”

- As you can see, many countries manufacture UAVs with capabilities similar to or better than the US.



# Backup – Slide Notes

- Notes pg. 14

In addition to the US developing roadmaps, there is a NATO policy and Danish law – established places to test UAVs for use in civil airspace. Other international regimes and associations are looking into commercial/civil UAV markets, air worthiness, etc.

US Policy initiatives should be aligned with global partners.

- Notes pg. 15

US companies must remain competitive. Future trends include broader end-uses, continued expansion of unmanned platforms into ground and underwater applications, and foreign availability grows. The export regulations need to stay attuned to technological development and foreign availability in these areas.

- Notes pg. 16

This DTAG tasking was assigned in July 2013, which was before ECR changes were implemented beginning in October 2013. Much of the research that the working group conducted was based on case sampling that predated ECR implementation. Therefore, it is too soon to tell whether the recently implemented Cat VIII ECR changes will have a positive affect on UAV export controls.



# Backup – Slide Notes

- Notes pg. 17

The precise capabilities that the USG wants to protect are not clear from existing regulations and appear to be evolving, while at the same time international players are flooding the market with similar or even superior capabilities. The USG needs to provide more specific and uniform guidance on UAV and payload controls.

Commercial availability of autopilot hardware/software, other items have little/no export control – this seems out of line with the controls for unmanned systems.

Timely resolution of licensing issues or concerns and process clarity are critical to industry and academia.

- Notes pg. 19

The ITAR provides a new definition of military aircraft – does not include or exclude Unmanned

This can cause the UAV industry to license strictly commercial UAVs manufactured using all commercial/non-military platforms, electronics and sensors, etc. as an ITAR UAV if being purchased by any military agency

Clarification of what is or is not “military” in the new USML VIII(a)(5) would be very helpful to ensure that items are not unnecessarily caught by ITAR that should be EAR.

Thank You for your Time and Consideration.