

LOGPACE: METHODS TO ENHANCE THE COLLECTION, MOVEMENT, AND AUTOMATION OF LOGISTICS AND SUSTAINMENT DATA

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Agenda

- Who am I?
- LogPACE Background and Concept
- Enabling Technologies
- Conclusion / Next Steps



Who am I?

• C4ISR Product Manager – Trident Systems

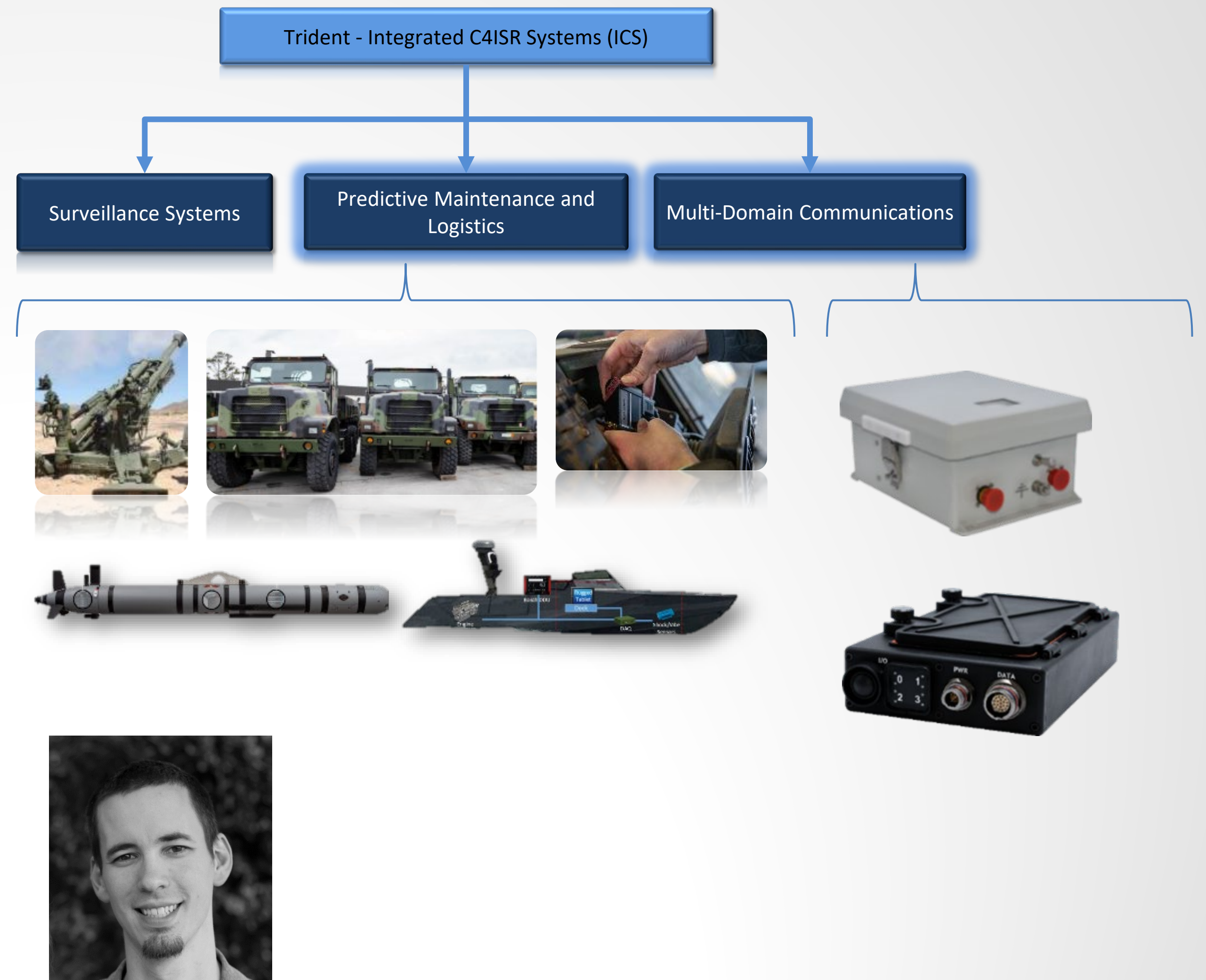
- I am responsible for the product and technology roadmaps for our C4ISR capabilities.
- My primary focus is ensuring our products meet the needs for the people putting their lives on the line in conflicts around the world.
- Previously worked as the PI/Sr. PM for PM&L technology development.

• Education

- B.S. in Physics from William & Mary (2008)
- M.A. in Religion from Reformed Theological Seminary (2013)
- CEH, CTS, SEC+

• Fun Facts:

- I am married with 3 kids
- I am an identical twin
- My parents both worked at Honeywell in the 60's/70's/80's on early computer technologies

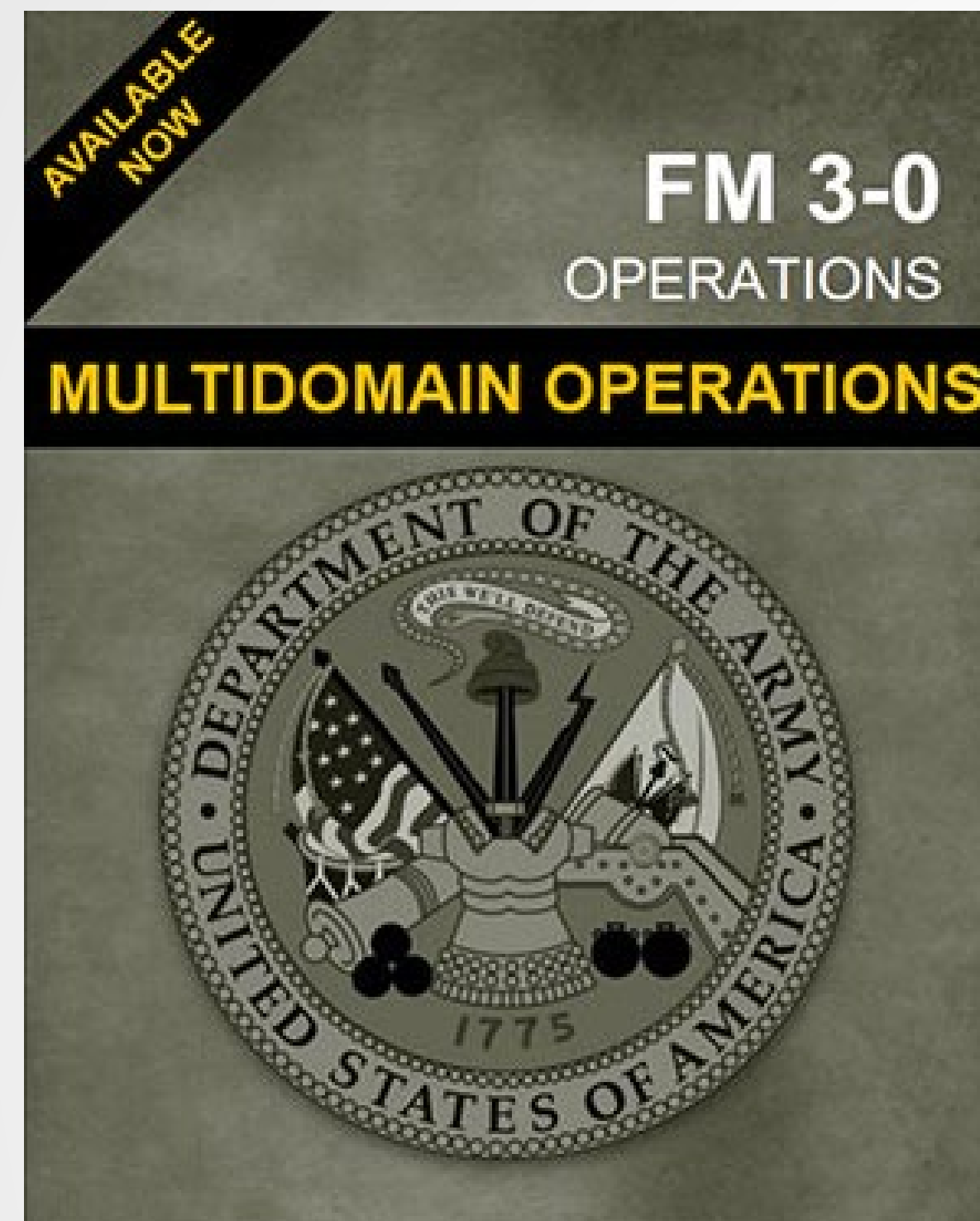


LogPACE Background and Concept

LAB TO LOGISTICS

“Data is as important as ammunition on the future battlefield.” - Christine Wormuth, Secretary of the Army.

“[I]t has been decades since air-ground integration and close cooperation between land and naval forces have been effectively challenged by a threat.”
-General McConville, FM 3-0 Operations, Forward.



P rimary
A lternate
C ontingency
E mergency

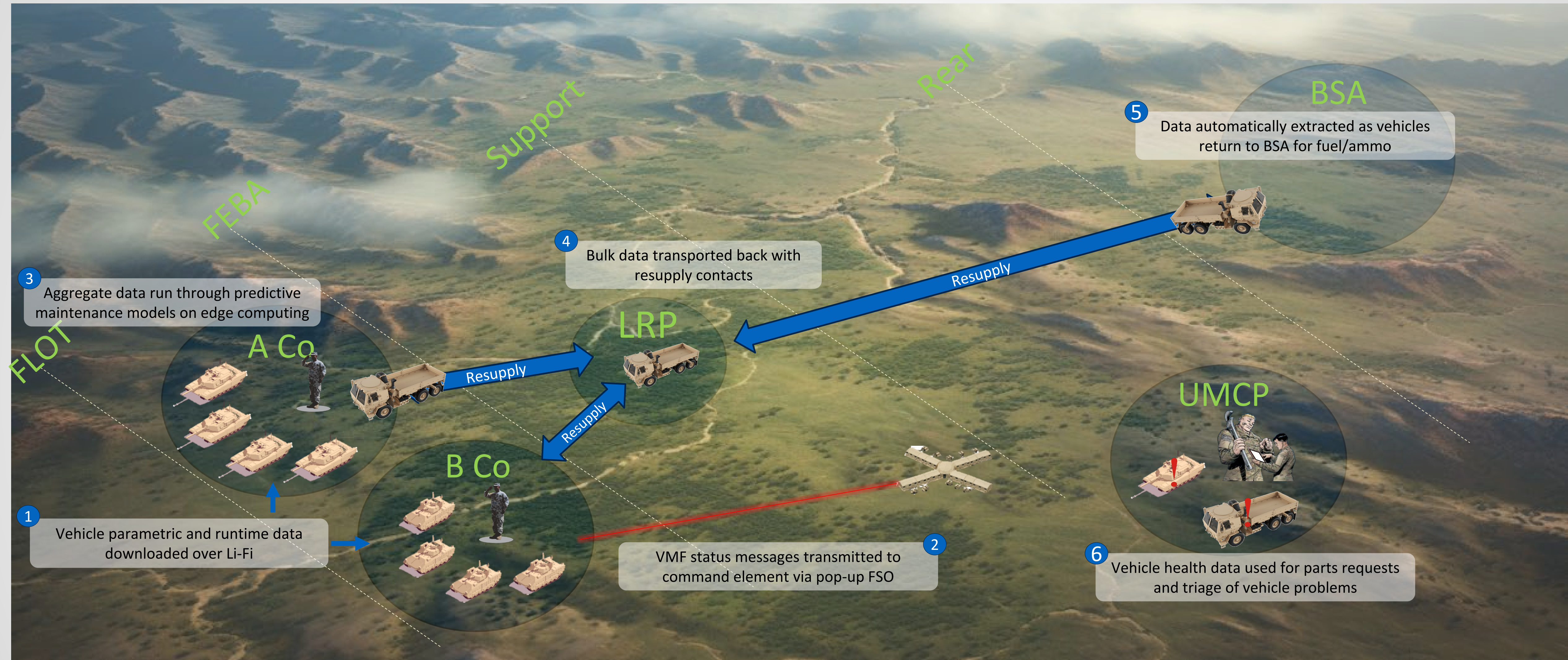
Only with a robust PACE plan for Logistics and Maintenance data will the United States be able to overcome the contested logistics environment and requirements to move fuel and parts over thousands of miles to prevail in a future conflict.





Forward Deployed

LAB TO LOGISTICS



Enabling Technologies

- **Method: Written Data Transfer**

- The ultimate Emergency PACE item.

- **Pros:**

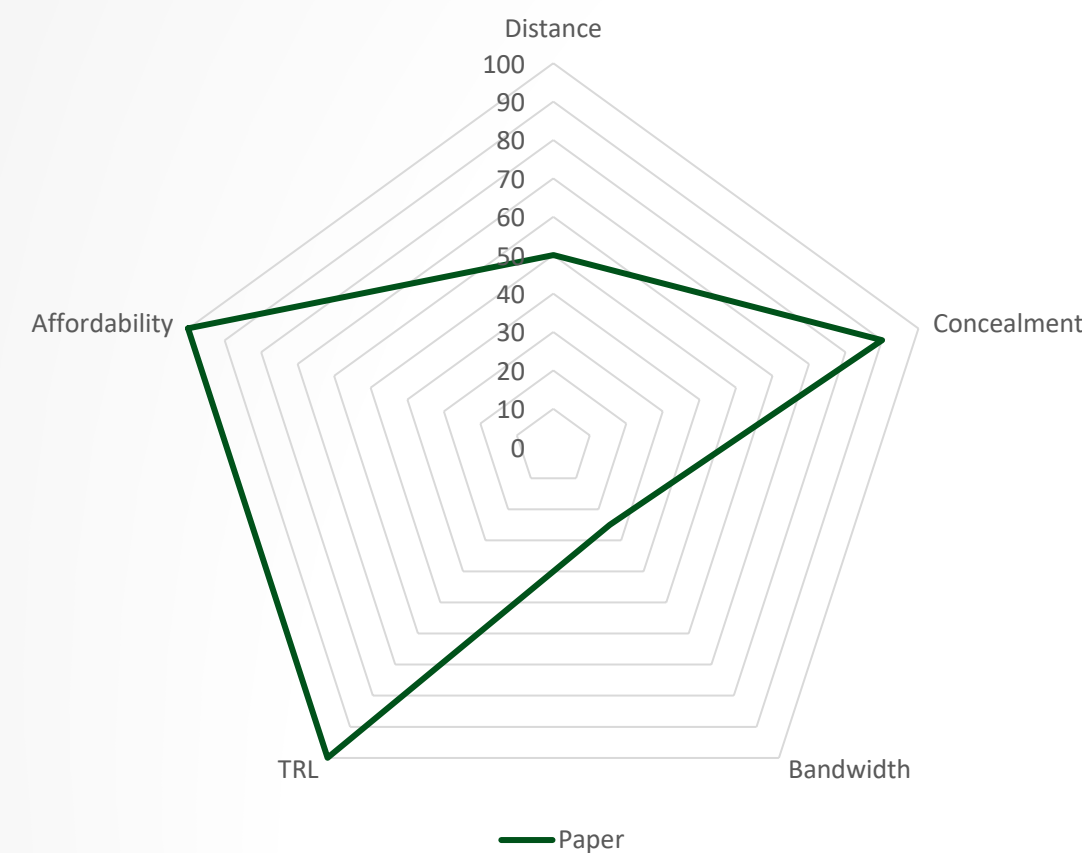
- Can be used on everything from paper to MRE wrappers
 - Easy to destroy
 - Hard to identify from distance

- **Cons:**

- Low bandwidth
 - Slow transmission
 - Easy to destroy

- **TRL:**

- 9



Enabling Technologies

- **Method: SATCOM**

- Worldwide coverage.

- **Pros:**

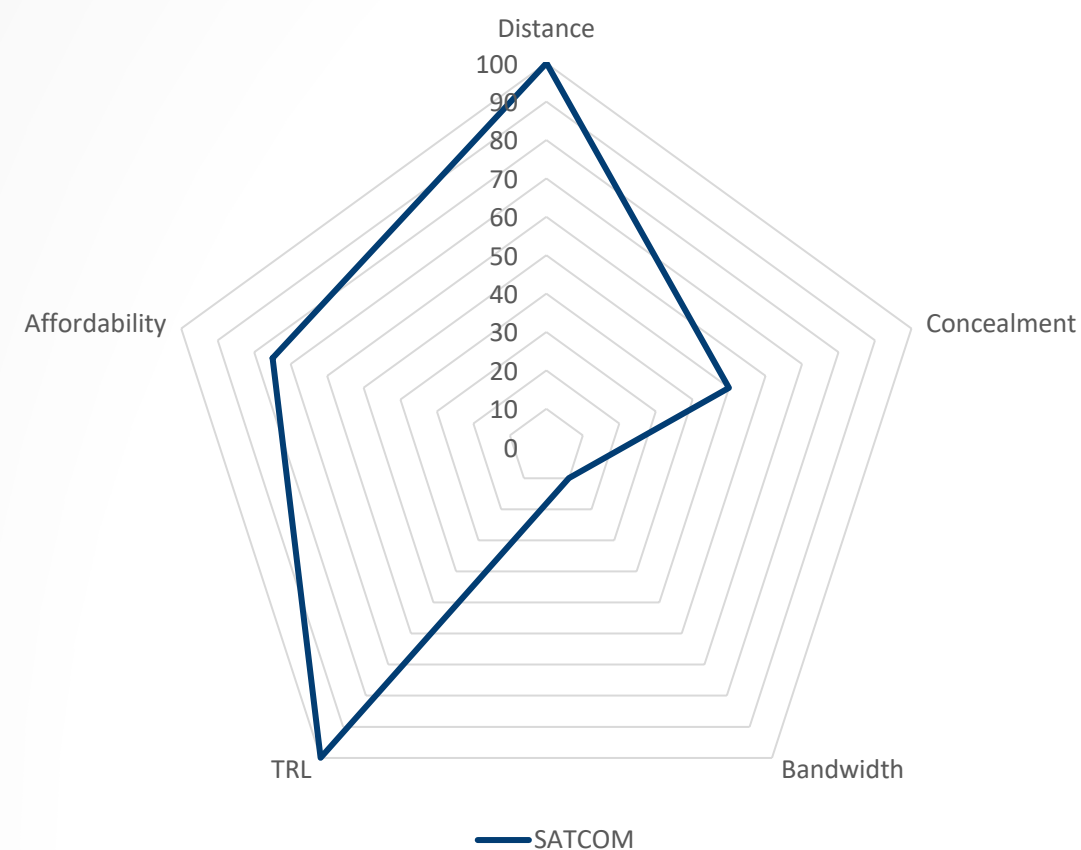
- Fielded and trained
 - Easy to destroy
 - Compatible with encryption

- **Cons:**

- Low bandwidth
 - Expensive
 - Can be jammed
 - RF can be detected

- **TRL:**

- 9



- **Method: Tactical Radio**

- The standard communication in theater.

- **Pros:**

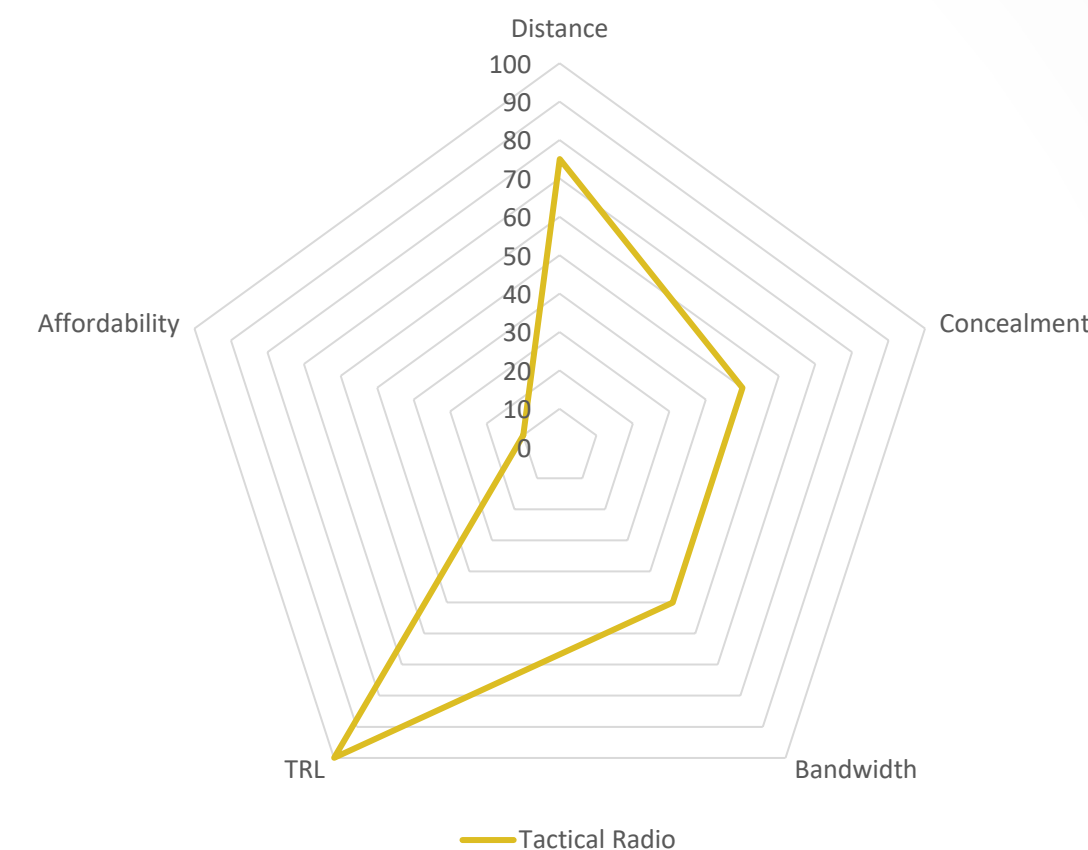
- Widely fielded and trained
 - Built into many vehicles
 - Compatible with encryption

- **Cons:**

- Bandwidth varies
 - Expensive
 - Can be jammed
 - RF can be detected

- **TRL:**

- 9



Enabling Technologies

- **Method: Wi-Fi**

- Integrated with most systems.

- **Pros:**

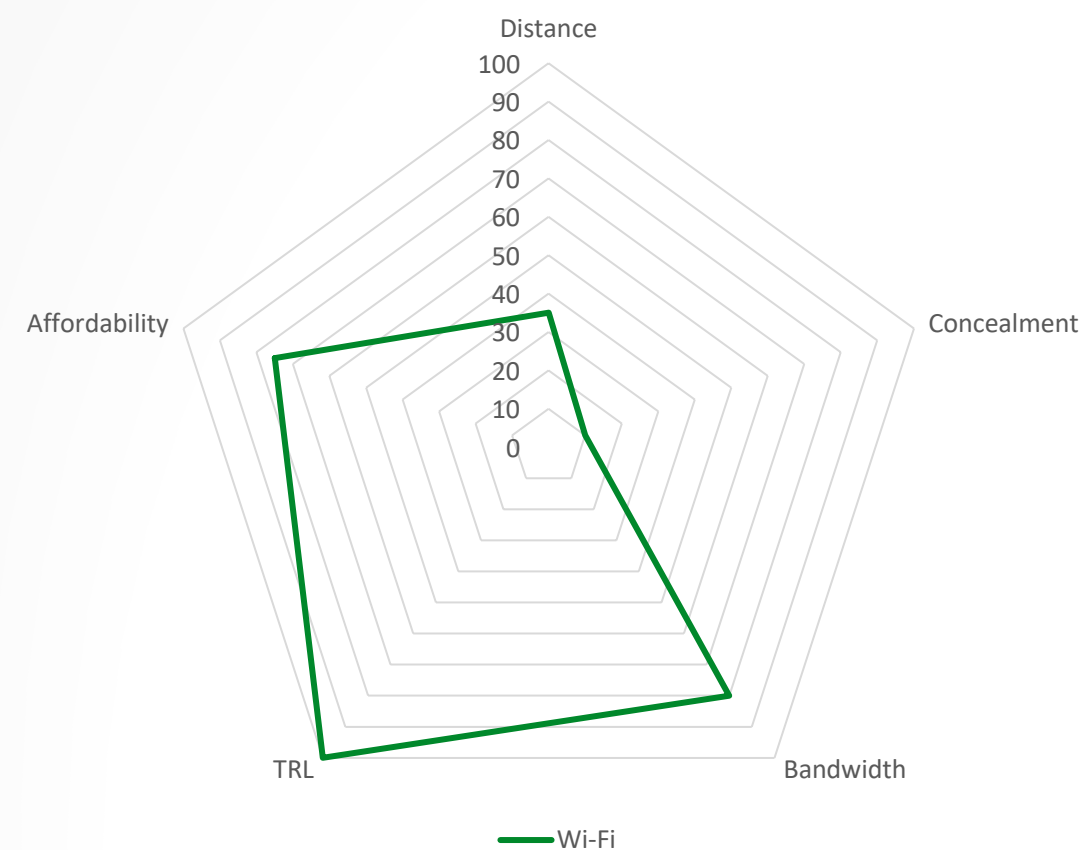
- Low cost
 - Widely used and fielded
 - High Bandwidth capacity

- **Cons:**

- Can be hacked
 - Range of ~400' – 1000'
 - Can be jammed
 - RF can be detected

- **TRL:**

- 9



- **Method: LTE/5G**

- Integrated with many consumer systems.

- **Pros:**

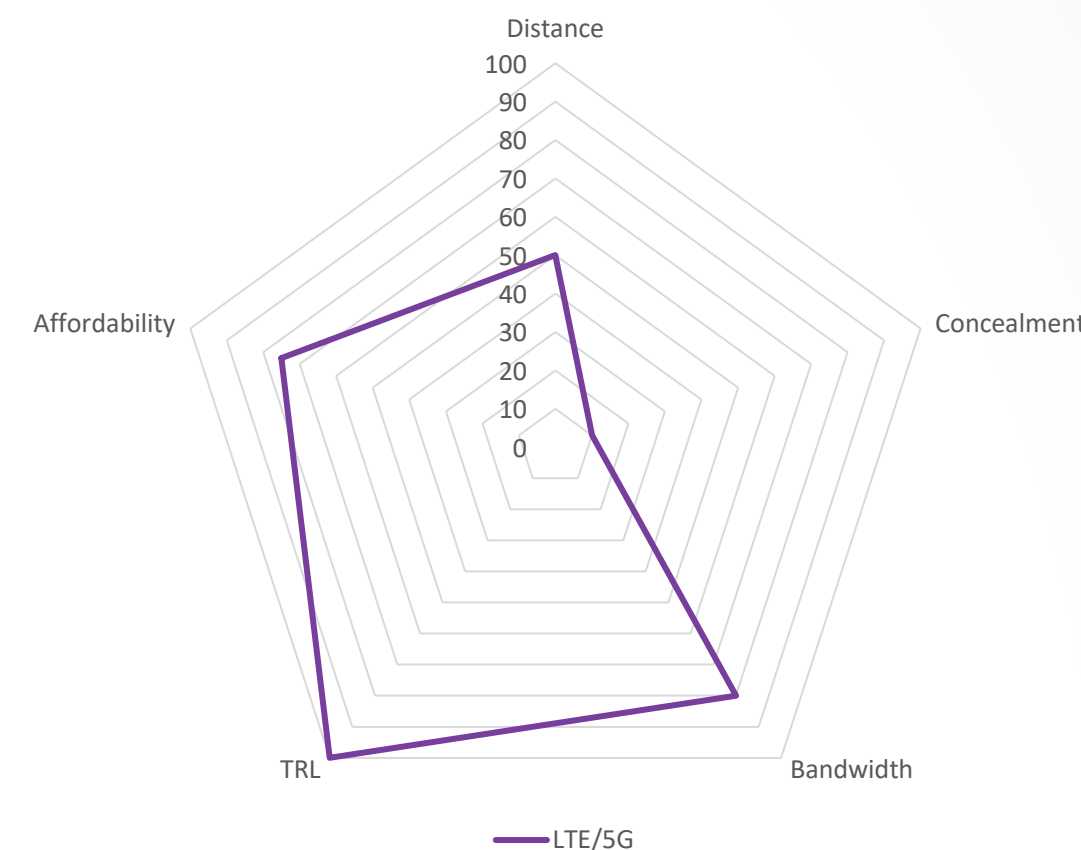
- High speed data transfer
 - Widely used with off the shelf technology
 - Compatible with encryption

- **Cons:**

- Easy to track
 - High infrastructure dependence
 - Can be jammed
 - RF can be detected

- **TRL:**

- 9



Enabling Technologies

- **Method: QR Codes**

- Used everywhere from menus to maintenance forms.

- **Pros:**

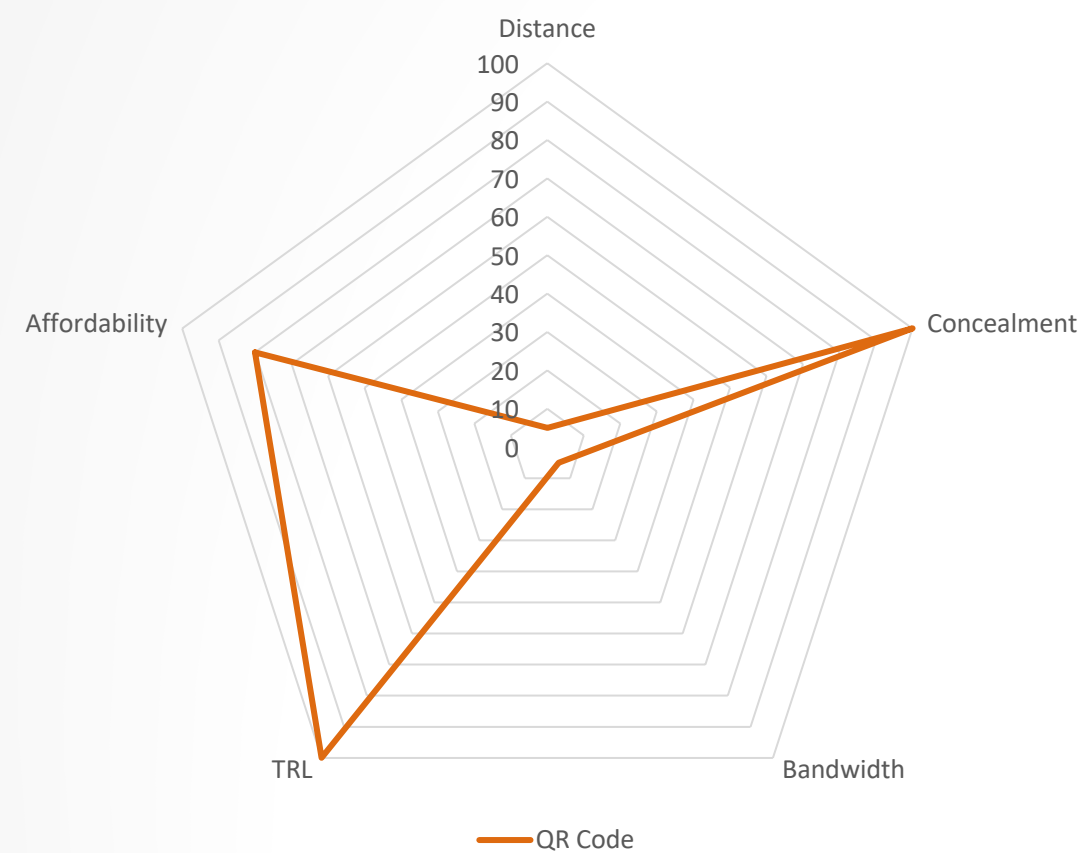
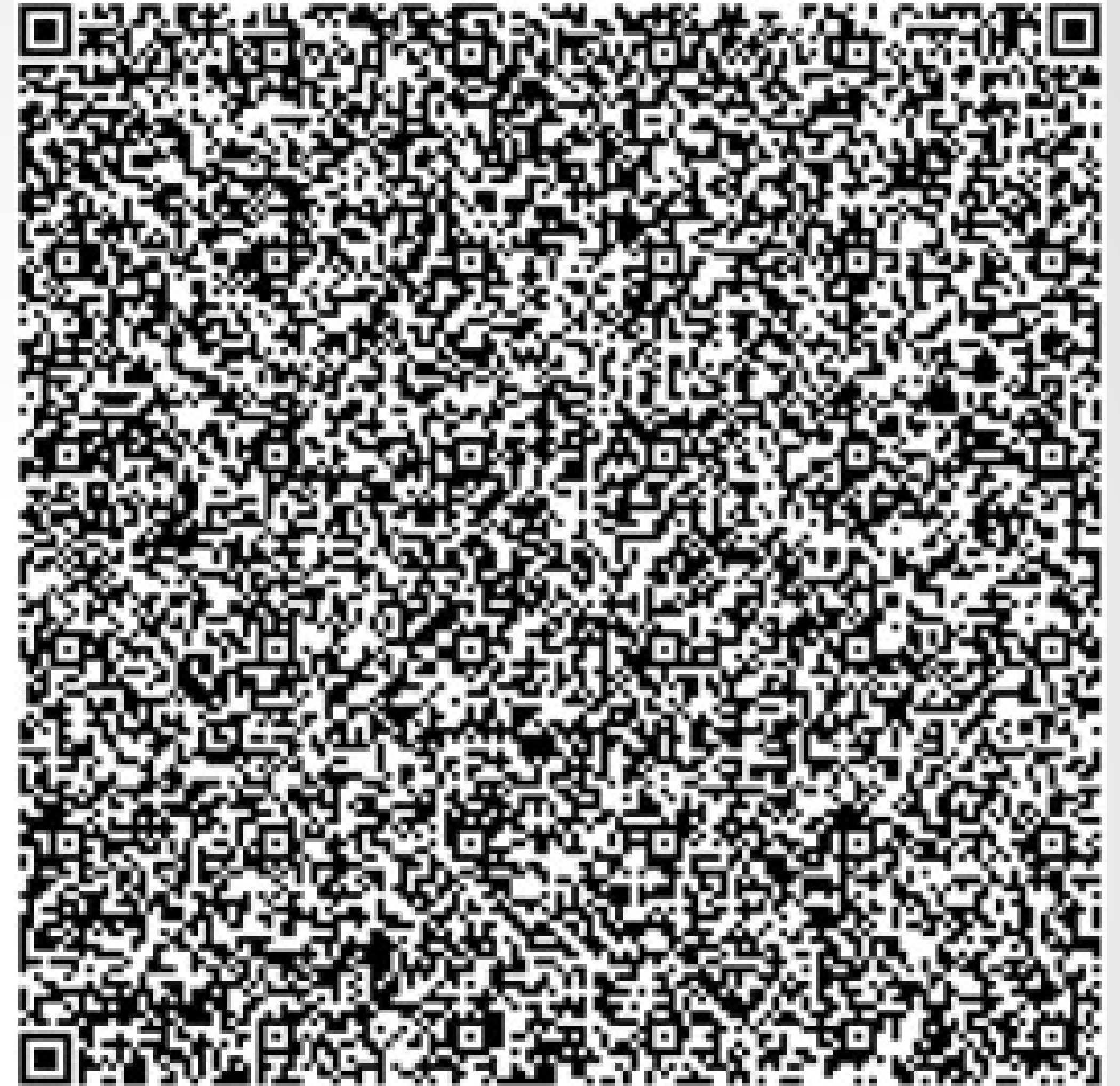
- Compatible with many devices
 - One-way communications
 - Straightforward to generate and read

- **Cons:**

- Low bandwidth
 - Close proximity required
 - Requires camera permissions

- **TRL:**

- 9



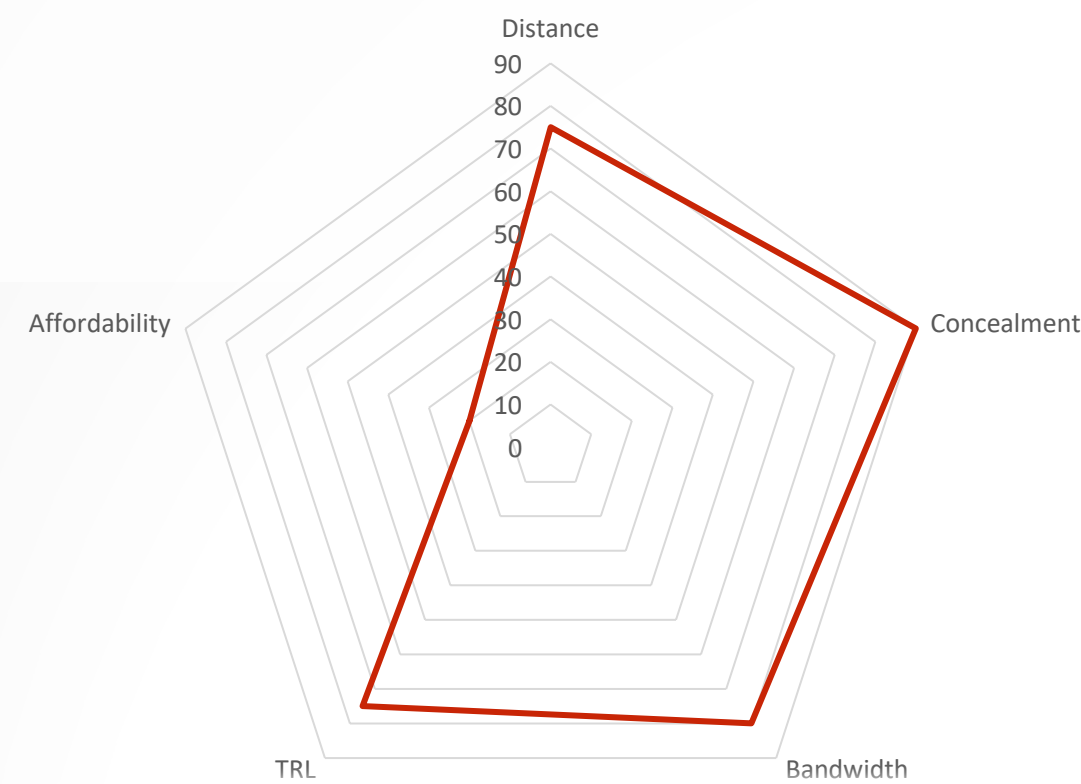
Enabling Technologies

- **Method: Free Space Optics**
 - Long Distance, No RF communications.

- **Pros:**
 - No RF profile/signature
 - High speed data transfer
 - Compatible with encryption

- **Cons:**
 - Early technology
 - Expensive
 - Point to Point
 - Environmental impacts

- **TRL:**
 - 7

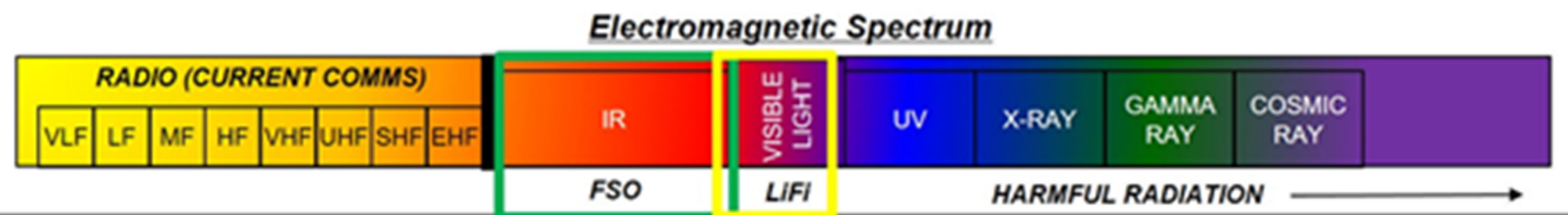
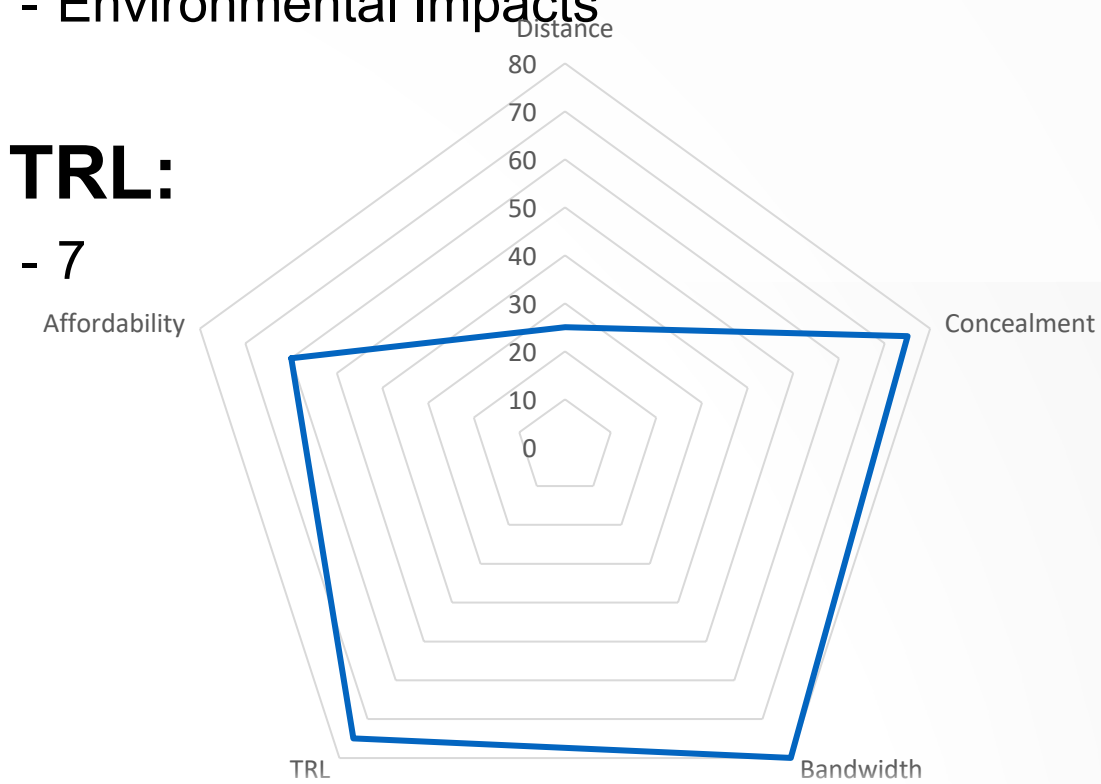


- **Method: Li-Fi**
 - No RF communications.

- **Pros:**
 - No RF profile/signature
 - High speed data transfer
 - Compatible with encryption
 - Commercially available

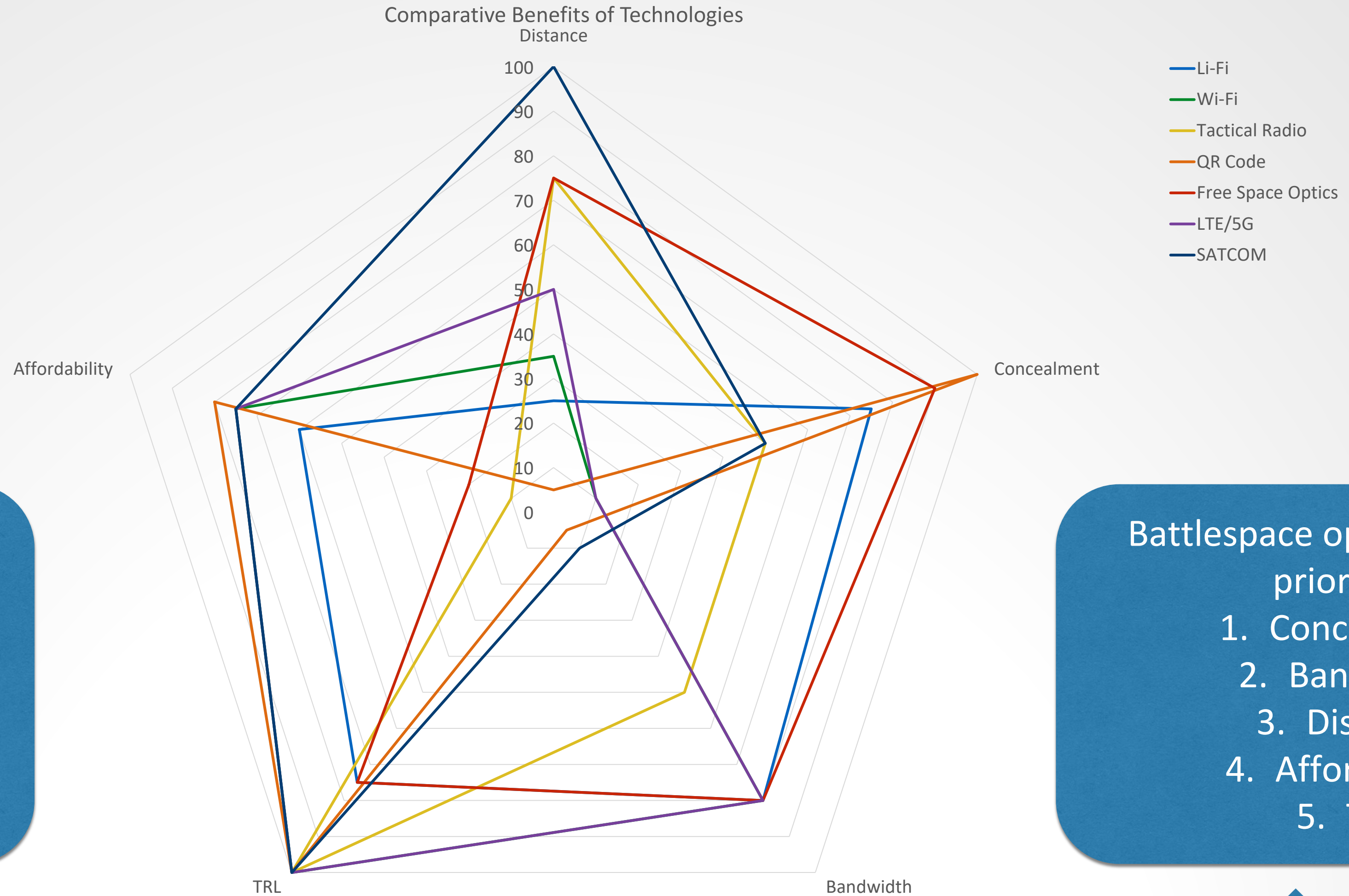
- **Cons:**
 - Early technology
 - 30' Range
 - Environmental Impacts

- **TRL:**
 - 7



Enabling Technologies

LAB TO LOGISTICS



Garrison operations may prioritize:

1. Affordability
2. TRL
3. Bandwidth
4. Distance
5. Concealment

Battlespace operations may prioritize:

1. Concealment
2. Bandwidth
3. Distance
4. Affordability
5. TRL



LogPACE recognizes the inherent differences between operating contexts to build flexible solutions



Conclusion / Next Steps

1. Logistics data movement should be reviewed with a PACE plan that reflects operating contexts.
2. Equipment purchases should reflect the needs to move data in forward deployed environments.
3. Testing of emerging technologies at upcoming exercises should be a priority to validate technology readiness.

		Battlespace	Rear Deployed	Garrison
Primary	Parametric	LiFi	LiFi	WiFi
	Snapshot	LiFi	LiFi	WiFi
	Faults	LiFi	LiFi	WiFi
	Backhaul	FSO	Hard Wired	Hard Wired
Alternate	Parametric	Hard Wire	Hard Wire	Hard Wire
	Snapshot	QR Code	QR Code	QR Code
	Faults	QR Code	QR Code	QR Code
	Backhaul	Lifi Automation	SATCOM	SATCOM
Contingency	Parametric	Paper documents	WiFi	Paper Documents
	Snapshot	Paper documents	WiFi	LiFi
	Faults	Paper documents	WiFi	LiFi
	Backhaul	Tactical Radio	Tactical Radio	Tactical Radio
Emergency	Parametric	Fall back to PMCS	Fall back to PMCS	Fall back to PMCS
	Snapshot	Verbal Readout	Paper documents	Paper Documents
	Faults	Verbal Readout	Paper documents	Paper Documents
	Backhaul	Paper documents	Paper documents	Cell Network

