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6 Steps to Fielding Smart, Integrated C4ISR Systems

L3Harris Technologies

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6 Steps to Fielding Smart, Integrated C4ISR Systems

EXECUTIVE SUMMARY

Putting the necessary assets and infrastructure in place to create a real-time, multi-echelon Common Operational Picture (COP) is the desire of most militaries. But fielding these smart, integrated, cognitive systems can become overly complicated, costly and time-consuming—hindering their effective implementation in the short term and over time.

Your ability to overcome the complexities, timelines and cost challenges associated with C4ISR system integration—and to ensure the integration is sustainable over time—is closely tied to the partner you choose to work with. Having a partner that serves as a trusted advisor with the experience and willingness to put your needs first (selling capability instead of products) is a critical success factor.

L3Harris is the established leader in developing and deploying customized, integrated C4ISR systems and the infrastructure needed to gather, synthesize and share a diverse range of battlefield reconnaissance data. Our long history of being there “in field” with our customers through times of peace and conflict positions us to recommend solutions that help the world’s militaries put intelligence into action. Success can be fast-tracked, deploying pre-configured packages available for quick delivery as building blocks to an otherwise complex, bespoke system implementation.

Here are the top 6 pre-purchase steps that should be considered when developing and implementing an integrated C4ISR system:

1. **Start with your end goal in mind**
2. **Design for ease-of-use and rapid deployment**
3. **Beware of introducing information overload**
4. **Build on your existing systems as you add new capabilities**
5. **Plan for post-acquisition training, support and maintenance**
6. **Demand a focus on sovereignty**

1. Start with your end goal in mind

OUR OBSERVATION: Choose a partner with direct access to the necessary technologies and proven experience in developing and deploying integrated military command systems. The best partner will understand and anticipate the specific needs of each user group from headquarters to the front line. Ensure your partner can demonstrate their understanding of how users will be impacted by the result, as well as the journey during implementation. That partner should play an advisory role throughout the process, helping you to:

- **Understand how you are operating today likely differs from what you will be doing tomorrow.** It's not enough to simply update systems. Commanders must understand and articulate the benefits of increased C4ISR awareness well before delivery so that new doctrine can be written, and end users can be trained prior to fielding. Following this type of implementation strategy will greatly reduce the time it takes to get from delivery to improved, real-time tactical decision making.
- **Use focused terms for what you're trying to achieve.** It may not need to be a nationwide C4- or C5ISR system. The scale and scope of your migration should be based on your actual needs today—and not become overcomplicated by extra capabilities you may not use.
- **Develop specific, measurable goals and objectives for each stage of the project.** The overall objective is to get the right information to the right person at the right time to enhance decision making. Plan a number of steps in your development. New capabilities, delivered incrementally, allow for short-term successes in pursuit of the greater goal.
- **Count on your partner to develop a vision that delivers on your specific measurable goals and objectives.** You are purchasing experience, labor and services as much as technologies and equipment. Your partner should show how they plan to help you ensure forward and backward interoperability and avoid "analysis paralysis" by solving today's mission while leaving room for future growth and adaptation.

L3Harris is ideally suited to guide you on your journey, given our decades of experience in the international systems market, demonstrated customer relationships, in-country partnerships (175+) and reputation as cutting-edge integrators. This combination of reputation and knowledge drives us to have the right conversations with the right people—and to solve today's mission challenges while planning for the requirements for future adaptation. Along with our position as a world leader in waveform development and fielding, we bring valuable real-life experiences to the implementation of C4 Battle Management Systems (BMS) and related solutions.

2. Design for ease-of-use and rapid deployment

OUR OBSERVATION: Systems must be designed with your current end user's capabilities in mind. The easier a system is to use, and the faster it can be deployed, the more likely it is to be adopted and implemented to its full potential. Highly effective system designs:

- **Understand that a soldier's user experience is key to both the adoption and effectiveness of a given solution.** The goal is to free up users so they can spend more time on valuable situational analysis and less on figuring out how to use a given system.
- **Take an iterative approach.** Start with what you have (tactical radios, for example) and build from there so new capabilities can be fielded quickly and more easily. Teach users how to adopt new technologies in iterative content blocks to avoid overwhelming them all at once.
- **Include a cadence of new capability "quick wins."** Incremental successes will demonstrate a measurable return on investment to stakeholders up and down the command chain. They will also help to keep your users engaged in the development, design and delivery process, while building consensus regarding next steps during fielding.
- **Stay focused on the need.** Since new program phases are often budget-driven, put your resources into what is most critical for sovereign protection, rather than additional advanced features you may not be ready for, or able to implement to their full potential.

L3Harris takes the user experience seriously, and our 50 years in the field—combined with a workforce comprising 15% ex-military personnel—have honed our understanding of how technologies are used in the real world under high-stress conditions. This extends even to small details, like how easy it is to operate a radio while wearing gloves, or how a piece of technology with extraneous light or sounds could inadvertently reveal locations at night.

3. Beware of introducing information overload

OUR OBSERVATION: Relying on an ever-increasing number of battlefield sensors presents a significant challenge: how to process all the data collected by each sensor and deliver relevant situational understanding in real time to aid in decision making. Collecting the information from tens to hundreds of sensors in the field creates more information than the human mind can interpret; therefore, an effective system must provide some information processing and simplification:

- **Identify who needs what data, when.** It will no longer be possible for everyone to know everything. Data will be delivered at different need and classification levels so that various decision makers will only receive what they need, when they need it.
- **Understand that Artificial Intelligence (AI) is not just hype, it is a requirement.** Data collection, analysis and target identification need to be implemented in-field today. As your partner, we will help identify what data should be processed where, how it can be automated, when human input is necessary or desired, and where to use each tool. For example, a warfighter engaged in combat often can't read detailed environmental information in real time. By presenting the data graphically using visualization tools, the same information becomes instantly actionable in a time-critical decision-making process.
- **To design for project success, start small and build gradually.** Don't change or replace everything at once. It's better to make incremental changes to data collection and processing that will help users adapt and adopt more easily.

L3Harris will implement systems that deliver relevant information to each operational role using machine learning and AI to control information overload and keep warfighters laser-focused on their tasks.

4. Build on your existing systems as you add new capabilities

OUR OBSERVATION: Many vendors are more proprietary than they admit. Inevitably, lack of interoperability (or imperfect interoperability) can result in missed data—and even missed targets. True interoperability requires proactive effort on the part of the integrator. Although the industry claims to operate on an "open systems" architecture, the reality is that many aren't there yet. Proactive, effective integrators will continually:

- **Invest in developing two-way, responsive relationships.** Look for a partner with a record of industry collaboration and the ability to leverage relationships to get what they need from other suppliers.
- **Take your own buying habits into account.** Many purchasers buy for a specific mission, program, or end user, resulting in splintered acquisitions over time. Consider an evolving procurement approach with a focus on long-term program sustainability rather than a "big bang" single-need or one-off purchase.
- **Develop a phased plan** that ensures each program investment solves both immediate problems and longer-term goals. Don't sacrifice the future for a "right now" solution.
- **Steer away from partners who force a single-system approach, and who will hold you hostage to their products for future interoperability.** You need to be able to plug new capabilities into your C4ISR solution—and they won't necessarily come from the same vendor. Stressing the use of open standards eases this problem.

L3Harris is relentlessly focused on open architecture and open systems. Our industry relationships and integration experience, along with our commitment to understanding and solving the specific challenges faced by our customers, translate to robust solutions and the ability to deliver advanced capabilities today without limiting the possibilities for tomorrow.

5. Plan for post-acquisition training, support, and maintenance

OUR OBSERVATION: Purchasers often don't consider the ongoing training and maintenance requirements—and costs—for the systems they buy. It's up to us to be your partner and help ensure you plan accordingly and to the appropriate budget levels:

- **A system that lacks proper training/maintenance funding will not be used or usable.** Plan for up to 15%–20% ongoing costs above and beyond the initial system investment.
- **Understand the emerging battlefield environment and develop new concepts of operation, as well as determine how these approaches will impact performance.** In a sense, your partner will need to understand the big picture as well as or better than you do, given duty rotations and other operational realities. They should provide a level of continuity to help maintain their corporate knowledge—and your institutional knowledge—as personnel come and go.

L3Harris is known for industry-leading post-delivery support and sustainment packages tailored to specific customer needs. We offer a wide range of services, such as installation, maintenance support, sovereign maintenance capability, training, and in-field customer support. Every system, whether turnkey or custom-built, is delivered with detailed user documentation as well as maintenance schedules.

6. Demand a focus on sovereignty

OUR OBSERVATION: This is only possible when a partner has an absolute commitment to their customers' sovereignty—and is willing to make investments to support and develop local workforces in every region in which they operate. Having a sovereign-focused mindset will ensure you can:

- **Work with your partner to source labor and materials locally.** For example, rather than ship shelters from an out-of-country vendor, find the shelters locally, fit them out locally, and you'll be creating a trained workforce rather than simply importing finished products.
- **Plan for local delivery of training, service and maintenance over a period of time.** This will help to create local jobs and build the local economy.
- **Identify a partner that uses local relationships that can be leveraged throughout the planning and implementation process**, including the development of specific technologies that can further local capabilities.

L3Harris is committed to local partnering and has a long history of partnership in the countries we serve. This is a core element of our business process at L3Harris, and one of the reasons we are able to achieve such close customer relationships. For example, in Australia, L3Harris has created opportunities for over 500 full-time local employees and fostered ongoing technology innovation.

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