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21 Critical Steps for a Successful System Upgrade

Follow these project management suggestions for a successful network upgrade. **By Mike Stanley**

When it comes to public-safety communication systems — purchasing new systems or upgrading — it takes an extremely focused effort to do it correctly. Most public-safety officials would say advancements in communications networks during the past few years are more significant than in the previous 20 years. These changes have altered the way we approach new system purchases, upgrades and life cycle management. This article's focus is about issues that impact long-term system planning, avoiding the minefields and managing expectations by engaging key stakeholders early.

How do our immediate decisions provide a positive first step toward taking our core communications needs forward and providing the best value and the longest product life cycle possible? Lessons learned, best practices, existing industry talent and hands-on and technical resources in project planning and execution are important issues to consider. The end result of these efforts is to provide first responders a communications system that is dependable and provides the best support for working in the dangerous environments they encounter every day.

Measure Twice, Cut Once

As the old proverb defines, double-checking before taking action often avoids the need to cut again and lose valuable time and resources. One way this can be accomplished in system planning is to move the focus from five years out to 10 years. Life cycles of equipment used to be 15 – 20 years; now it is maybe 10. If you don't look at a system life cycle with this perspective, then stock up on parts, and remember some system parts become obsolete before others. Forward-thinking strategy engages stakeholders to think through what the system should look like, how it should perform, the cost to maintain, timelines for projected upgrades, technologies that will support growth and budgeting.

One successful planning tip is engaging experts from the user community, both technical and hands-on, who will be impacted by the project. Carefully identify and engage your best and brightest in a forward-looking process. System users understand what their needs and issues are and can provide valuable information. There are excellent processes available for doing this in a methodical way that gets you the best focus, buy-in and ownership of the project. One successful practice in data gathering is to invite key representatives from multiple disciplines and departments to work together with an expert facilitator and explore common and unique needs. There will be tradeoffs, but this activity gets the attention of the user community that the project is not a top-down mandate, but a shared process that supports the interests of all stakeholders. Some issues that can be explored include:

- Coverage needs
- Fleet mapping and talk groups
- Tactical channels
- Dispatch locations and priorities
- Interoperability
- Encryption

■ Mobile data
■ In-building coverage

For example, in-building coverage is often a requirement in system designs. But the reasons that law enforcement or structural fire may need to visit a building can be different. Use of a bi-directional amplifier (BDA) can enhance signal strength that is attenuated because of frequency, structural design or location of the nearest tower. But if the BDA is damaged in a fire, the coverage is gone. The user would then use talk-around channels, which may require training, or the use of a portable BDA or vehicular repeater. Regardless, this type of user involvement engages stakeholders early and provides invaluable information for project success.

Rules of Engagement

Maureen Rhemann, senior strategist at Trends Digest, adds some valuable advice for working through a strategy:

■ Align the acquisition cycle with technology. Many acquisition cycles are getting longer, not shorter, while technology life cycles are getting shorter.

■ Forget five-year planning — go for 10 years. This will force the team to think about technology long term from acquisitions to disposition.

■ Don't be blindsided by technology fads or slick marketing. Even though a technology may be hot, the proof is in the implementation. What is the percentage of market penetration and the success rate with the implemented customer sets?

■ Don't let overzealous technical staff's desire to be on the leading edge thwart sound business judgment. Get second opinions and engage in due diligence before making a technology investment. There are numerous cases of buying into the leading edge only to have it fail miserably and result in a rapidly depreciating investment.

An additional point is evaluating change as a forcing function. Change energizes, but the goal is to get that energy going in the right direction. Gaining buy-in and ownership from those most affected by system changes is a vital key to project success.

Consultants

If it is financially feasible, there is value in finding a consulting organization with the right credentials to support a system purchase or upgrade. Typically, the larger the project, the more important it becomes to hire consulting services. Knowledge from people who have first-hand experiences implementing or upgrading systems of similar size and complexity will provide value. Identification of the key users and technical resources can be helpful and effective and ease a consultant into the process. Consultants also provide multiple connections that the customer needs for accountability and support of the project from beginning to end.

Consultants can be a valuable resource for governance models, project planning, system baselining, technical evaluations and design initiatives. They can also support request for proposal (RFP) development and vendor evaluations. However, multiple connections in the user and technical community still must be involved in the process. Besides avoiding the top-down perception, user involvement will provide an invaluable asset and put the right infrastructure in place.

Selecting the right consultant requires some homework and a careful evaluation of past performance and customer satisfaction ratings. Hiring the most expensive consulting organization may not be the best choice or the best value. There are many good, small consulting organizations with excellent past performance that can provide the right level of service for a system purchase or upgrade. It takes the consultant's ability to work successfully with stakeholders at various levels for a successful outcome.

Multiple Agencies

It is not uncommon for a new system that is being developed to finally get the attention of other agencies such as natural resources, a local sheriff's department, an administrative office or a school system. If multiple agencies will be operating on the new system, opportunities for resource sharing are possible.

Sharing resources could potentially involve a tower collocation opportunity, shared costs for a new tower build or leasing space to offset operations and maintenance (O&M) costs. For example, designing a system for mobile coverage and later having another department that needs portable coverage request access to the system can be problematic. It is not impossible to overcome, but portable coverage means other types of technical requirements and potentially new tower sites. To mitigate these issues, collect the requirements from key stakeholders while the project is in its earliest stage. This will provide insight to the technical parameters, advantages and limitations. Perhaps in the planning phase, enhancements to design parameters could result in improvements to the coverage for all users, if representative members of the stakeholders were involved. This is where a governance model is important.

Governance as Control

The Interoperability Continuum by Safecom places governance at the beginning of a list of five critical areas — governance, standard operating procedures (SOPs), technology, training and exercises, and usage. There are multiple governance models for local, regional, state, federal and tribal agencies, but essentially its focus provides structure and support for engaging multiple stakeholders with diverse needs and specific expectations. The continuum provides a framework for decision-making and who is ultimately responsible for managing and maintaining assets. While a model is only as good as the participation of the people engaged, lessons learned demonstrate that the absence of governance is even worse.

Another function of governance is to support the development of a mutual vision for a new system or upgrade and move independence to interdepend-

System Upgrades: Lessons from the Field

A number of county and state communications specialists shared their lessons learned in the field, and the following are a few excerpts from these discussions:

■ Governance is a major need. Get it in place at the beginning. Losing momentum and positive energy early in the project through miscommunication and not involving key stakeholders does more to create a negative path forward than any other thing.

■ The larger the project, the more important is the need to hire a consultant, but make sure the consultant is supported through the hands-on and technical user community.

■ Watch out for issues where there may be a different sense of urgency. For example, ordering T-1 lines as a backup while microwave or tower work is completed may put you at the mercy of a local service shop schedule.

■ Thoroughly research land agreements before construction begins. Working through all the permitting requirements is a time-consuming process, but it beats having a tower built only to find out a land agreement prohibits it.

■ Ensure existing servers are set up for increased levels of service before loading.

■ Make sure that any legal requirements between cooperating agencies are researched. Having a memorandum of understanding (MoU) in place previously that now requires formal legal documentation can take money off the top of the project. New terms and conditions for using the system should be closely monitored.

■ Watch out for any new requirements for certifying and registering equipment such as generators at tower sites before installation. It can be somewhat problematic to provide serial numbers of generators before the equipment is ordered.

■ Understanding equipment specifications is important. Having participating agencies running different CAD systems or consoles may cause compatibility issues with the new system or upgrade.

■ Manage expectations of what the system or upgrade will and will not do. One proven method is to gain the buy-in and ownership from stakeholders through project engagement. But engaging stakeholders means more than just an invitation to a meeting. Key representatives of the user community should be involved in defining expectations.

■ Make sure that training is professionally delivered and provides users a level of expertise that develops confidence in one's ability to effectively and safely use the equipment and system for the purposes it was designed to accomplish.

■ If system capacity increases, watch out for fleet-mapping issues.

■ Sustainability is critical. Watch out for issues that may cause a train wreck of a cooperative harmony that exists among system participants.

■ Can another dispatch center operate as a backup system? This will provide a pathway to put users on the backup system for upgrades.

■ Special events radios can be put in cache and distributed to supporting agencies as required.

■ Fund new user equipment by using existing equipment. Budgetary requirements usually make a one-time funding effort a non-starter.

■ End of life needs to be discussed at the beginning of a project.

— Mike Stanley

ence among agencies and departments. System participation terms and conditions, interoperability needs, decision-making, accountability, committee development and future system upgrade requirements all need a model of governance to guide stakeholder involvement.

It is not impossible for public-safety disciplines and jurisdictions to work together to find a common resolution to problems. When proper governance is in place, resolution to issues will be less burdensome, and all interested parties can find an acceptable path forward. Human interfaces should not be supplanted by technology — they should work in harmony.

A Final Thought

There is no perfect answer. We should start with lessons learned, best practices, existing industry talent and include hands-on and technical resources in project planning and execution. A system upgrade is expensive, time consuming and a detailed undertaking. Nothing can undermine a project of this nature more than not engaging key stakeholders early and thus allowing negative perceptions to develop, including the following common complaints:

■ This project is just a top-down mandate.

■ What value can I offer? Nobody asked me for my input.

■ A consultant was hired, but I too can add valuable information.

■ It is your project, not mine.

■ When things go wrong, just remember I told you so.

It is often the soft side that gets overlooked, but engaged participants and committed stakeholders drive a project's success. ■

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