

Project 25 Technology Interest Group White Paper: **P25 Sharing = Cost Savings & Improved Interoperability**

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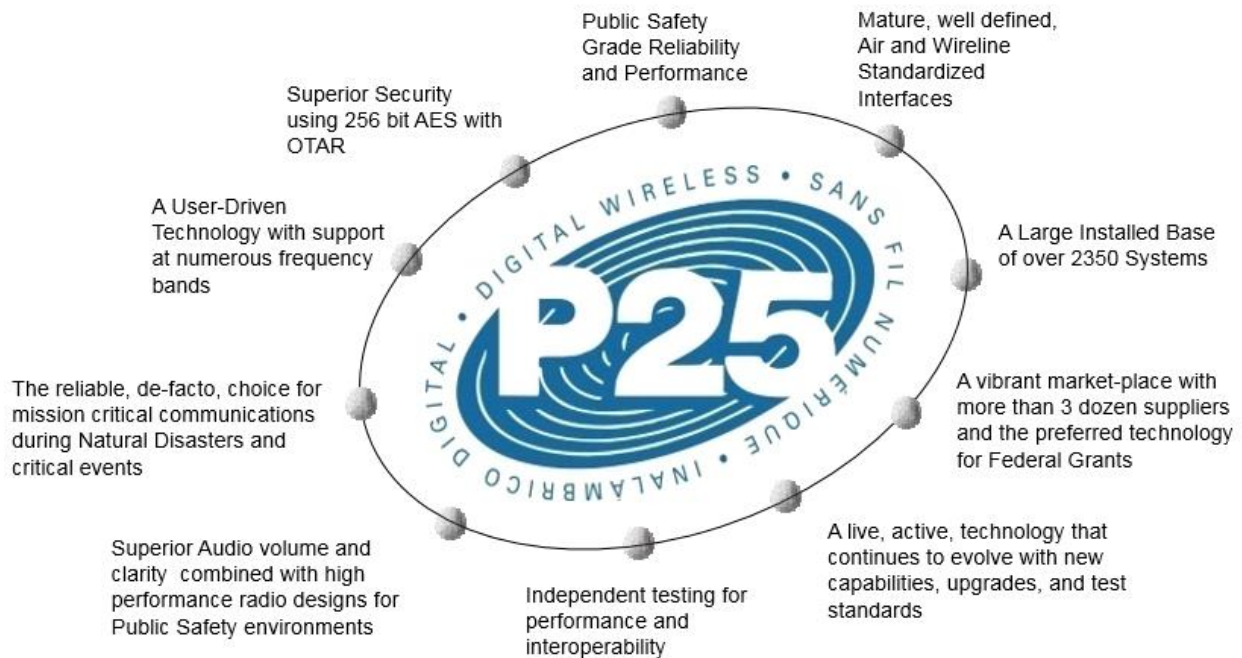
Cost Savings Opportunities

The growth of Statewide and Region-wide P25 LMR networks has presented a new value proposition for many counties and municipal agencies. It is now often more cost effective to join the larger P25 Standards based system than to procure/support/maintain or upgrade an existing legacy radio solution. Potential cost saving opportunities include:

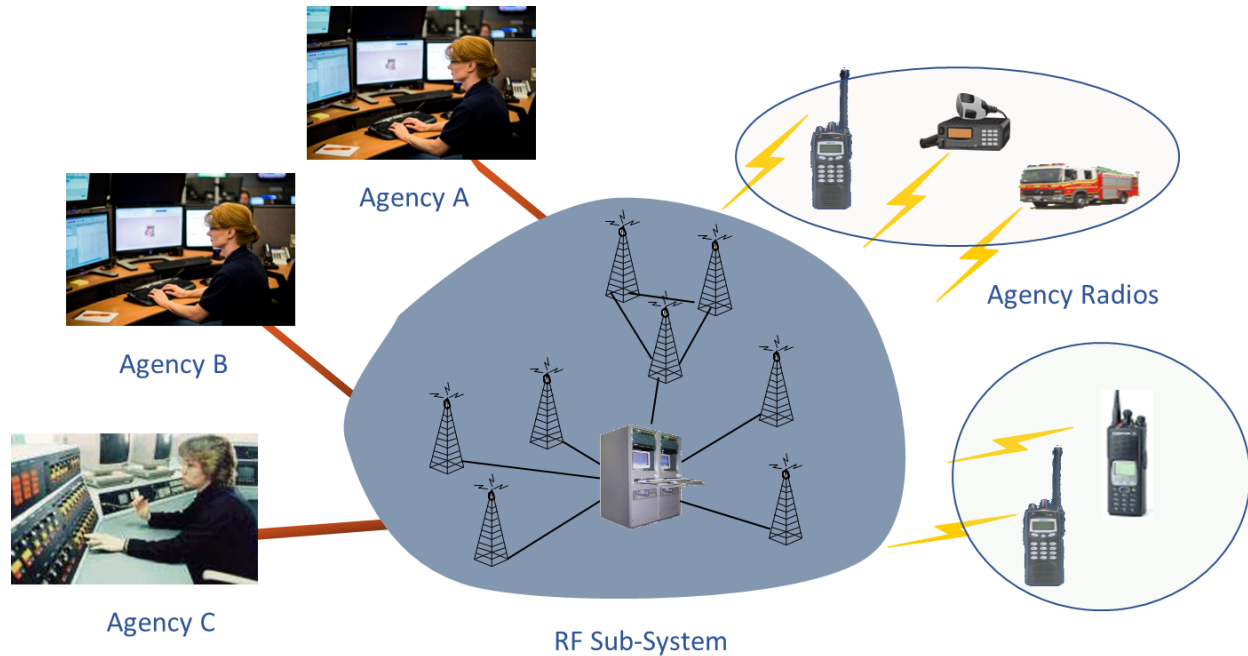
- Sharing of infrastructure equipment (capital and recurring cost savings) Sharing of services (site/network connectivity, equipment provisioning, support services, encryption)
- Bulk purchasing advantages, and
- Competitive equipment purchases.

P25 Background

The TIA 102 suite of accredited technical standards, commonly known as “P25” has been the preferred Land Mobile Radio (LMR) digital standard for public safety agencies throughout North America and other parts of the world for more than a decade. The benefits of P25 are numerous, including the key benefits shown in the figure below.



In addition to these benefits, adoption of P25 can also result in significant cost savings to an agency or to a group of regional partners. The P25 architecture offers a wide variety of ways and system levels to implement the technology as it is capable of scaling from simple single-site systems to large statewide and province-wide networks. A high-level diagram of a network to support multiple agencies is shown below.



In any of these configurations, P25 systems are capable of supporting multiple agencies. A recent inventory of the states identified a total of 37 which currently operate broad statewide Project 25 networks. In addition to these P25 statewide networks, many large multijurisdictional regional networks also exist throughout the Country and within North America.

Alabama 1 st Responders	<u>Phase 2</u> 700/800
Alaska ALMR	<u>Phase 1</u> VHF/700
Arkansas AWIN	<u>Phase 1</u> 700/800
Colorado DTRS	<u>Ph 1 to Ph 2</u> 700/800
Connecticut	<u>Phase 1</u> 700/800
Delaware DPS	<u>Phase 1</u> 800
Hawaii HIR	<u>Phase 1</u> 700
Idaho ICAWIN	<u>Phase 1</u> 700
Illinois STARCOM	<u>Phase 2</u> 700/800

Indiana SAFE-T	<u>Phase 1</u> 800
Iowa ISICS	<u>Phase 2</u> 700
Kansas KSICS	<u>Phase 1</u> 700/800
Louisiana LWIN	<u>Phase 1</u> 700
Maine MSCS	<u>Phase 1</u> VHF
Maryland FRIRS	<u>Phase 2</u> 700
Massachusetts CMS	<u>Phase 2</u> 700/800
Michigan MPSCS	<u>Phase 1</u> 700/800
Minnesota ARMER	<u>Phase 1</u> 800

Mississippi MWIN	<u>Phase 2</u> 700/800
Missouri MSWIN	<u>Phase 2</u> VHF/700/800
Montana MSIRS	<u>Phase 1</u> VHF
Nebraska NSRS	<u>Phase 1</u> VHF
New Hampshire	<u>Phase 1</u> VHF
New Jersey NJICS	<u>Phase 2</u> 700
North Carolina VIPER	<u>Phase 1</u> 700/800
Ohio MARCS-IP	<u>Phase 2</u> 800
Oklahoma OWIN	<u>Phase 1</u> 800
Oregon SRP	<u>Phase 2</u> 700
Rhode Island SCN	<u>Phase 1</u> 800

South Carolina PALMETTO	<u>Phase 1</u> 700/800
South Dakota SRS	<u>Phase 1</u> VHF
Tennessee TACN	<u>Phase 2</u> VHF/700/800
Virginia STARS	<u>Phase 1</u> VHF/700
Washington State Police	<u>Phase 2</u> 700
West Virginia SIRN	<u>Phase 1</u> UHF Lo
Wisconsin WISCOM	<u>Phase 1</u> VHF/800
Wyoming WYOLINK	<u>Phase 1</u> VHF/800

Equipment Sharing

Numerous examples of equipment sharing of interoperable P25 systems exist throughout the country.

Example 1: Small Town Jurisdiction

In one northeastern state, a town compared replacing its existing stand-alone system with partnering with the state and sharing common infrastructure. Since there was already some existing coverage in the town, the additional equipment needed to meet the town's coverage requirements was minimal. As a result, the town saved in excess of \$3M by joining the state system. Their new coverage eliminated a historical coverage dead zone in the local area and provided the town with new statewide coverage and interoperability with the State Police.

There are numerous additional statewide P25 systems that effectively take advantage of the modular nature of P25 networks. Multiple state systems use the equipment sharing approach to connect individual sites and countywide simulcast cells all with a common core network.

Example 2: Statewide P25 System with Multi-Tier Options

One midwestern state that has used this concept very effectively has established multiple tier structures for their partners. One tier allows a partner to build out the infrastructure it requires for local coverage and then turn over the ownership, management and maintenance of the infrastructure to the state. With this approach, the local entity derives the following cost savings benefits:

- Capital cost savings in excess of \$1M resulting from the sharing of the core infrastructure
- Significant cost savings due to the avoidance of annual recurring vendor software upgrades and maintenance fees, and
- Up to 50% of the capital investment credited toward monthly subscriber user fee.

Another partner tier option in this same state allows a local entity to, again, build out the infrastructure it requires for local coverage, but maintain ownership, management and maintenance of their purchased infrastructure. A local entity utilizing this option also agrees to take responsibility for any existing state assets within their jurisdiction. With this approach, the local entity derives similar cost saving benefits as described above:

- Capital cost savings in excess of \$1M resulting from the sharing of the infrastructure core
- Annual recurring cost savings due to the sharing of the infrastructure core, and, in this case,
- No monthly subscriber fees for local operation.

In addition to the cost savings, each of these partner scenarios also provide the following operational benefits:

- Enhanced local coverage – not only from the system they designed and deployed, but also coverage from their neighboring entities
- Statewide roaming coverage, and
- The flexibility to purchase the P25 radios that best meet their needs and budget from multiple vendors.

Example 3: Statewide P25 System

Another midwestern state uses a similar approach to partner with numerous local agencies and effectively use the common coverage and equipment sharing approach. This state has been able to eliminate monthly subscriber fees, which has encouraged more agencies to partner with the state. In this state, local agencies that partner with the state and join the statewide P25 system also derive similar cost savings benefits such as:

- Capital cost savings in excess of \$1M resulting from the sharing of the infrastructure core
- Annual recurring cost savings due to the sharing of the infrastructure core
- No monthly subscriber fees, and
- Significantly, reduced infrastructure maintenance costs when compared with a stand-alone system.

Example 4: Canada Provincewide P25

Yet another example can be found in Canada where a province-wide network encompasses an area nearly equivalent to the size of Texas. In this province, hundreds of agencies enjoy cost savings through the use of common infrastructure that provides coverage throughout the province and they also benefit operationally from provincewide interoperability while using a variety of different manufacturers radios and equipment that all comply with P25.

Example 5: Multi-County Regional P25

A recent example of beneficial cost savings due to infrastructure sharing occurred within a P25 statewide system where adjacent counties each needed enhanced coverage for their simulcast cells that would each become integrated with the statewide system. Due to the common technology and modular nature of P25, the two counties and the state agreed to share the development of the site and the cost of a new tower and equipment shelter. The new site provided needed coverage in two adjacent counties, as well as enabled a critical microwave link for the state's backhaul network. The arrangement resulted in improved performance for all three entities, with each saving hundreds of thousands of dollars – a real win-win-win!

Competitive Equipment Purchases

One of the primary advantages of the P25 standard is the ability for a user agency to conduct a competitive procurement for their specific user equipment. Currently, a total of 37 vendors provide products or services for P25 systems. Therefore, every agency looking to join a regional P25 system can independently perform their own procurement and can choose the radio subscriber and dispatch console equipment that best fits their needs and budget. This flexibility applies to P25 systems independent of the manufacturer of the system infrastructure.

The numerous options and flexibility of the P25 standard eliminate the concern of agencies having to buy specific equipment that does not meet their needs or equipment budget.

Bulk Purchase Advantages

In addition to the infrastructure cost savings advantages, participants in multi-agency and regional systems also generally enjoy cost-savings advantages on their subscriber radio purchases due to the ability to leverage greater quantities. Most manufacturers are able to provide steeper discounts when higher quantities are purchased and when multiple agencies utilize the same or similar radio lines they benefit from this practice. In several situations, we have seen statewide or multiple agency equipment purchases that provide substantial discounts for all who participate. Also, in many cases, these equipment discounts are guaranteed for multiple years which provides agencies the flexibility to plan their purchases and to replace or upgrade their radios incrementally as their budgets permit.

Improved Geographic Coverage and Interoperability

In addition to the numerous cost benefits detailed in this Whitepaper, many agencies also receive significant operational benefits from shared P25 System use. Previous stand-alone systems are now directly linked to larger systems offering region-wide and state-wide radio coverage and roaming. The shared talkgroups used for shared system access now permit superior mutual aid for multiple agencies in response to natural disasters and large planned events.

Conclusion

While most industry experts and public safety radio users are familiar with the interoperability and multi-manufacturer benefits offered by the P25 standard, cost savings may not be the first benefit that comes to mind. As shown above, the cost benefits are real and substantial when sharing P25 technology. In addition to Cost Savings, P25 offers improved public safety through multiple agency interoperability and more effective personnel coordination.

Anyone interested in learning more about P25, its benefits, and the many ways in which it can be deployed, is encouraged to visit www.project25.org and to take advantage of the many resources available. The website is managed by the Project 25 Technology Interest Group (PTIG), which is a forum for users and manufacturers who provide education and training and create and distribute Project 25 information.