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PSAP Consolidation Guide:
Key Recording & Quality Assurance
Technology Considerations

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Introduction

The trend toward combining public safety agencies and related functions and resources has been underway for the past 20 years. While precise numbers are not available, it is estimated that the number of primary and secondary PSAPs the United States has declined from approximately 7,000 in 2004 to 6,100 in 2012. Another indicator is results from the Statewide Communication Interoperability Plans (SCIP) which are required by the US Department of Homeland Security to receive certain grant funds. An analysis of fiscal year 2010 SCIP reports showed that 34 states had completed or initiated reviews of establishing a regional governance structure. This movement is supported by the emergence of powerful, standards-based communications, recording and quality assurance (QA) technologies that can provide centralized support for geographically distributed communication centers. All of the Industry experts we spoke with agreed that the trend toward consolidation is accelerating.

What's driving the trend to consolidate?

Many factors have contributed toward the consolidation movement. The most important continues to be cost savings. Plummeting housing assessments and above-average unemployment levels have produced a serious drain on local and state tax revenues. Reluctant to raise taxes, elected officials look for ways to operate more cost-effectively. Regional consolidation of public safety services is an increasingly popular choice. Cost savings accrue from two primary sources, reduction in personnel and replacement of obsolete and underutilized infrastructure with modern centralized systems. Personnel cutbacks result from the closing of secondary PSAP offices and elimination of duplicated overhead staff among police, fire, and emergency medical services (EMS). Secondary offices receive fewer emergency calls in comparison to the main communication center. From an equipment standpoint, each PSAP, regardless of size, requires: a CAD system, workstations, telephony switch, voice logging recorder and other related support systems – all of which need to be maintained.

The latest standards for Next Generation 9-1-1 (NG9-1-1) communications also strongly encourage standardization that is typically inherent to consolidations. This spans not only the standardization of hardware, networks, software communication protocols, and data capture standards, but also reaches into standardizing management and collaboration practices among PSAPs, stressing the need for workforce and workload sharing on a regional level and beyond.

A very comprehensive 2009 study conducted by the Montgomery County (Pennsylvania) Department of public safety showed that the cost per call for a remote office ranges from $13-$16 per call compared to less than two dollars per call at the main communication center.

Figure 1: **Remote PSAP Monthly Reoccuring Costs** Montegomery County, PA 2009				
	Abington Township	Cheltenham Township	Lower Merion Township	Dept. of Public Safety
ALI Database Links	$277.00	$277.00	$277.00	$277.00
Customer Premise Equipment	$8442.00	$8442.00	$8442.00	$8442.00
CPE Support Maintenance/	$1075.00	$1075.00	$1075.00	$1075.00
Training	$72.00	$72.00	$72.00	$72.00
Trunk cost	$252.00	$252.00	$252.00	$252.00
Total Monthly 9-1-1 cost	$10,118.00	$10,118.00	$10,118.00	$10,118.00
Average Monthly 9-1-1 Calls	726	611	936	27,576
Average Monthly Cost per call	$13.94	$16.56	$16.33	$1.16
Source: Montegomery County Consolidation Report, Department of Public Safety (2009)				

Plummeting housing assessments and above-average unemployment levels have produced a serious drain on local and state tax revenues. Reluctant to raise taxes, elected officials look for ways to operate more cost-effectively. Regional consolidation of public safety services is an increasingly popular choice.

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Another important factor is the need to upgrade technology. Examples are replacing inflexible and outdated "loggers" with full-featured recording and quality assurance systems. This class of PSAP systems uses the latest in thin-client Wed-based technologies to provide integrated solutions for not only capturing multi-media interactions but leveraging that information with integrated tools to help PSAPs find ways to better serve the public.

Strongly encouraged by new NG9-1-1 standards and strategies, modern public safety communications centers require interoperability among communications systems. With consolidation, this often means the complete replacement of infrastructure based on proprietary designs with new hardware and software based on open architecture. Open systems are more scalable, provide standard interfaces for integration, are less costly to maintain, and offer desirable new features. Better yet, they can be shared among multiple agencies when they also share VoIP based communication systems. While such a centralized recording, data capture and quality assurance system would capture recordings across all agencies, each agency would only have access to its own recordings and quality evaluations.

NG9-1-1 standards also support architecture flexibility that permits a gradual conversion from legacy to NG9-1-1 systems through hybrid configurations, which also enable scalability to add sites and communication systems without impacting standard processes and data flows. This points to flexible, service oriented architecture allowing organizations to mix and match various components that support standard processes. For example, this would mean that a recording system can be configured and easily evolved as needed to capture any mix of analog, TDM, VoIP, radio and wireless calls in the same system, as well as applicable communication via text, instant messaging and video means. At the same time, such system should also collect and consolidate associated data (such as location information) from both, local networks and over ESInet and enable data content management to provide validation, routing control, and compliance with policies and business rules.

Figure 2 lists 10 reasons key reasons for public safety consolidations.

Figure 2: **Top Ten Reasons for PSAP Consolidations**

1. **Economics** – Declining funding, desire to save money by streamlining operations, reduce duplication, more efficient utilization of personnel and facilities, and lower maintenance costs.

2. **Desire to improve services** – Through faster response and better coordination among public safety services, as well as sharing of overflow telephone traffic among agencies.

3. **Technology obsolescence** – Need to modernize obsolete equipment, migrate to VoIP, and replace proprietary systems with open architecture designs.

4. **NG 9-1-1** – Compliance with evolving standards, ability to handle multi channel communications, desire to take advantage of funding opportunities.

5. **Interoperability** – Necessary that dispatchers, call takers, and all emergency services be able to communicate with each other over common radio system and channels. Must also share the same databases and software applications such as mapping.

6. **State laws and mandates** – Connecticut, Indiana, Maine, Massachusetts, Minnesota, New Hampshire, New Jersey and others have either passed statutes requiring consolidation or mandated feasibility studies and interoperability requirements. Others have structured funding to create and incentive for consolidating.

7. **Compliance** – Ability to centrally manage compliance and performance across regions.

8. **Disaster planning** – Centralized and combined 9-1-1/dispatch operations enables closer coordination and improved interoperability, especially beneficial in the event of a major incident.

9. **Access to expertise** – Ability to afford specialists for quality control, technical support, database management and other activities.

10. **Strong champions** - New generation of elected officials and administrators that are more technically savvy and not afraid to take on the status quo.

A strong national commitment to NG 9-1-1 encourages consolidations. By pooling funding and resources it is more feasible to invest in state-of-the art equipment and justify hiring full-time trainers, IT specialists, and administrators. Fewer call takers are required and the workload can be more equitably distributed. An intangible benefit would be greater cooperation among the various emergency service providers from working closely together and sharing the same information. In some cases the state provides additional funding to help relieve the burden of start-up costs. Federal grants are also available.

One of the greatest challenges, and the focus of this paper, is the development and implementation of a system-wide quality management program. Many jurisdictions are just now putting in place a formal quality assurance program for call takers and dispatchers. The good news is that the consolidation process represents an exceptional opportunity to design and implement a QA program from scratch that addresses the new reality of consolidation.

Establishing the policy framework for a system-wide quality assurance program

In the case of countywide consolidations there are typically one or more large metropolitan centers served by municipal police, fire, and EMS services while smaller outlying communities are protected by the sheriff's department and volunteer fire departments. The dominant population center may have implemented a formal QA procedure while the small secondary PSAPs have not. In these small locations the day-to-day proximity of supervisor and employee tends to mitigate the need for formal QA evaluations. This, however, does not assure that the response protocol and necessary soft skills are standardized across all locations, which would assure unified communications with citizens and improved collaboration among agencies.

Figure 3 summarizes some key steps that should be taken during the planning stage.

Figure 3: Planning Stage - Getting Started with a QA Program

➤ Buy-in from affected staff
➤ Agree on the metrics and periodically review and revise
➤ Address all personnel responsible for public safety communications
➤ Separate the evaluation from the coaching function
➤ Agree that the focus is on improvement, not finding fault
➤ Implement an automated on-line system – no paper
➤ Secure hub-and-spoke recording

Gaining commitment is the most important requirement to a successful QA program. If individuals have not participated in periodic evaluations before, they will wonder why the situation has changed. Not everyone is excited about change. Call takers, dispatchers, supervisors, training, and quality assurance specialists need to understand that the process is essential for achieving high standards of public safety service and contributes positively to their own personal development. Employees must believe that the program will be conducted with complete objectivity and fairness. Their input should be solicited throughout this startup process and incorporated into the program.

Agree on the metrics

QA evaluations are typically based on both subjective and objective observations. Subjective measures are scaled ratings on soft skills such as;

➤ Ability to maintain calm under pressure,
➤ Ability to control the conversation,
➤ Ability to speak clearly and precisely,

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➤ Exhibit courtesy and professionalism at all times

➤ Ability to calm and comfort the person under duress until help arrives.

Assessment of performance on other qualities is much more objective. For example,

➤ Did the call taker accurately recite the required greeting? (Y/N)

➤ Did the call taker collect all the required information? (Y/N),

➤ Did the call taker demonstrate mastery over the mapping and other database tools (Y/N)

➤ Was the information accurately entered into the CAD system and conveyed to the dispatcher? (Y/N)

➤ Was it necessary to call back to collect additional information? (Y/N)

In addition to these procedural questions there will be key performance indicators (KPI's) that need to be tracked and analyzed to properly gauge the performance of the communications center. Figure 4, reprinted from our earlier white paper, The Emergency Response Quality and Performance Handbook summarizes some important metrics appropriate for public safety communication centers.

Figure 4: **Sample Key Performance Indicators**	
Metric	**Description**
Abandonment rate	The percentage of calls that are initially answered, by a voice response unit or live operator, but are not connected to a call taker because the caller dropped off. Causes for drop-offs could be failed transfers or long holding times
Answer time	This is the time from which a call arrives at the PSAP and is actually answered. While there is no national standard, common practice is to require that calls be answered within 10 seconds or three rings. This can be expressed as "95% of calls should be answered within 10 seconds of the initial ring during the busiest hour."
Average handle time	In most cases this is the average time from which the call taker seizes the call, collects and enters critical information on the CAD, transmits the details to the dispatcher, terminates the call, and completes any wrap-up work required. For some incidents, such as domestic violence, PSAPs will require the call taker to stay on the call until help arrives.
Average talk time	The average time the call taker is actually conversing with the caller.
Blocked calls	This is the percentage of calls that cannot be answered because all trunks are occupied. If calls are being blocked it may signal lack of sufficient trunk capacity during busy hours.
Cost per call	This metric is calculated by dividing all operating costs by the total number of incoming calls. Overhead and depreciation should be excluded from the calculation.
Citizen satisfaction rate	Calculating this metric requires that surveys be conducted among PSAP callers. Typically, callers are asked to rate their satisfaction with the interaction on a five-point scale. Satisfaction is calculated by adding together those that were "completely satisfied" and "satisfied" and dividing the sum by the total number of people that responded to the survey.
Error rate	This is the percentage of data entries that were incorrect. For example, if all incident codes are three digits or letters and the call taker enters four digits in the CAD, then that would be deemed an error. Similarly, if the call taker left a required field in the CAD data entry systems empty, that also would be calculated as an error. Error rates can be manually estimated from supervisor reviews of incident reports or automatically via advanced screen recording features that are provide by recording vendors like VPI.
First call resolution	The percentage of calls that is completely resolved with the initial query. In other words, the caller was not required to cal back about the same situation and the call taker was not required to place a second call to gather additional information. In the event a caller abandons the call and the call taker must call the ANI number that would be treated as a second call as well as abandonment.
Dispatch service level	The percentage of calls that were dispatched in X seconds after the dispatcher receives notification on the CAD.
Response time	This calculation is useful for specific classes of incidents where the call taker or dispatcher is required to stay on the call until help arrives. Response time is measured from the time the call is answered to the time help arrives on the scene.
Transfer rate	This is the number of call transfers divided by the total number of calls. Each transfer involves the risk of lost calls.
Turnover	This metric measures a PSAP's ability to retain personnel. It is a percentage calculated by dividing the number of people who left their PSAP jobs divided by the average number of employees on staff for the preceding 12 months.

There will be some variance in both the metrics and target levels depending on the service and nature of the contact, but planners should strive for as much commonality as possible in the selection of KPI's and target levels. This makes it possible to analyze comparisons and performance over time.

Address all personnel responsible for public safety communications

Prior to consolidation there will likely be a mishmash of policies regarding quality assurance evaluations. Some jurisdictions would conduct evaluations of just call takers; others might include dispatchers as well. Others may evaluate police dispatchers and call takers but not fire or emergency management services. Many smaller jurisdictions will have had no quality management process in place at all. Under a consolidated environment the public has a reason to expect consistent service quality throughout the region and from all public safety functions. Therefore, it is necessary to extend the QA function to all employees that have responsibility for communicating with the public on the subject of delivering emergency services. This will include some individuals that have blended responsibility for both emergency and nonemergency calls from the public.

Separate the evaluation from the coaching function

Supervisors are very busy people and often do not have the time to conduct evaluations on a scheduled basis. As a consequence, the evaluations do not get completed in a timely manner and there can be a significant gap between the time the evaluation was conducted and when coaching feedback is provided to the call taker. There is also the possibility that supervisors will be perceived as exhibiting favoritism in their evaluations. Retaining full-time dedicated quality assurance personnel helps assure that the evaluations are done in a consistent, objective, manner and that there is no perception of supervisor favoritism. Alternately, the Quality Evaluation function can be outsourced to external experienced evaluators - this cost-effective option assures consistency and objectivity.

Focus on improvement, not finding fault

The primary purpose of a quality assurance program is to help assure that public safety communications officers provide the best possible service to their communities. Simply conducting evaluations does nothing to improve service quality. It is what happens after the evaluations that makes the difference. The program is only successful if administrators are able to identify specific areas where coaching or additional training will help individual employees and take the necessary actions to provide the required coaching and training. The periodic results, and most significantly the trends, are useful inputs to overall employee performance evaluations but should never be the only yardstick. The results of quality assurance evaluations should be a reflection of the performance of the unit as a whole. As individuals improve, so will the performance of the entire unit. An excellent coaching tool is to share exceptional recorded interactions with other customer facing personnel during coaching sessions. Advanced recording systems include a built-in redaction feature which allows you to edit out any protected information from a recording before publishing it for training purposes. You may also annotate the recordings at various points along the timeline, to call out various elements of properly applied protocol and other exemplary behaviors.

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Install a secure hub-and-spoke recording

A recording system that can effectively and securely manage multi-media communications and associated data across agencies is much more desirable than a system that has not been specifically designed for this purpose. Hub-and-Spoke recording systems empower multi-location organizations to capture and consolidate recordings and data from any number of brands and models of telephone, radio, CAD, and other communication systems, while supporting fluid, cost-effective data sharing and moves between sites. Regardless of the source of each audio/data recording, all recordings are saved in the same file format and the data is entered into the same database for seamless, unified experience of those users who interface with recordings and data. Individual agency supervisors may be limited to accessing the recordings and data from their location only, while higher management could be permitted access to multi-site or all recordings, data, quality evaluations, reports, analytics, and the like. This preserves local autonomy while also supporting centralized multi-site control of quality of emergency response.

Implement an automated QA system – no paper

Employee coaching is most effective when it is provided shortly after a coachable event. Paper forms and processes serve to slow the process. Now is the time to make the move to a state of the art system. Automated quality management systems offer many advantages.

- ❯ Authoring tools allow management to create multiple forms to reflect different job positions, experience levels, and even call types such as by the type of emergency handled.
- ❯ Grading is done via computer rather than by hand, reducing errors and speeding turn-around time.
- ❯ Weighting factors can be applied and the weighted results automatically calculated.
- ❯ Multiple form templates can be created and easily changed with the built in authoring tool
- ❯ The scores are available almost immediately. Tracking reports allow management to spot trends and review comparisons among grade levels, locations, and other parameters.
- ❯ Call takers and dispatchers can be immediately notified about their scoring results and even given access to their completed evaluation forms and associated recordings to review them prior to coaching sessions to make coaching sessions more productive.

Case in Point - Polk County Communications Center, Florida

Polk County, Florida has a population of over 600,000. Located between Tampa and Orlando, the largest city is Lakeland. In 2005 all of the municipal and countywide public safety agencies were consolidated under one County administration. The largest PSAP is Winter Haven with 150 employees. Coincident with the consolidation, administrators put together a comprehensive quality assurance program that addressed all disciplines and all personnel involved in public safety communications. The program is now widely accepted and has even sparked a spirit of competition where call takers are eager to see their results and earn rewards for superior accomplishment.

According to Christen Long and Randi Woods, Quality Assurance Officers, one of the keys to their success was the preparation of a 20 page quality assurance manual. The manual was developed with input from all disciplines and approved at the highest levels. According to Christen, "We went line by line over the evaluation form and then expanded on each criterion to provide a very specific explanation of what the criteria was intended to measure and how the measurement should be made. Then we spelled out the procedure that should be followed. For example, we wrote a paragraph on how the location information should be collected."

The manual also included performance standards for KPI's. In order to establish reasonable and attainable standards, QA personnel monitored the performance of their best call takers and averaged the results. Adding a reasonable stretch level resulted in targets which were fairly established and widely agreed upon.

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Program implementation was made easier because of Polk County's acquisition of the VPI CAPTURE™ next-generation public safety recording platform equipped with the VPI QUALITY™ module. Added Christen, "The VPI Quality software is my lifeline for performing my quality assurance evaluations for Law, EMS, Fire and 9-1-1. I was easily able to enter the forms our team had created into the VPI software. Our call takers are able to login themselves and view their evaluations and listen to the audio of their call all at the same time. It has revolutionized our QA process. We no longer use paper forms."

Administrating the QA Function post consolidation

From an implementation standpoint there are few differences between a quality management program that is used for consolidated public safety services compared to jurisdiction-based services. Figure 5 summarizes some steps toward implementing the program.

Figure 5: **Administrating the QA Function**
❯ Create the evaluation forms
❯ Establish weighting factors
❯ Determine the QA schedule
❯ Determine the process for call selection
❯ Determine the number of calls to be evaluated and the frequency
❯ Recognize superior achievers
❯ Integrate the system with e-learning

Create the forms

Developing the forms is the most difficult and arguably the most important element of the QA process. You will have plenty of help. Public safety trade associations have sample forms and you may already have forms on file. Larger jurisdictions will have nonemergency public service contact centers that may have forms and expertise that you can draw from. Following are a few suggestions for creating a library of evaluation forms.

Figure 6: **Suggestions for Creating QA Evaluation Forms**
❯ Organize the forms into sections. For example, a series of questions on communication skills, on following procedures, on mastery of the software, and knowledge and/or skills.
❯ Keep some sections constant while modifying other sections to create forms for different job positions, agencies and call or incident types
❯ Gather feedback from affected supervisors and call takers prior to implementation
❯ Conduct a testing period with the form before formal implementation
❯ For soft skills, such as voice clarity and maintaining calm under pressure, use a rating scale rather than a simple yes or no
❯ Establish a scoring system that is fair and easy to understand

Establish weighting factors

In emergency situations, some skills, such as gathering accurate information or displaying knowledge of emergency medical procedures, are clearly more important than displaying empathy and should be given more weight.

Determine the QA schedule

It is very important to establish a regular schedule for conducting evaluations and performing follow-up coaching. The frequency of evaluations should reflect the needs of call takers and dispatchers. New hires should be evaluated frequently, preferably once a week. More experienced personnel should be scheduled for longer intervals. There should be a standard for the permissible time interval between creation of the form and delivery of coaching or training.

Adherence to the quality management schedule is one of the metrics considered in the overall performance evaluation for the unit. The QA practice at Arlington County (VA) Emergency Communications Center is to conduct quality assurance evaluation on 8% to 10% of EMS calls each month. Another important advantage of software-based systems is that night shift workers do not have to come in during daytime hours to see their results. The data can be emailed to them or made available over a secure Intranet.

Determine the process for call selection

As we discussed in the previous section, the greater objective of the QA program is to improve performance of the unit. Therefore, it is important to find and review so-called coachable calls. In some urban areas upwards of 60% of police calls are for non-emergencies or even prank calls. If the evaluation process focused only on calls of this nature there is very little the supervisors can do to work with the call taker. Modern automated quality monitoring solutions allow supervisors and quality assurance specialist to automatically select calls based on specific criteria such as call length or incident type.

The newest systems provide advanced search tools and record data and voice. They are able to reconstruct and save the complete sequence of events, including both telephone and radio channels of audio and all related screen actions. This facilitates review from a citizen perspective. In some situations there may be a requirement that calls be selected on a random basis. This is to help assure that there is no favoritism in the call selection process. There may also be an established ratio of calls, such as 10% of all calls completed during a defined timeframe. In these cases, it is advisable to double the number of calls selected to help assure that coachable calls are included in the evaluations, or to combine random selection with rules-based selection of calls with coachable or otherwise important content. When the same rule is applied to the selection of calls of each call taker or dispatcher, everyone's recordings are sampled based on the same standards, which then supports overall objectivity.

Newer technologies that are gaining widespread acceptance in the commercial call center arena and have value in public safety communication centers as well are desktop analytics and speech analytics. These tools allow supervisors and quality specialists to search for specific types of calls or instances based on the incident type, category, outcome, or even words and phrases that were spoken. Interaction analytics is also very valuable for quickly finding recordings that may be requested by prosecutors or attorneys and for automatically categorizing calls by call type. Categorization and classification performed by interaction analytics systems is very accurate, as it draws on CAD data and other specific information that is automatically, periodically collected with each voice and/or screen recording.

Recognize achievers

Appropriate recognition rewards high achievers and encourages others to improve. Recognition can take many forms. Examples are a callout in employee publications, a letter from a supervisor, recognition in an employee meeting, a preferred parking spot, a special coffee cup or other symbolic gesture or item that serves the purpose. One PSAP found that simply posting the scores served as an effective motivator. Night shift employees even came in during the day so they could be among the first to see the latest scores. Employees could not wait to see the latest postings. When they were motivated to compete, the performance of the entire unit improved. Modern recording and quality assurance systems can provide real time views of all metrics, personalized for each user.

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Integrate the system with E-learning

The best solutions feature a robust recording platform based on open architecture with fully integrated quality management software and electronic learning software. An integrated solution can provide almost immediate desktop delivery of custom learning modules developed by the PSAP, or packaged sessions provided by third parties. Their selection and assignment to individual call takers and dispatchers can be automated, driven directly by achieved quality scores across various skill and knowledge categories. Test scores after completion of the training packages are automatically entered into the employee evaluation file and can be tracked over time to gauge the effectiveness of training and coaching interventions.

Conduct citizen surveys

The final and most important arbiter of PSAP and public safety performance is the community at large. Periodic citizen surveys are very valuable for tracking the level of satisfaction with services provided. These surveys can be conducted automatically through interactive voice response software. Each survey can be related to a specific incident number or call taker in the event an incident number has not been assigned. Survey findings are automatically tallied and made available immediately via the intranet to authorized personnel.

Technology Considerations

You cannot have a superior quality assurance program without a state-of-the-art communications recording platform. Self-contained basic voice loggers designed with proprietary technology are not suitable for consolidated environments where expandability, flexibility, and interoperability are essential.

The class of recording platforms we described as monitoring and quality assurance systems leverage the latest in thin client Web-based technologies to provide integrated solutions for capturing multimedia interactions along with a broad variety of associated data. These systems use that information with integrated tools to help PSAPs find ways to better serve the public. In addition to advanced recording capability, solutions in this class include integrated advanced applications such as quality assurance evaluation, Coaching, learning, and Web Portal dashboards. The systems consist of the core recording platform plus a suite of modules that can be purchased separately, incrementally, or one-time as a fully-integrated solution. These systems are only sold by the top vendors, many of which have certified integrations with the most widely deployed call servers. In addition, the modules are all tightly integrated with the recorder and with each other. There is no need for costly and often inefficient custom integrations. This generation of recording systems can automatically collect data from CAD systems and append it to appropriate recordings, which is then used in rules for process automation. For example, you may prioritize the review of recordings that dealt with domestic violence or heart attacks. You may even evaluate the entire scenario that involves multiple recordings associated by the same Incident ID, such as when multiple operators were involved in handling the incident.

The quality monitoring process is highly automated. Calls or multi-media recordings for evaluation can be retrieved on a variety of user-defined criteria. Using the authoring tool, separate forms can be created for junior call takers, senior call takers, dispatchers, language specialists, and other employee categories, as well as different incident or emergency types as they typically require different sets of knowledge. Answers to questions can be weighted to reflect their relative importance to the mission and priorities of the PSAP. Evaluations are performed from the supervisor's or other quality evaluator's desktop, as time becomes available. Ratings are archived and reports generated that can spot trends and isolate areas for praise or coaching.

Appropriate recognition rewards high achievers and encourages others to improve. Recognition can take many forms. Examples are a callout in employee publications, a letter from a supervisor, recognition in an employee meeting, a preferred parking spot, a special coffee cup or other symbolic gesture or item that serves the purpose.

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Figure 7 provides a list of questions decision-makers need to answer when selecting a recording platform suitable for consolidated public safety answering points.

Figure 7: **Key Questions To Ask Of Your Recording System Vendor**	VPI	Other
Is the system easily scalable and configurable for a single PSAP site as well as large consolidated multi-center organizations?	✓	
Does the system offer centralized administration with secure remote user access?	✓	
Has the vendor of this recording system designed for and proven its technologies in the emergency communications environment for at least 10 years?	✓	
Has the system been successfully implemented in consolidated multi-center environments for integrated recording and quality assurance?	✓	
Can the recording system support modern hub and spoke recording architecture to provide the benefits of centralization?	✓	
Does the recording system support unified TDM and VoIP recording and playback for multiple media channels?	✓	
Does the system provide fast and convenient incident recreation and export for voice, screen, image, document, and data elements?	✓	
Does the recording system provide for centralized management of security and user access audits across locations?	✓	
Does the systems design conform to NENA's specifications for open service oriented architecture standards?	✓	
Does the system allow you to define rules for notifications of anomalies or problems in call traffic, speed of response, and resolution patterns?	✓	
Does the vendor provide robust industrial grade servers for reliable, resilient operation with configurable security and capacity for performance under heavy load conditions?	✓	
Can the system be implemented with a fully integrated quality assurance module allowing for complete customization of evaluation forms by non-technical users?	✓	
Can the system automatically select calls for evaluation based on specific criteria or by random selection?	✓	
Does the quality assurance module include an easy-to-use authoring tool so supervisors and QA specialist can make changes to forms?	✓	
Does the quality assurance module accommodate multiple forms and weighting factors?	✓	
Does this QA quality assurance module include an extensive and configurable reporting capability?	✓	
Is the evaluation available online as soon as it is completed for the supervisors discussion with the call taker?	✓	
Can the persons being evaluated see their reviews remotely through the secure Intranet, as soon as the reviews are completed?	✓	
Can the recording and QA system be optionally implemented with a fully integrated E-learning system?	✓	
Can the recording system the optionally implemented with a fully integrated interaction analytics capability?	✓	
Can the recording system support modern hub and spoke recording architecture to provide the benefits of centralization?	✓	

The quality monitoring process is highly automated. Calls or multi-media recordings for evaluation can be retrieved on a variety of user-defined criteria.

Vendors of advanced performance monitoring and quality management systems are typically long-established and financially sound organizations with the resources and commitment to continue to produce products that meet or exceed the requirements for next generation of 9-1-1 communications networks and products. VPI is one of the world's top vendors of public safety and quality assurance solutions. The company has a long history of innovation in both public safety recording and commercial contact centers and has assumed an industry leadership role through their contributions to NENA and APCO and through the proactive outreach programs of the company and its reseller partners.

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Dick Bucci is Chief Analyst at Pelorus Associates where he specializes in contact center and public safety technologies. He has authored eleven in-depth reports on workforce optimization applications and over 30 white papers. As one of the industry's foremost thought leaders, his articles and observations have appeared in trade and business publications around the world. Dick has over 30 years of experience in the telecommunications industry.

About VPI

Founded in 1994, VPI (Voice Print International, Inc.) is a premier innovator and provider of mission-critical interaction recording and workforce optimization solutions for government agencies, first responders, emergency service providers, security companies, and enterprises worldwide. More than 1,500 customers in 50 countries rely on VPI's award-winning suite of communications center solutions to capture, analyze, evaluate, and share their recorded communications. In addition to secure records management for evidentiary purposes, VPI solutions enable federal, state, local, and private agencies to ensure compliance with policies and regulations, improve the quality of their mission-critical voice and data interactions, maximize the performance and retention of their staff, and deliver first-rate customer service. For more information, contact us at 1-800-200-5430 or visit http://www.VPI-corp.com/Public-Safety.