

## **COMPUTER, DATA APPLICATIONS, AND DATA ANALYSIS COMPETENCE**

**BY WILLIAM E. OTT**

I encounter with uncomfortable frequency management level personnel in public safety circles that have little or no understanding with what the private sector business world considers 'must have' knowledge for managers and administrative assistant personnel; that is, basic understanding and competence of numerical and statistical analysis using tools like the desktop standard of Microsoft Excel and basic understanding of database principles and data analysis using desktop standard software like Microsoft Access.

Why is this important? Consider the following: The politicians of your jurisdiction just called and want to know your average response time to every square mile of your response district for every hour of the day for the past year, additionally they want to know the maximum response time to each of the square miles for each hour of the day, additionally they want to know the absolute cost per response, cost per mile, and cost per unit hour of operation, oh, they also want a map showing the response information and they need this tomorrow morning at 10:00. No problem, right? Assuming you have the response data collected in an electronic data system and you know the salaries of personnel, costs of vehicles, cost of fuel, maintenance costs on vehicles, and you have the proper analysis tools and the knowledge to use those tools, this request isn't terribly difficult to accommodate. The slowest part of completing the request will be printer speed if you know how to properly assimilate the data to meet this request.

I feel it is imperative that management level personnel have at least a basic understanding of these concepts and a good working knowledge of the tools that can help turn their raw data into useful information. I was the Department Head of the EMS program at Wake Technical Community College in Raleigh NC from 1988 through 1992 and as part of our curriculum I required students seeking their associate degree in EMS to take four classes in the computer science area including a general PC overview class, a word processing class, a spreadsheet class, and a database class. Many of the students had no experience in using a PC until that point in their lives and some thought the idea of becoming familiar with PCs, spreadsheets, or

databases was a waste of their time and had nothing to do with EMS. At the time I did hear a number of moans and groans from some students, but know many of those young people are now in supervisory and other management positions with EMS, fire, law enforcement, military, and even private sector agencies and I've heard from many of them how they now appreciate the fact they were 'forced' through those computer science classes more than a decade ago because it made them aware of methods of data analysis they hadn't thought of and made it much easier for them to study Excel or Access on their own or jump into advanced classes on the subject with no fear as their advancing careers required increasing skills in these areas.

Most public safety agencies whether EMS, Fire, or law enforcement collect data on responses, locations, events, patients, or treatments. All of this data accumulates and is largely useless unless someone can take the data and using a tool such as Access or Excel and turn that data into useful information. The form of that information could be in reports or summaries showing system or personnel performance parameters, measurements of quality assurance indicators, or turning the data into visual information such as maps showing the location of all responses with more than a 'x' minute response time, or a graph comparing response time averages for every unit, comparison of treatments or skills by personnel at one site versus another site, etc..

Information, the assimilation of data into something useful, whether in the form of reports or visual objects like maps or charts allows the manager to apply the knowledge back to bettering the performance of the service through operational changes or continuing education. Positioning of units, the number of units, the types of units, staffing per unit, all of these issues applied to day of week and time of day and an infinite number of other things can all be measured, analyzed, and acted upon by the manager that understands the power of information. Data analysis is an acquired skill, using the tools to turn data into useful information is also an acquired skill. Many large public safety agencies now have data analysts and GIS technicians on staff to assist them in turning their data into useful information. Smaller agencies can't afford this so it becomes incumbent on the management personnel to be able to perform at least basic data analysis.

I would strongly encourage anyone planning to advance into management positions whether you are a student now or in a field position to take it upon yourself to learn at least basic competence in data analysis and the software tools to make data analysis happen. It is a life skill that is transferable to nearly any type of job in any industry should you get out of public safety work, so it is time well spent for personal growth. There are many resources available to you from things as simple as picking up a self paced lesson book from the local bookstore to attending classes at the local community college or university extension program.

Public safety, especially EMS, is becoming a data intensive business and to effectively manage and make decisions requires the ability to understand and process large quantities of data into useful information. Being able to add these skills to your capabilities can pay off in a large way as your career advances. Data isn't going away, it will only become more intense and managers will be called upon to more and more to assimilate this data into useful information for budgetary and performance issues.

I welcome your comments, criticisms, feedback, and ideas. You may contact me at [ejems@cpcstech.com](mailto:ejems@cpcstech.com)

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