

The Paper Paradigm

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One of the fundamental challenges facing many law enforcement agencies in the adoption of truly modern 21st century technologies lies in escaping the *paper paradigm* and implementing more efficiency-driven, electronic processes. While the benefits of moving toward a paperless environment are certainly numerous and generally understood within the public safety community, the complexities in attaining its full potential may be less obvious.

Over the past decade, the term *paperless* has been used extensively throughout the industry to describe an ideal whereby the capture, storage and transfer of data is transformed from a largely pen-and-paper based model to a computerized one. And while this is definitely a fundamental concept of the model, it certainly does not define it.

As law enforcement agencies across the country started implementing various levels of technology to capture data, the realization that the act of writing of information onto a piece of paper was actually the first form of data entry, began to emerge. Data entry clerks were now *re-entering* information into the computer system that had already been entered into the filing system by the law enforcement officer. While no one would dispute the benefits of having this data in an electronic medium, the piles of paper stacked throughout the records areas of many agencies was certainly no small cost. The new concept of a 'backlog' was certainly an unfortunate and unintended consequence of the first wave of the electronic revolution in law enforcement.

With the benefits as well as the inefficiencies of this process exposed, the industry set out to enhance the former by reducing the latter. This is where the concept of a paperless system originated. If the original author of the report were to have a means of directly entering it into the computer system, then several time consuming and costly steps could be eliminated.

This process was, and continues to be implemented in a variety of formats ranging from direct entry by the author, to recorded dictation, to the use of word processor templates and even intelligent/optical character recognition technology. Modern front end desktop applications were also created to provide user friendly and intuitive interfaces, and wireless field reporting solutions extended this functionality out to the vehicle. But regardless of the method employed, the ability to eliminate duplication in the (paper <> computer) data entry process was a significant advancement.

As law enforcement agencies have continued to evolve into an increasingly complex data collection, processing and archiving center, the value and scope of information has also expanded from an almost exclusively prosecutorial purpose, into a comprehensive investigation, pattern analysis, decision support, and liability mitigation tool. These functions, which were virtually non-existent in the paper model, are now the cornerstone of modern law enforcement.

Unfortunately, in many cases, several crucial elements of the paper paradigm still remain. Agency processes and procedures which were established long before the computer are still prevalent throughout much of the industry. Even in instances where paper has been significantly reduced, many of the systems which were developed through the transitional period still maintain much of the workflow, duplication, and dissemination inefficiencies introduced by their paper-based predecessors. The idea of *passing* or *sending* information around an agency has been literally translated into the physical duplication and transmission of data between systems, and in many cases even within them. These processes not only perpetuate the legacy inefficiencies, but can actually decrease the accuracy and reliability of the information that they were created to enhance.

A fundamental distinction to be made in completely breaking from the paper paradigm is between data and information. While the two are inherently linked, it is important to understand that one is a physical construct while the other is simply a logical manifestation of it.

For the purpose of this discussion, data may be defined as a permanent electronic representation of an entity, or the context of an entity's interaction with law enforcement. As such, these representations should be comprised of a *single record* of any unique entity or unique contact instance. Information on the other hand, would be any means by which the data was accessed, displayed, disseminated and/or combined in a meaningful manner for a particular purpose. This allows us to separate the paper system described earlier where the data and information were inherently one and the same, from the paper paradigm where they no longer need to be.

For instance, if officers were to type person, vehicle, and/or location (entity) data into their field reports and then submit those reports into a database without any checks to see if the submitted entity data already existed, the result would be extensive duplication any time an entity was contacted more than once. Even if the entity data were extracted from a source database, copied into the field report, and then submitted, the result would unfortunately be the same. Of course the field reporting process would be streamlined significantly. The agency would meet their goal of going *paperless*. But the paper paradigm would still be in effect and causing problems with duplication.

Another example of the paper paradigm creeping into a paperless environment is highlighted through the supervisory approval processes prevalent in many systems. In most cases, reports are gathered, compiled and *sent* to specific groups or individuals throughout the agency for review at specific levels based upon agency operational procedures. The reviewers then approve or reject the reports and potentially submit comments back to the original author for consideration and resubmission. Although most of these processes do deal with logical information rather than copied and duplicated source data, the actual process is usually designed to mirror the physical movement of paper which is highly inefficient and unnecessary in its own right. In addition to the query, formatting, delivery, and display resources required to create this process, the supervisory staff, are more than likely presented with significantly more information than is required to meet their objective.

In the paper system, each field had to be reviewed for consistency, completeness and content. The only checks and balances available were in the eye of the reviewer so to speak. Now that the computer has the capability to apply complex logic to ensure that required fields are completed and their values are consistent with defined parameters prior to submission, supervisors should never see incomplete or inconsistent reports. Why then do they still need to review the full report? Why do they need their own copy? In most cases, it is just the content of a few select fields that would need to be reviewed. This process could certainly be achieved without producing and sending documents around the network.

The solution to escaping the paper paradigm is to focus on efficiencies beyond just moving legacy processes to an electronic medium. Agencies that are willing to carefully evaluate their operational procedures to identify and address these issues will be well suited to leverage their technology investments and achieve their full potential.