

### Multiple Paths and Strategies

Successful achievement of integration objectives is clearly possible by a number of different paths. The approaches we found across the states and localities revealed several creative responses to varied circumstances and resources. Many of the approaches involved the same objectives and styles of action, but differed in some details and sequences of events. What appear to be distinctive strategies are described below.

Several states and localities pursued what could be called a strategy of “full frontal assault” on their integration objectives. That is, the range of integration objectives involved all the agencies, functions, and levels of government accessible in that group of jurisdictions. The initiative included an overall coordinating and control structure along with comprehensive integration objectives. The Harris County JIMS is an example of such an approach at the county level, and the Colorado, North Carolina, and Pennsylvania initiatives are similar at the state level. The composition of the central coordinating or control body in these cases is typically made up of high level representatives of the principal stakeholder agencies and groups. These may be limited to the government officials from the criminal justice agencies involved, as in North Carolina, or extend to a broad range of government stakeholders, as in Pennsylvania. This comprehensive approach also covers most, if not all, of the main policy and technical matters involved in integration, such as standards, budgets, financial controls, infrastructure, and policy making.

An alternative to the comprehensive approach was the choice of limited, strategic targets or objectives. In some cases, the limited objective was chosen as part of a larger strategic plan. The immediate objective, such as a mobile data network or LiveScan fingerprint implementation, was seen as part of a sequence of phased steps aimed at more complete integration. In New York, for example, information systems integration was aimed primarily at the largest cities in the state, since they include the bulk of the population and criminal activity. In other cases, such as the Indiana court system integration project, an initial effort to develop standards was seen as a necessary building block for subsequent integration objectives.

There were a number of initiatives in which the limited objectives were not directly or initially linked to a broad integration agenda. The Project SAFE-T mobile network in Indiana was pursued for its own intrinsic value, rather than as part of a larger set of integration objectives. However, the Indiana Integrated Public Safety Commission, which is part of Project SAFE-T, will support continuing work toward other integration objectives. The Judicial Branch Statistical Information System (JBSIS) in California is a court initiative aimed at serving the statistical needs of that system, rather than a more general integration objective. In Florida, legislation for a statewide telecommunications infrastructure serves a similar particular need, but can also function as part of an integrated information system. It is not necessary for such initiatives to be part of some larger plan in order for them to improve integration in some way. However, in the absence of an overall integration plan and coordination structure, there is a greater risk that the various components will not fit well or efficiently into an integrated whole at some point in the future.

Another important element of success in many cases was a crisis or high visibility event that focused attention on the need to improve integration. In one state, a successful LiveScan initiative resulted from a failure to discover a new school janitor’s violent criminal history in time to prevent him from murdering a student. In another instance, police from three counties could not communicate well enough to coordinate the chase of an escaping bank robbery and murder suspect. In another state, inability of emergency workers to coordinate efforts in response to an airline crash stimulated a major integration effort. In these cases actual achievement of the integration objectives required leaders and agencies to take advantage of the interest generated by a precipitating event; the event itself was not enough. Other successful initiatives occurred without any tragic stimulus, but it is clear that such events, tragic though they may be, often provide clear opportunities for integration advocates to generate support and resources for new achievements.

In many cases, informal networking forms a key component of integration. There are many potential interested parties in any integration initiative. Their collaboration requires much communication and ongoing opportunity for interaction. Informal networks and other opportunities for joint effort are often necessary and effective in moving integration forward. Non-governmental groups in California have a long history of promoting integration efforts, including proposed legislation to create a statewide integration body. In the absence of state government action, local public safety officials in Alabama have formed an Alliance to promote new IT and integration efforts. At the national level, The Office of Justice Programs sponsored a workshop series that brought criminal justice professionals from throughout the country together to advance the integration agenda. A variety of informal meetings and visits among the professionals and political actors were reported as important elements in the development of all the initiatives we examined. These informal discussions and support building activities appear

to be as important as formal coordination and leadership activities in achieving integration objectives.

Although the initiatives in the various states and localities followed their own paths, a “building block” approach was a common element in several of them. These approached information integration as if constructing the systems from a number of inter-related “blocks” or components. An overall vision or strategic plan guided the selection and order of blocks to be added in a logical sequence. For example, a number of cases identified the development of standards as a foundation block on which integration could be built. Therefore a standards development initiative may have been an early component. Another component may have been creation of a central coordinating or governing body, or communication network infrastructure. Each building block could be viewed as an integration objective, an achievement in its own right, and also as part of a growing system. This approach provides a long-range perspective and logic for development that is adaptable over longer time periods. It also recognizes the need for continuing support and resources to advance the overall integration agenda.

These varied organizational strategies may be reflected in the technical architecture of the systems as well. The integration initiatives we reviewed all fit in the typology developed in a recent review of integration issues.<sup>(11)</sup> That typology distinguishes between **unified integrated systems**, and **coordinated integrated systems**. In the unified type, a single design concept is developed to meet all the functional requirements. This frequently involves a single database or central computer system, but the components and data may be distributed across different sites and agencies. In a coordinated system, the design and architecture follow agency lines, and use different platforms, applications, and operating systems. They agree only on basic data structures and business rules. The systems also differ in what is called a step-phased development versus an application-phased development strategy. In step-phased development, functional requirements for all are determined first, and operational implementation of a system is roughly simultaneous for all users. The Harris County development appears to follow this model. In application-phased development, the entire application is developed in one agency first, then expanded agency-by-agency. Some of the court-based systems fit this model, developing integrated systems for their needs before expanding integration to other agencies.

## Necessary Ingredients

There were a number of consistencies among the integration initiatives that suggest some necessary ingredients for success. One is **coordination**. Coordination and control mechanisms of one sort or another were part of every initiative, and integration seems unlikely to advance without an effective mechanism to support communication, collaboration, and some sort of authoritative decision making among the many players in the enterprise. In most cases, this mechanism was the result of policy making or executive action in the form of legislation or executive order. The resulting governing or coordinating body thereby has authority to exercise some direction and control over developments. This was the case where a so-called “full frontal assault” was underway. In some cases there was no authoritative body, but the interested parties created functioning informal mechanisms. Examples are the Forum on Justice and Public Safety in the 21st Century in California and the Alabama Law Enforcement Technical Alliance. Informal mechanisms are less likely to produce or support a comprehensive integration effort but rather promote more selective approaches.

Closely connected to a coordinating mechanism are the development of **trust**, **participation**, and **buy-in**. A number of key participants in these initiatives described the process as primarily political, not technical. That is, success was more dependent on forming successful relationships and building trust than on using any particular technology. Since integration necessarily involves many possible conflicts and competing interests, there are ample opportunities for distrust and defense of turf. Careful attention must be paid to building trust and buy-in through power sharing, positive incentives, and emphasizing both shared and individual interests and objectives.

One of the key reasons for the importance of trust, participation, and buy-in is the importance of **standards** in the achievement of integration objectives. Standards that represent agreement and consistency in data elements, their definitions, data manipulations, operational procedures, and application design are necessary to most integration efforts. Decisions on standards typically require individual agencies or jurisdictions to lose some control over their own operations and often incur costs to change procedures, train staff, or adopt new equipment or applications. In other words, standards are often expensive and burdensome, albeit necessary. Agreeing on standards and accepting those costs usually requires considerable trust in the overall operation and governance structure, as well as buy-in to the overall design and vision of expected benefits.

Initiatives based on more comprehensive **planning** and a **long-range perspective** also seemed to achieve a wider, more systematic range of objectives. This observation may be in part a result of the wide differences in time frames across the many initiatives. The oldest ones had 20+ year histories, while the newest were less than a year old, or in some cases pending actual implementation. Integration efforts that have been underway for a

long time are naturally more likely to reflect a concern for planning and a long-range perspective, but it is not clear which is a cause and which an effect of success. However, the histories of the longer duration efforts do suggest an answer to this puzzle. The efforts that were based on comprehensive, long range plans from early stages, such as in Harris County, have achieved a more comprehensive and systemic set of objectives. By contrast, California has several integration initiatives of long duration, but has not had a comprehensive plan. The result is a mix of relatively loosely-connected projects and separate systems.

The development of effective information flows and system designs also requires a well developed **understanding of the business process**. The design of information architectures and applications requires clear and highly-detailed knowledge of the specific procedures that generate or use criminal justice information. Since the operation of the entire criminal justice enterprise involves hundreds of complex procedures spread over many agencies and locations, building the necessary knowledge base is a very large but necessary task. In Harris County, the mapping of procedures and requirements in the required detail took two years. Without that level of understanding of operations, the design of an integrated information system will not be able to support and enhance the business processes.

Without sustained input of **adequate financial resources**, of course, these other ingredients cannot be effectively employed. It is also clear that the approach to financial support should reflect the institution-building perspective described above, rather than spending for discrete projects. That is, the maintenance and continued development of integration requires an ongoing commitment of resources. Information technology quickly becomes obsolete. Developing capacity for information integration can generate demand for even more capability. And, the number of possible integration objectives and operational features is quite large and will continue to expand as the technology evolves.

## Useful Ingredients

A number of other factors, or ingredients, were clearly helpful in promoting greater integration in the cases studied. The effect of what some participants referred to as "peer pressure" was helpful in some cases. Some agencies or jurisdictions felt a competitive pressure to improve their own integration capacity when a peer agency or jurisdiction improved theirs. Some also reported increased demands for improved integration from political actors and the public prompted by growing sophistication about what is possible with rapidly improving information technology. This was characterized by the surprised, "What? You can't do that already?" response from persons who learned about limited integration capacities. These increased expectations for information systems in the criminal justice enterprise were also attributed to the more general "reinventing government" movement and the related emphasis on efficiency, innovation, and improved service delivery.

External support for networking, sharing strategies, and discussing problems has also been a valuable resource for integration. The Office of Justice Programs has been quite active in this regard and the 1998 workshops were often mentioned as important networking and collaboration resources. The support by the Government Technology Conference and Prof. Clark Kelso for collaborative groups in California was also cited as a valuable resource for that state's integration efforts.

## Assessing the Benefits

One of the goals of the study was to identify the benefits, either expected or achieved, of enhanced information integration. What is seen as a benefit depends to some degree on the perspective and the agency involved, but there was a clear pattern in expectations of benefits relative to improved decision making. Reducing risk to officers is a consistent theme among law enforcement agencies. Better and more integrated information provided to officers at the points of critical decisions and dangerous interactions not only enhances their safety, but also reduces risks to others they encounter. This also lowers potential liability for mistakes made due to incomplete or poor quality information. The court systems tend to view better integrated and complete information as a tool for improved court management decisions, as well as for improved case-related decisions. Prosecutors and defense attorneys need the most complete information to make good strategic decisions on charges, plea bargaining, and other tactics. The Harris County Prosecutor's use of the JIMS system reduced the total number of cases filed by over 40 percent, but greatly increased the successful disposition rate due to better evaluation of cases based on better information. Jail and correction officials need complete and integrated information to make appropriate classification and assignment decisions on inmates. And, parole officers desire information as complete and integrated as possible to manage their cases. The financial benefits from these improved decisions had not been studied or documented in the cases we examined, so there are no estimates of return on investment. But there was clear consensus that justice professionals attach a high value to these benefits.

Another benefit is reduced exposure to liability for mistakes. The possibility of mistakes that are very costly or do severe harm is higher in the criminal justice enterprise than in many other government areas. The potential costs are therefore high and savings from reduced errors can be substantial. Eliminating redundant data entry reduces the possibility of errors and can improve data quality as well. As with improved decisions, estimates of actual savings due to error reduction were not available.

Benefits in terms of administrative efficiency were also reported. Though typically not the primary reason for an integration initiative, cost savings can be substantial in some operational areas. These include reducing or eliminating redundant data entry and paper work, reducing delays in accessing information, reducing costs for searching and retrieving information, and avoiding delays in procedures through better coordination. Comprehensive cost analysis data from a fully integrated system were not available but some selective savings have been estimated for some systems. In the Los Angeles County CHRS (Consolidated Criminal History Reporting System), retrieval time for criminal histories was reduced from an average of 2-3 hours per query to less than a minute. This represented a savings of substantial magnitude for that process alone. The CCHRS also replaced older, more expensive systems. Estimates of waiting time for a LiveScan fingerprint identification in California show a reduction from as much as 17 days for the previous method down to 2 hours. McLean County (Illinois) reported that their integrated system reduced officer time on booking paper work from an average of one hour for three suspects to eight minutes. For court systems, additional efficiencies are possible. Courts are estimated to incur as much as half of their total costs in processing paper and SEARCH estimates that California's Attorney General's office spends as much as 30 percent of its time on paper work. Even small percentage savings in these areas can represent substantial amounts. Efficiency in court administration can also be improved by avoiding the time and costs of aborted meetings when necessary information is unavailable or access is delayed.

## Assessing the Costs

Because the cases we examined involved such a wide variety of integration initiatives, implemented over disparate time periods and circumstances, the cost estimates and reports provide only a very rough guide for planning. The consensus among those who participated in the study was that integration initiative are potentially expensive, but still clearly cost-effective overall. This consensus is based in part on the partial but impressive kinds of cost savings estimates described. Estimates of total development costs for integrated systems, however, were not widely available because the few existing implementations were developed over extended time periods (multiple budget cycles) and used a mix of new and previously-installed components. The available examples do give a rough indication of the range of costs involved. The strategic plan for Alaska's integration initiative includes a budget estimate of \$84 million over four years. Sarasota County (Florida) recently implemented an integrated system at approximately \$5.9 million for hardware, software, and services, but not all infrastructure costs. It is estimated to save \$2-3 million per year. The Harris County JIMS has an operating budget of \$2.2 million per year, and is estimated to save considerably more than that in overall time and operational costs. A preliminary study for North Carolina estimated that the planned integration initiative would cost approximately \$91 million statewide plus an additional \$300 million for an 800 MHz mobile communication network. Much of that system has been implemented, but over an extended time period, so the accuracy of the initial estimates is in doubt. A cost-benefit study was done for Los Angeles County CCHRS in its early years (1993-94), showing comparable savings, but it has not been updated and may no longer apply.

Mobile data networks and systems have been installed or upgraded as separate projects in a number of jurisdictions, yielding some overall cost figures. A survey of 39 states in 1997 (done for the Indiana SAFE-T project) reported costs of mobile voice and data systems. The costs per voice radio unit varied widely, from less than \$2,000 per unit to over \$60,000; mobile data units ranged from \$3,500 to over \$60,000. These variations are a result of different features in the systems and great differences in the cost of infrastructure (i.e., towers, networks) due to the size and topography of the states.

Full analysis of the costs of integration would have to include more than just the investment in information technology. Training of personnel will be a major component of any integration initiative. These can approach the cost of hardware and software in many instances. Maintaining the overall coordination and control structure involves maintenance as well. This would include salary and staff support for those who serve on governing and coordinating boards or commissions. Most importantly, the overall cost of any system would include ongoing maintenance, improvement, and expansion.

A number of creative approaches to funding and supporting integrated systems were encountered during the study. California funds a portion of the maintenance and development of its LiveScan fingerprint system by

performing fee-for-service background checks for employers. Another state used excess capacity in a statewide health network to support integration of criminal justice information flows. North Carolina persuaded local jurisdictions to provide space on their towers for a mobile data network, rather than having to build new towers for the state system. As a result, only two new towers were required for the statewide system. Harris County also provides fee-for-service functions for other agencies in its jurisdictions that require access to information in the JIMS databases. With such creative approaches, the overall cost of integration can be reduced and the benefits made available to a wider array of participants.

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(11) Bureau of Justice Assistance. **System Integration: Issues Surrounding Integration of County-level Justice Information Systems.** Washington, D.C.: U.S. Department of Justice, Office of Justice Programs, 1998.