

# The Summit County Integrated Public Safety Initiative: Information Sharing in Law Enforcement<sup>1</sup>

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The Integrated Public Safety Initiative (IPSI) is a multi-party project aimed at establishing effective information sharing across all members of the law enforcement community within Summit County in Connecticut (on the east coast of the United States).<sup>2</sup> A regional software vendor, Blue Systems, Inc. (BSI), has been selected to provide the information sharing platform that forms the core of the initiative. In this capacity, BSI professionals are acting as the primary managers of the overall project effort. The project is envisioned as a multi-year effort, with the four central law enforcement entities in the county adopting the system in 2008 and additional public safety entities migrated onto the platform over the next three (3) years.

## **Background**

In the wake of the terrorist attacks of the September 11, 2001, many federal, state, and local agencies began calling for more intensive information sharing among law enforcement and other public safety sector organizations within the United States. Indeed, the U.S. Department of Homeland Security has made *information sharing* one of the primary areas of focus for local and regional law enforcement agencies. In response to this trend, Summit County initiated the Integrated Public Safety Initiative, or IPSI, in the fall of 2007.

Summit County is one of the largest counties in the state of Connecticut. Located within the metropolitan region of New York City, the county includes Connecticut's largest city, Springfield. The founding members of the IPSI project, called anchor partners, are the four primary law enforcement agencies in the county, including the Summit County Prosecutor's Office, the Summit County Sheriff's Office, the Springfield Police Department, and the Summit County Correctional Department. These are the first four entities targeted for integration of the IPSI platform.

In addition to the broader public safety sector call for enhanced information sharing, the Summit County anchor partners have significant operational justification for the IPSI effort. Despite constant interaction between the entities, much of the transfer of data among the partners is still conducted through manual hand off of paper forms. The foreseeable result is significant operational inefficiency. Nearly all arrest and incident data is subject to redundant data entry as it is passed from one partner's platform to

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<sup>1</sup> This case was prepared for discussing typical challenges associated with complex multi-stakeholder inter-organizational development initiatives involving high levels of compliance requirements. The case does not make any judgments of the goodness of the described practices.

<sup>2</sup> Names and locations have been changed to comply with assurances of confidentiality.

another, greatly increasing data integrity concerns. In addition, the manual transfer process creates significant potential for error and waste. For example, criminal defendants cannot be transferred from one agency to another without the proper paperwork, and repeated trips between locations are common. Finally, the Prosecutor's Office is required to make a "Prosecute-Don't Prosecute" decision on all suspects within 72 hours of an arrest, giving all parties a vested interest in timely processing and transfer of information. Thus, the potential benefits of the IPSI effort were clear from the outset.

### ***Blue Systems, Inc.***

After an extensive request for proposals (RFP) process, the IPSI anchor partners selected a local software vendor to provide the information sharing platform. BSI is a medium-sized systems development and implementation firm headquartered in Roseway, CT. Specializing in public safety software, the firm had made its reputation as a developer of operations and analytical support systems for local police and fire agencies. BSI's marquee brand was a computer aided dispatch and records management system (CAD/RMS), called *Shield*. In 2004, the firm began its foray into the information sharing domain with the development of an information sharing platform called *Enforce*<sup>3</sup> (pronounced "Enforce cubed"). It was this platform that the Summit County anchor partners engaged BSI to provide.

At a high level, the *Enforce*<sup>3</sup> platform is designed to support the collection and normalization of incident and arrest data from multiple public safety agencies and to provide a uniform Web-based interface for browsing, search, analysis, and reporting by participating agencies. In addition, the platform creates mechanisms for less formal communication between information sharing partners, such as discussion forums and chat. Other specific modules of the platform include GIS mapping of data, systems alerts (i.e., watch lists and incident tickers), crime forecasting and probability analysis, and free-form keyword search.

The BSI Project Team for IPSI is relatively small. Project Manager Tim Oberst holds the central role in coordinating the four partner entities as well as a handful of other law enforcement agencies that are targeted for later adoption of the *Enforce*<sup>3</sup> platform.<sup>3</sup> Because of the relative importance of the IPSI project for the local and regional reputation of the firm, Oberst is reinforced in his coordination and client support efforts by several of BSI's senior officers, including Chief Operations Officer (COO) Bob Williams, Senior Vice President Angelo Finnotti, and Chief Technology Officer (CTO) Arun Srinivasan. The development unit for the initiative is a team of three (3) to four (4) developers lead by the Senior Developer Arjun Nagpal. Finally, there is an implementation team consisting of approximately three (3) FTEs, who are responsible for all data conversion planning, installation scheduling, and platform training.

### ***Requirements Processes in IPSI***

The IPSI project reflects a range of requirements processes, including those pursued by the anchor partners and vendor separately as well their joint activity after the inception of the project.

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<sup>3</sup> It is envisioned that information from all of the law enforcement agencies within the county will eventually be integrated on the system.

**RFP Development.** The majority of the requirements for the project were articulated prior to BSI's engagement in the partners' RFP document. Within the RFP, system requirements are laid out in an Integration Platform Requirements section. This section includes the detailed requirements covering the areas of integration platform requirements, IPSI system overview requirements, technical IPSI system requirements, system implementation and support requirements, specific mandatory tasks and associated deliverables, and IPSI system documentation overview requirements.<sup>4</sup> The requirements outlined in the RFP are almost entirely text-based, rendered in natural language. The 150-page RFP document contains only five (5) graphical models, including business process or data flow diagrams for each of the four anchor partners and a simplified architectural diagram for the proposed system.

Interestingly, the requirements detailed in the RFP were in turn drawn from multiple source. As a primary input to the RFP document, the anchor partners identified an RFP released two years earlier by a consortium of law enforcement agencies in another county of the state. The IPSI RFP was largely modeled on this earlier RFP document. In addition, each of the anchor partners was tasked with documenting their internal business processes to establish integration and interface requirements. Finally, the RFP incorporates federal level requirements for information sharing among law enforcement entities.

**Vendor Platform.** The anchor partners weren't the only parties coming to the table with established requirements. Since *Enforce*<sup>3</sup> was an existing platform offered by BSI, the system itself embodied a broad range of functional and technical requirements. The *Enforce*<sup>3</sup> system was initially designed as an add-on to the firm's *Shield* platform (i.e., CAD/RMS). Thus, the design of system was largely driven by informal statements of need from BSI's existing clients. BSI clients discussed the desire for greater exchange of information with other municipalities in their local area, and *Enforce*<sup>3</sup> evolved as the BSI developers "toyed around" with ways to expand their platform to address these needs. It was only after the system had been implemented as a pilot module with a number of their existing clients that the senior management of BSI recognized the value proposition of the *Enforce*<sup>3</sup> distinct from its integration with the *Shield* offering. As a fully developed, independent module, *Enforce*<sup>3</sup> conveys an array of technical requirements to acquiring clients. These include network specifications, data submission requirements, and training expectations.

In addition to the operational objectives of the BSI clients, the *Enforce*<sup>3</sup> system draws significant functional requirements from standards developed at the federal level. Specifically, *Enforce*<sup>3</sup> was designed to be in compliance with the Global Justice XML Data Model (GJXDM), a standard developed by the U.S. Department of Justice to "be the *de facto* data reference model for the exchange of information within the justice and public safety communities."

**Collaborative Requirements Efforts.** As noted in the IPSI RFP, not all requirements were established prior to the initiation of the project. Several requirements had to be identified and clarified through the interaction of the anchor partners and the vendor. Specifically, these novel requirements centered on

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<sup>4</sup> A detailed outline of RFP requirements structure is provided in the Appendix

the areas of service level agreements (incorporating a range of “ilities,” or non-functional requirements), forms definition requirements, and security policy requirements.

The most intensive of these collaborative requirements-setting tasks has been the determination of unified forms requirements. Because the four anchor partners are expected to employ *Enforce*<sup>3</sup> for uniform reporting and exchange, the project team has to design data entry and reporting artifacts that satisfy the needs of all partners. Furthermore, additional law enforcement agencies from across the county have been engaged for this design effort because of their anticipated migration to the platform over the next one (1) to three (3) years. To achieve the unified form designs, the BSI team has pursued a two-pronged strategy: 1) collecting arrest and incident report forms from all law enforcement agencies within the county and completing a gap analysis to determine unique fields or classification differences, and 2) convening focus group sessions with user representatives to clarify reporting needs (e.g., determination actual usage of data fields and perceived criticality). In documenting the specifications for unified forms, the BSI team has foregone formal modeling techniques in favor of comparative checklists and iterative prototyping of data entry and reporting forms.

### ***Requirements Challenges***

As with most design and implementation projects, the IPSI effort is experiencing a range of challenges with the determination and management of design requirements. First, the BSI Project Manager and members of the development team have struggled to manage the expectations of the four anchor partners. The client-side leadership of the initiative has shifted over the early course of the project. The Sheriff’s office took the lead during initial planning and funding efforts, but the Prosecutor’s Office has since emerged as the driving voice of the client. As a result, determining the ultimate sponsor of the project has been difficult. In addition, all four anchor partners are equal parties in the initiative, making it exceedingly difficult to manage requirements conflicts between the groups.

A second basis for challenge has been in the resolution of the architectural conflicts. In the RFP document, the anchor partners identified a model architecture for the desired system. However, the model bears a number of differences with the *Enforce*<sup>3</sup> system. While *Enforce*<sup>3</sup> is capable of addressing the functional requirements of the RFP, the discrepancy in the architecture has been the source of repeated debate and negotiation between the anchor partners and the vendor.

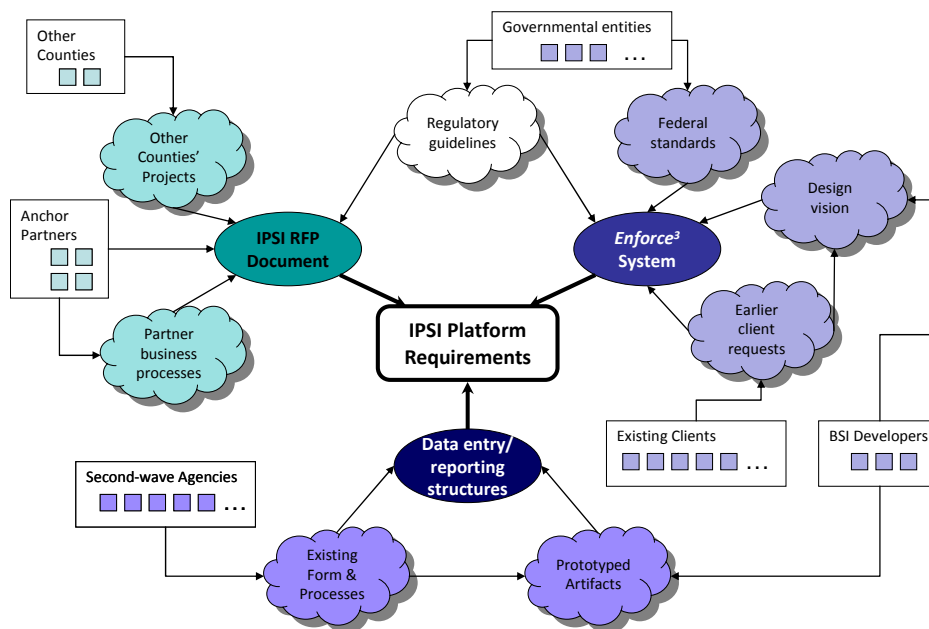
Finally, the collaborative requirements efforts have generated a series of challenges. As the BSI team has aggregated the data entry and reporting forms from all the stakeholders across the county they have struggled to capture current practice. While the initial effort was aimed at gap analysis, subsequent discussions have revealed that the various municipalities across the county use their forms in different ways (e.g., some fields may be mandatory for one police department and rarely used by another). As a result, the elicitation and specification process has shifted to determining critical fields and the creation of a uniform reporting process. However, the various stakeholders continue to resist efforts to change their own internal processes. This leaves the vendor in the challenging position of having to create a new process that they have little authority to enforce.

## Conclusion

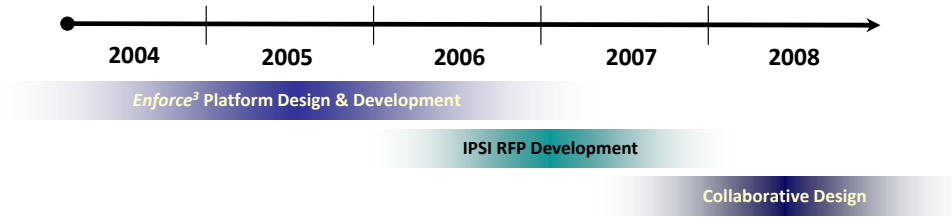
The IPSI project offers a case study of a development and implementation project from the perspective of the vendor. The study calls attention to several features of contemporary design environments, including the challenges encountered with a diversity of stakeholders, questions of power and leverage in requirements negotiation, and the management of requirements from multiple sources. How then can this case inform our understanding of prevailing requirements practices? Furthermore, what can we, as researchers, offer to the BSI team and other design practitioners to make them more effective in their daily lives? Drawing on several of the organizing themes from the first *Design Requirements Workshop* (Hansen, Berente, & Lytinen, 2007), we pose the following questions:

- Does this case inform our understanding of the desire for **systems transparency**?
- What can the project reveal regarding the trend toward **integration** rather than development?
- In what ways are the requirements and requirements process of the IPSI information sharing platform **distributed** – socially, structurally, and temporally?
- To what degree do we see **layering of requirements** in the IPSI project?
- Does the case tell us anything about the **centrality of architecture** in contemporary development efforts?

Figure 1. Generalized Distribution of Requirements in the IPSI Project



**Figure 2.** Timeline with Relevant Primary Requirements Processes



**Table 1.** Requirements Types by Source Process

| Requirements Types | Requirements Source Processes |                                   |                              |
|--------------------|-------------------------------|-----------------------------------|------------------------------|
|                    | <i>IPSI RFP</i>               | <i>Enforce<sup>3</sup> System</i> | <i>Collaborative Efforts</i> |
| Functional         | ✓                             | ✓                                 | ✓                            |
| Non-Functional     | ✓                             | ✓ - Limited                       | □                            |
| Technical          | ✓ - Limited                   | ✓                                 | -                            |
| Compliance         | ✓                             | ✓                                 | ✓ - Limited                  |
| Training           | ✓ - Limited                   | ✓                                 | -                            |
| Testing            | ✓                             | ✓                                 | -                            |

## Appendix. Requirements Structure of the IPSI RFP

1. Integration Platform Requirements
  - 1.1. Integration Platform Interface Requirements
  - 1.2. Integration Platform Security & Access Control Task Requirements
  - 1.3. Integration Platform Data Modification Tracking Task Requirements
  - 1.4. IPSI Anchor Partner Requirements
    - 1.4.1. Summit County Sheriff's Office (SCSO) IPSI Requirements
    - 1.4.2. Summit County Prosecutor Office (SCPO) IPSI Requirements
    - 1.4.3. Summit County Correctional Department (SCCD) IPSI Requirements
    - 1.4.4. Springfield Police Department (SPD) IPSI Requirements
    - 1.4.5. Municipal Police Department IPSI Requirements
    - 1.4.6. Summit County Court Clerk IPSI Requirements
  - 1.5. IPSI Group/User Roles and Privileges Requirements
    - 1.5.1. Group Law Enforcement
    - 1.5.2. Group Justice
    - 1.5.3. Group Correctional
    - 1.5.4. Group System
  - 1.6. IPSI Modular Software Development and Implementation Requirements
  - 1.7. System Administration Requirements
    - 1.7.1. Group Administrator Requirements
    - 1.7.2. Integration Platform Administrator Requirements
  - 1.8. Information Security Requirements
    - 1.8.1. Information Security Control Requirements
    - 1.8.2. Password Policy Definition Requirement
  - 1.9. IPSI Anchor Partner and Vendor Defined Requirements
    - 1.9.1. Service Level Agreements Requirements
    - 1.9.2. Forms Definition Requirements
    - 1.9.3. Security Policy Requirements
  - 1.10. Summit County Law Enforcement Project Team Points of Contact Requirements
2. IPSI System Overview Requirements
  - 2.1. IPSI High Level Functional Requirements
  - 2.2. IPSI System Architecture Requirements
    - 2.2.1. IPSI Web-Enabled, Front-End Page Interface Requirements
    - 2.2.2. SCPO Web-Enabled, Front-End Page Requirements
    - 2.2.3. SCCD Web-Enabled, Front-End Page Requirements
    - 2.2.4. Court System's Web-Enabled, Front-End Pages
  - 2.3. Interfaces with External Interconnected Systems
    - 2.3.1. SCSO Criminal Record System Interface Requirements
    - 2.3.2. Sagem Morpho and DataWorks Requirements
    - 2.3.3. ATS/ACS Interface Requirements
    - 2.3.4. SPD RMS Interface Requirements
    - 2.3.5. SCCD RMS Interface Requirements
    - 2.3.6. Municipal Police Department Interface Requirements
    - 2.3.7. Future IPSI Interface Requirements (Not Part of the Scope of this RFP)
  - 2.4. Data Exchange Standards
    - 2.4.1. XML Data Exchange Requirements
    - 2.4.2. National Incident Based Reporting System (NIBRS) Requirement
    - 2.4.3. Finger Print Image Exchange Requirement
3. Technical IPSI System Requirements
  - 3.1. Capacity and Performance System Requirements
    - 3.1.1. Traffic Volume System Requirements
    - 3.1.2. Storage Volume System Requirements
  - 3.2. Scalability Requirements
  - 3.3. System Availability Requirements
  - 3.4. IPSI Software Licensing System Requirements

- 3.4.1. IPSI Software Licensing Right of Use, Benefit of Use, and Access of Use as Per Section 4.0 Mandatory Requirements
  - 3.5. IPSI System Architecture Maintenance Requirements
    - 3.5.1. Self-Diagnostic Requirements
    - 3.5.2. Data Back-Up Tools Requirements
    - 3.5.3. Monitoring Tools Requirements
  - 3.6. Support and Troubleshooting Requirements
  - 3.7. LAN Network Interface Requirements
  - 3.8. Operating System Requirements
- 4. System Implementation and Support Requirements
  - 4.1. System Installation and Delivery Requirements
  - 4.2. Initial Data Upload Requirements
  - 4.3. Acceptance Test Plan Requirements
    - 4.3.1. Acceptance Test Burn-In Period Requirements
    - 4.3.2. Acceptance Testing Requirements
    - 4.3.3. Acceptance of the IPSI Integration Platform into Production Requirements
  - 4.4. Security Certification & Accreditation (Compliance, Tests) Requirements
  - 4.5. Integration Platform Support Requirements
  - 4.6. Software Bug Fixing Procedure Requirements
  - 4.7. Spare Equipment Policy Requirements
  - 4.8. Trouble Reporting Requirements
  - 4.9. Training Requirements
  - 4.10. Warranty and Warranty Period Requirements
  - 4.11. Support and Maintenance Services Requirements
  - 4.12. Update and Fixes to the IPSI Integration Platform – In and Out of Warranty Requirements
  - 4.13. Software Upgrade Requirements
- 5. Specific Mandatory Tasks and Associated Deliverables
  - 5.1. Work Plan Requirements
  - 5.2. Project Status Reporting Requirements
- 6. IPSI System Documentation Overview Requirements
  - 6.1. IPSI System Documentation Requirements
  - 6.2. IPSI System Training Manual Requirement