

Money-Saving AFIS Upgrade Process

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Background

- Your AFIS is an Information Technology System with components including: Computers; Servers; Storage; Network; Printers, Scanners, and Interfaces

They get obsolete in 3 to 5 years.

- AFIS core technology advances in fundamental way every 3 years. New Databases, new and more accurate algorithms, better user experience, more functionality – ABIS.
- The economy will be slow recovery for the next 10 years – Identification Bureaus must get more efficient.

Every dollar is 5 dollars!

Goals of Procurement Approach

- Procure AFIS / ABIS that meets your needs
 - Functionality and ease of use
 - Reliability and maintainability
 - Performance both accuracy and speed
 - Easily expandable to meet future needs
- Customer develops good strategy for procurement
 - Type of procurement (lowest price, best value etc, timeline, goals etc)
- Deliver operational capability in shorter time
 - e.g. few months

Goals ... continued

- Have good understanding of products and capabilities of vendors for selecting the best product
- System must be broadly expandable with known costs
- Discover operational issues early before all money is spent

Methodology to Achieve the Goals

- Incremental Delivery
 - Aids in discovery of issues early
 - for ease of transition and implementation
- Minimize customization for less expensive system
- Separately Priced Deliverables: well-defined and priced Contract Line Item Numbers (CLINS)
- Understand past performance of vendors

Methodology... continued

- Operational benchmark the vendor in procurement process
 - Allows you to touch and feel system; is the proposed system in the proposal what you get?
 - Allows you a way to evaluate vendor staff and approach
 - Allows vendors additional forum to highlight their products and advantages and clarify issues
 - Rely on public testing data as much as possible
- Affordability by stretching costs over time
- Make use of electronic conversion when possible
- Acceptance testing by usage

Source Selection Continuum

1. **Lowest priced technically acceptable strategy**
2. **Pricing - one of factors with moderate weight**
3. **Best Value**
 - elements can be traded off against each other
 - determine solution that provides the agency with the overall best value.
 - Note: all such tradeoffs are conducted according to the source selection factors and sub-factors identified in the solicitation.

Lowest Price: Pros

- Obtain Lowest Price for Requirements
- Fairly easy to evaluate
- Protestability is decreased
 - Courts put significant weight against lowest price

Lowest Price: Cons

- If requirements are overstated, price may be higher than necessary
- If underbid, will vendor:
 - Complete delivery
 - Vendor history
 - Is lawsuit worthwhile
 - Provide a quality product
 - Deliver on time
- Requirements interpretations differ
 - Vendors interpretation may not be your intent
- Essentially impossible to create “complete” set of requirements
 - Requirements may need modification or addition
 - Change orders and increased cost

Pricing One Factor: Pros

- Pricing is just one of the factors in evaluation
- Provides some flexibility to lowest price for a better system
- Can still obtain low price
- Evaluation a little harder to do
 - Pricing just one more factor with a value to be combined with others

Pricing One Factor: Cons

- Same requirements issue
- Same Change Order Issue

As in the Lowest Price approach.

Best Value: Pros

- Most flexibility in selecting among offerors
- Other factors important to you may take precedence over price
 - Quality of the product
 - Speed of delivery
 - Reliability of Vendor

Best Value: Cons

- Can be harder to evaluate
- More protestable
 - Lower price offerings are compelling to courts

Mitigation -Price

- Require incremental delivery and incremental payment for delivery
 - Pay only for what is delivered and works.
 - If decide to stop there is value in what is delivered
- Ensure first increment will provide most of the capability to perform task if the vendor is gone
- Ensure Interfaces are open standard (such as Service Oriented Architecture) or defined well enough for another vendor to finish the overall planned system easily
- Package the increments sensibly
 - Basic functional capability such as tenprint, latent & palms, 1000ppi, rolled and flat prints, liveness, mobile, conversion etc
- Indicate in RFP that offered price will be modified by risk, independent estimates, or other factors
 - Do good Independent Estimate

Mitigation-Requirements

- More flexible requirements
 - Separate Requirements into mandatory and Optional
 - Mostly Optional
 - Minimize mandatory
 - Evaluate full solution in terms of how requirements provided will perform tasks
- Incremental development & delivery
 - Easier to see future need/requirement in context of what exists
 - Consider delivery of hardware as needed
- Reluctantly award increments to multiple contractors even if increments or pieces are allowed to be bid separately
- Adjust your costs for integration cost if multiple vendors are awarded

Mitigation- Risk

- Pay only for useful deliveries
- Operate for some period before acceptance and payment:
 - Avoid vendors preference for a 5-day acceptance testing and passing to get the payments
 - Require a one or more months of operation as part of the system acceptance;
- Ensure risk is emphasized & mitigated during evaluation

Mitigation- Project Roll out

- Of all factors the project management from the procurement time to completion of the project is one of the key factors of success.
- The Department PM – usually the AFIS manager – roll is critical
 - But the AFIS manager has a full time job (actually 1.5x full time job!)**
- Apply project management 101 – define milestones – follow up the progress weekly – find the project issues early and mitigate/solve.

Evaluation

- Decide evaluation factors based upon needs
 - Develop during the initial AFIS procurement strategy session
- Keep disclosure in RFP loose enough so vendors don't game
 - List key criteria, factors & relative value especially in regard to price
 - Be certain to mention that other factors may be more important than price if this is the intent
- Try to make factors & sub-factors to be differentiators

Evaluation- Operational Benchmark

- Benchmarks used for AFIS procurements in the last two decades are:
 - Expensive to develop and administer
 - The statistics of benchmarks is difficult, often not-relevant to operational AFIS
 - Protestable
 - Vendor gaming the tests
 - Limited value in evaluating day-to-day operational functions, usability and performance
 - Data used was questionable both in type and quantity

Operational Benchmark ... continued

- Use public testing:
 - NIST has done a lot on print to print accuracy testing which is the base for the tenprint performance with proper analysis:
 - Don't need to redo the tenprint test
 - Caution-vendors may not have operational algorithms that were in test
 - Interpretation of NIST Tests in the context of AFIS is not trivial, as stated in all the NIST reports.
 - NIST latent test was lights out only and may not be the vendor operational product
 - Palms have not been benchmarked by NIST

Operational Benchmark ... continued

- **Latent (Palm and fingers) accuracy is extremely important for solving crimes**
- **Use benchmark to assess technical proposal submitted by vendor:**
 - The software product release version
 - The hardware configuration quoted
- **Use benchmark tasks to evaluate:**
 - Operational usability
 - All the critical system functions and
 - Performance (relevant and limited accuracy test – mimic what your tenprint and latent specialists do day-to-day)
- **Provide sufficient time and data to be meaningful**
- **Use the benchmark to evaluate the vendor staff**

Buy COTS

Commercial off the Shelf products

- Think of AFIS as COTS
 - After 35 years of product development most AFIS products are primarily COTS
 - Both SW and HW COTS
 - Don't demand Changes – map your business requirements to the product functionality
 - Many of the I/Fs are already done - Solved on other systems or standard product
- Most Vendors are now ABIS
 - Face, finger, Iris “integrated” is common & important
 - Fusion of results for high performance is an advantage
 - Face and iris algorithms all place in top on NIST tests

Provide for Penalties

- If contractual penalties are a contractual issue, use it and signoff as leverage
- Provide for penalties for key items
 - Delivery delay
 - Poor performance
- Make penalties reasonable
 - Reflecting the costs to you
 - Continued operational costs of
 - Current system
 - Labor planned for release

Provide for Incentives

- Consider incentives for key items
 - Early delivery
- Innovations that save/improve operations

How to get a better system for less \$

- Buy it as COTS as much as possible
- Insist on Standards Compliance
 - Law enforcement
- Buy it incrementally
 - Create meaningful increments
- Minimize Integration
 - Minimize number of vendors
- Be as flexible as possible on requirements

Questions

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Author Biography - *Dr. Ben Bavarian*

Dr. Bavarian is one of the pioneers and industry leading authority in the field of Biometric Identification with over 26 years of R&D and management experience in industry and academics. He founded the AFIS and Biometrics Consulting Inc. in 2007, providing subject matter expert consulting and strategic management services in Biometrics Identification Industry. The company has successfully completed more than two dozen contracts in the last three years.

Prior to ABC Inc. Dr. Bavarian was the Vice President of Motorola Biometrics, where he led the business turn around and four fold increase in Sales by directing the development of the industry leading Automated Biometric Identification System products with over 100 large scale deployments.

Before moving to the industry in 1992, Dr. Bavarian was a professor in the Department of Electrical and Computer Engineering at the University of California, Irvine, where he conducted original research in image processing, computer vision, intelligent systems and published over 120 technical papers and received several awards for outstanding research and distinguished teaching.

Dr. Behnam (Ben) Bavarian received his Ph.D. in Electrical and Computer Engineering from The Ohio State University, Columbus Ohio in 1984.