

Data Integration as an Industrial Process

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MITRE Sponsored Research



**MITRE
Technology
Program**

Problem

Data Integration - the ability to *meaningfully* exchange data among separately developed information systems

- Data integration costs too much.
 - You have to know too much.
 - Databases
 - Application programming
 - Distributed systems programming
 - and*
 - The application domain
 - Too little reuse of expensively gathered knowledge

Vision: An “Industrial” Process

- **Modularize the process as small steps, each using one skill**
 - Easier to automate pieces
 - Can combine small point solutions
 - Move from highly skilled craftsmen to specialists
- **Incentives, not mandates, for integrators**
 - Metadata will be good if it enables providers to meet their responsibilities
 - Capture knowledge and generate code that providers want (“describe and generate”)

Objective

- Refine the industrial process approach to capturing integration knowledge (??)
- Experiment with emerging prototype tools
- Move industry, researchers, and sponsors toward the vision
- Transition lessons learned to real projects

Activities

- **Modularized integration steps and split skills required to perform them**
 - **Lead article in *IEEE Data Engineering* special issue on data integration**
- **Described pragmatic needs not met by current community research agenda**
- **Experimenting with “describe and generate” tools and real data**
- **Advice articles on simplifying the messy real world**
- **Sponsored integration technology vendor briefing series**
- **Technology transition**

Highlight: Tech Transition

VTC to Bedford • sites

Information Interoperability


JANUARY 16, 2003 MITRE 1 **TEM**


A Net-Centric DoD C3I/CIO

DoD Data Strategy

...Transforming the Way the DoD Manages Data

Anthony J. Simon
OASD(C3I)



Power to the Edge 

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Guidelines for Decentralized Development Without a Global Blueprint



FBI

Call for Abstracts:

Improving Information Interoperability

Deadline: Feb 21, 2003



AF CIO Architect Office

Impacts

- **Influenced emerging industrial tools and researchers' agendas**
- **First evaluation of integration technologies**
 - **Insight into next-generation commercial tools**
- **Influenced sponsor strategies - e.g.,**
 - **DoD Data Strategy**
 - **FBI tool selection**
 - **“Decentralized Development without a Global Blueprint”**
 - **Neuroinformatics**

Future Plans

- **Conclude experiments using research prototypes**
 - **Publish results**
- **Final paper on the Industrial Process for Data Integration**
- **Paper on role of knowledge management in data integration process**
- **Continue publishing and transitioning results to MITRE and sponsor projects**