The Information Systems Engineering Department (ISED) at Southwest Research Institute® (SwRI®) has the necessary experience and expertise to produce "Best in Class" Information Technology (IT) products to fulfill the demanding needs of Enterprise IT solutions. ISED uses a systems engineering approach to complex issues such as:

- Legacy integration
- Distributed performance architectures
- Designs enabling development along well-defined business logic boundaries
- Design/development life cycles that facilitate complex requirements maturity cycles

Legacy Integration

Enterprise IT solutions often follow a deployment model that gradually reduces dependency on legacy operations. ISED computer scientists and engineers analyze the deployment life cycle and design in messaging constructs, service abstraction levels, and data persistence modeling that will best serve the deployment model with minimal impact to deployed functionality. Design considerations to facilitate integration with legacy components include:

- Service oriented architectures (SOA)
- Business rule engines
- Application Programming Interfaces (API)
- Allocation of business rules to appropriate enterprise system tiers

Distributed Performance Architectures

The IT industry has evolved from monolithic mainframe applications into Web services and SOA. ISED has designed and developed multiple SOA-based applications and maintains focused competencies to design and develop both presentation and business tier layers to meet distributed computational needs. Staff members continually master new technologies including:

- J2EE®
- Microsoft .NET Framework
- WebLogic®
- JBoss®
- Hibernate®
- CORBA®
- WebSphere®
- Oracle® BC4J

Computational Components

ISED's approach to Enterprise IT design includes analysis of performance, maintenance, interfacing, and security requirements. Also included in the architectural design are the boundaries (system tiers) at which classifications of business rules are implemented and how abstraction layers must be implemented to achieve design goals.

ISED engineers and computer scientists effectively implement interface or security requirements via triggers and stored procedures in the database design. ISED staff members are experienced in a wide range of database technologies including:

- Oracle® 7/8i/9i/10g®
- Sybase®
- IBM® DB2
- MS SQL Server
- PostGreSQL
- MySQL®
- Ingres®
- SAS
- Firebird

Design/Development Life Cycles

ISED selects and adapts software design/development life cycles that best satisfy the design, development and deployment goals while mitigating the risks associated with requirements immaturity in Enterprise IT development. ISED has successfully executed many design and development projects using a multitude of life cycles including:

- Waterfall life cycle
- Iterative life cycles based on Rational Unified Process (RUP) and Modified Unified Process (MUP)
- Agile life cycles required during deployment and maintenance product stages


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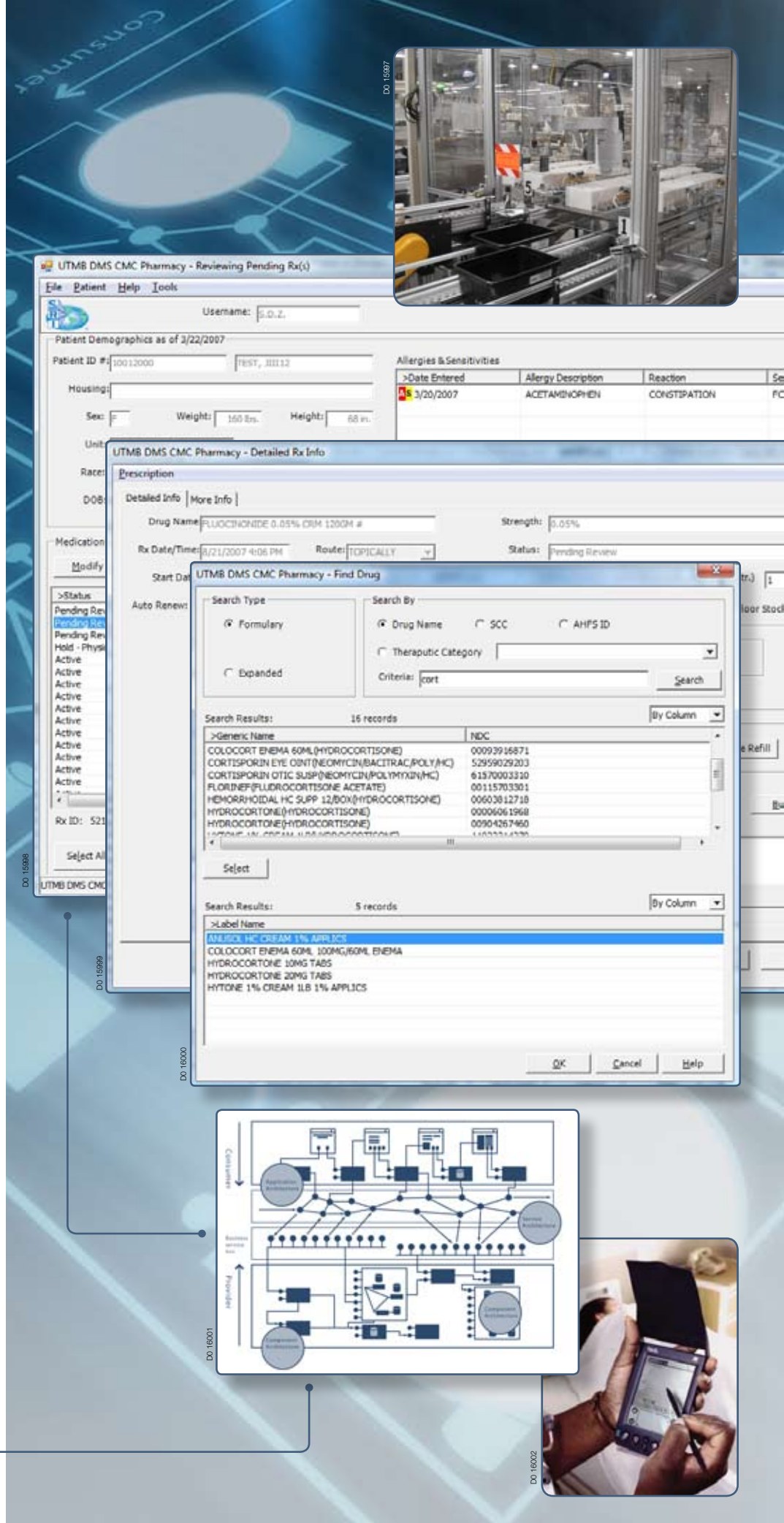

The Information Systems Engineering Department at SwRI is committed to reliably producing the highest quality work through a proven systems engineering process. Our commitment to excellence is evident through our appraised attainment of Level 5 within the Software Engineering Institute's (SEI) Capability Maturity Model Integration (CMMI®). This distinction is held by a limited number of American companies and even fewer applied research and development institutions.

Southwest Research Institute is an independent, nonprofit, applied engineering and physical sciences research and development organization using multidisciplinary approaches to problem solving. The Institute occupies 1,200 acres in San Antonio, Texas, and provides more than 2 million square feet of laboratories, test facilities, workshops and offices for more than 3,100 employees who perform contract work for industry and government clients.

We welcome your inquiries. For additional information, please contact:

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