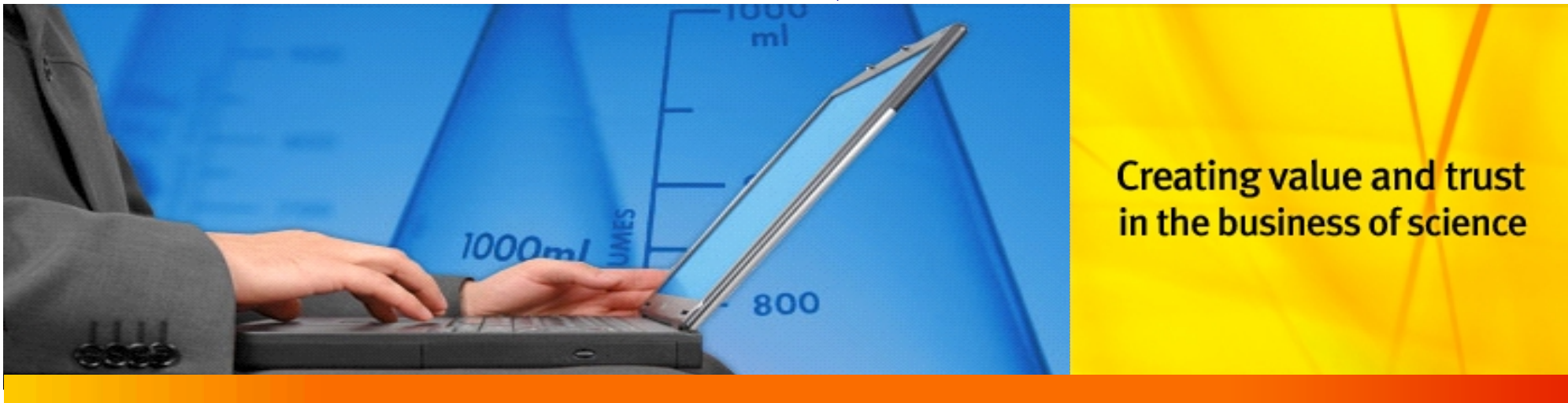


Leveraging Technology, Business Process Engineering and Flexible Staffing Solutions To Achieve Increased Operational Efficiency In The Laboratory

Michael Zachowski

**PITTCON ALMA Workshop
New Orleans, LA
March 4, 2008**



New York . West Palm Beach . Boston . Philadelphia . Kansas City . Los Angeles

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Agenda

- Astrix Overview
- Laboratory Management Challenges
- Technology
- Business Process Re-engineering
- Staffing
- Case Studies
- Summary

Core Competence

Evaluate and Implement Solutions To Increase
The Operational Efficiency Of Scientific
Organizations

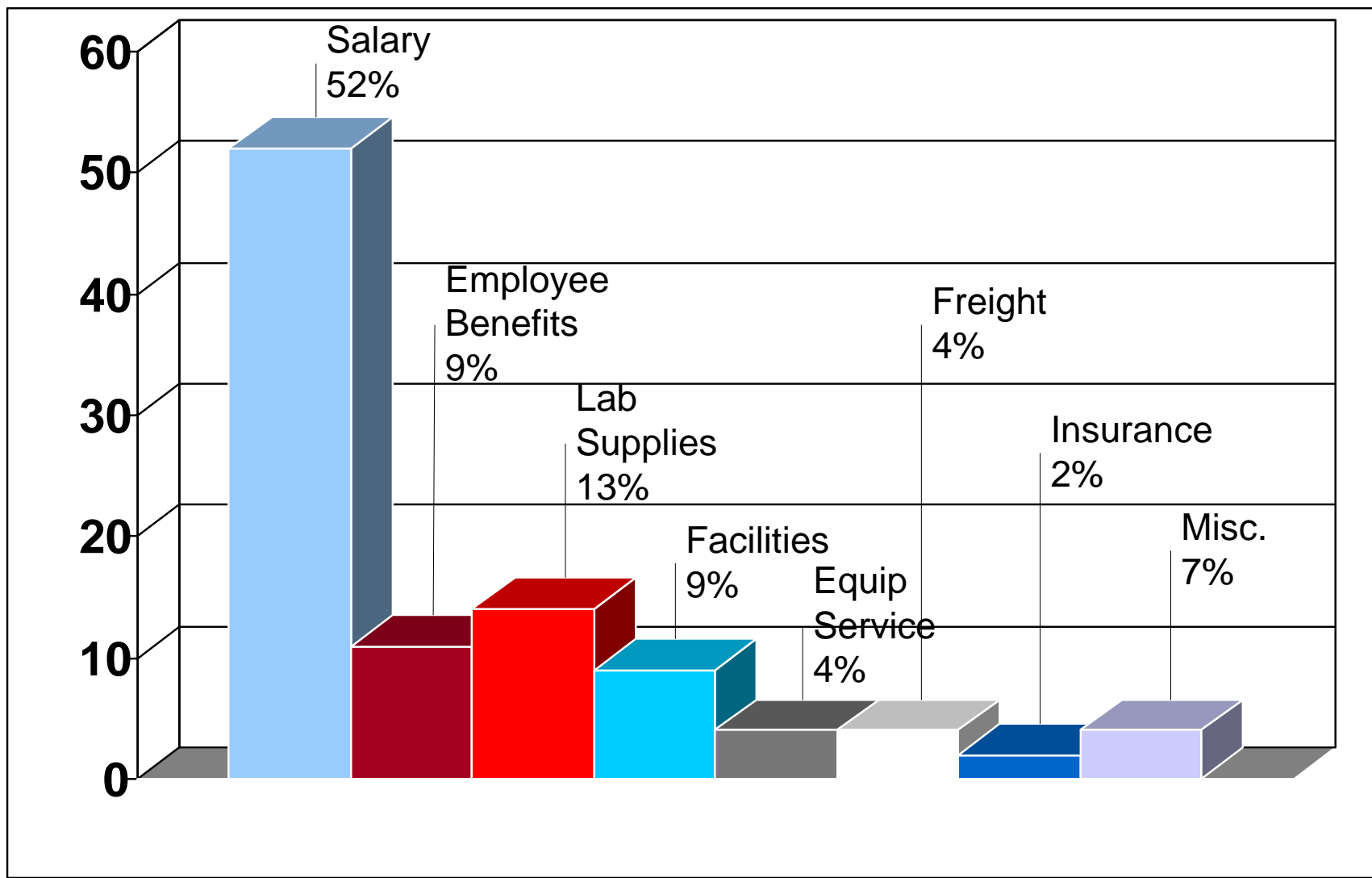
Practice Areas

- Technology
 - Evaluation of Processes and Requirements
 - Evaluation and Integration of COTS Products
- Business Process Re-Alignment
 - Workflow Analysis
 - Best Practices
- Human Resource Augmentation
 - Flexible Staffing
 - Permanent Placements

Laboratory Challenges

- High Fixed Costs
- Conformance To Regulatory Requirements
- Compliance with Quality Requirements
- Evolving Technologies
- Finding, Developing and Retaining Qualified Staff
- Competition – Pricing Pressure
- Fluctuating Workloads
- Staffing 2nd and 3rd Shifts
- Maintaining Workforce Satisfaction

Laboratory Cost Categories



Traditional Approaches

- Additional Instrumentation
- Add Staff or Overtime
- Modify Schedules – Night Shifts and Weekend Shifts
- Subcontract
- Technology Utilization

Progressive Organizations Are Using A
Combination of Technology, Business Process
Re-Engineering and Flexible Staffing to Achieve
Increased Operation Efficiency

Technology

Infusion of Technology Historical Approaches

- Automated Sample Introduction and Instruments
- Data Acquisition Workstations
- Laboratory Information Management Systems (LIMS)
- Laboratory Systems Integration (LSI)

Infusion of Technology

Potential Additional e-Lab Components

- Scientific Data Management Systems (SDMS)
- Reagent and Inventory Control
- Training Records and Analyst Certifications
- Calibration Records
- Standard Operating Procedures
- Document Management
- MSDS and Environmental Compliance
- Ovens, Freezer and Refrigerator Monitoring
- Enterprise Resource Management Interface
- Key Performance Indicator Dashboard

Infusion of Technology Benefits To Be Realized

- Increase Researcher and Organizational Efficiency
- Reduce Rework
- Ability To Share and Use Negative Results
- Eliminate Manual Data Entry and Transcription Errors
- Address Workforce Turnover/Knowledge Retention
- Facilitate Access To Data Across the Enterprise
- Decrease Product Development Cycles
- Decrease Costs

Business Process Re-engineering

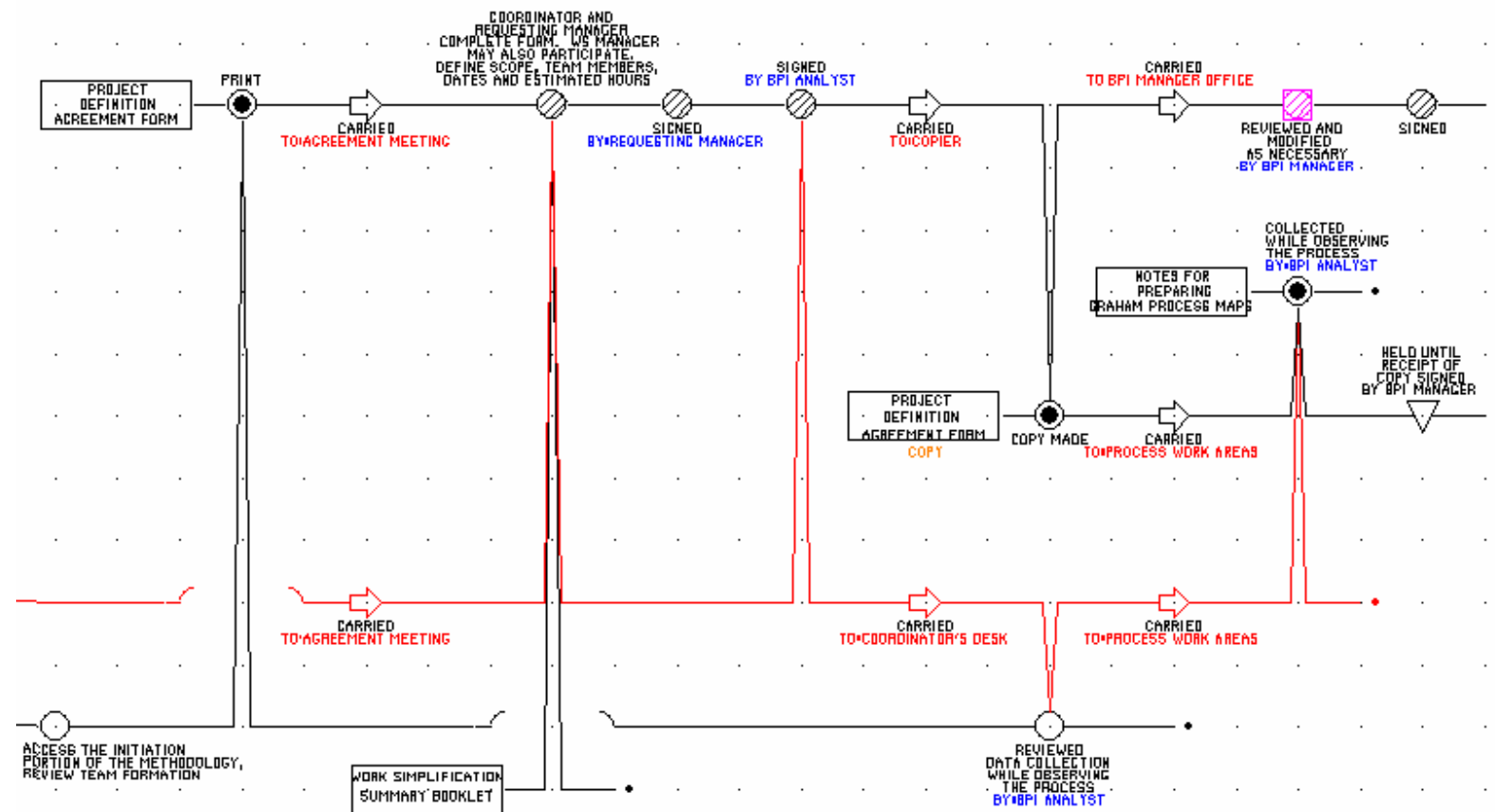
Business Process Re-engineering Astrix Approach

- Work Process Mapping (“As-Is Environment”)
- Work Process Re-design (“To-Be Environment”)
- Consensus on Objectives from Key Stakeholders
- Develop Strategy and Tactics for Change
- Business Case Development and Budget
- Implementation of Recommendations
- Measurement of Progress Toward Objectives (Metrics)
- Risk Management

Business Process Re-engineering Risk Components

- Poor Requirements Definition
- Refusal to Simplify and Streamline Processes
- Poor Project Management and/or Communication
- Trying To Get Consensus From Everyone
- Changing Requirements and Scope Creep
- Inadequate Process For Vendor/Product Selection
- Lack of Management Commitment/Resource Allocation
- No Metrics or Unrealistic Financial Targets

Business Process Re-engineering Example Process Workflow



Business Process Re-engineering

Why the As-Is Exists

- Regulatory or Quality Requirements
- Risk Adverse or Conservative Approach
- Training Issues
- Institutionalized Practices
- “Because That’s The Way It’s Always Been Done Here”

Staffing Solutions

Flexible Staffing Options

- Temporary Employees
 - Address Short Term Needs / “Surge Capacity”
- Temporary to Permanent Placements
 - Provides “Test Drive” of Potential Future FT Staff
- Permanent
 - Typically for More Senior Level and Management Positions

Flexible Staffing Benefits

- Outsource Non-Business Critical Business Function
- Focus Internal HR Staff for Value Added Activities
- Provides Increased Flexibility For Highest Cost Component of Laboratory Operations
- Addresses the Inability For Conventional Interview Processes To Fully Evaluate Hard and Soft Skills of Potential Candidates

Flexible Staffing Goal

- Most Laboratories Have Greater Than 50% of Their Costs In Fixed Labor
- Best Practice Organizations Target 10% of Their Labor Pool To Be A Variable Expense – Temporary Employment
- Today 12 Million Employees Temporary In US and Growing*
- 90% of Companies Use Temporary Staffing*
- 9 out of 10 Employees Satisfied With Their Staffing Company Experience*

*American Staffing Association 2006

Case Studies

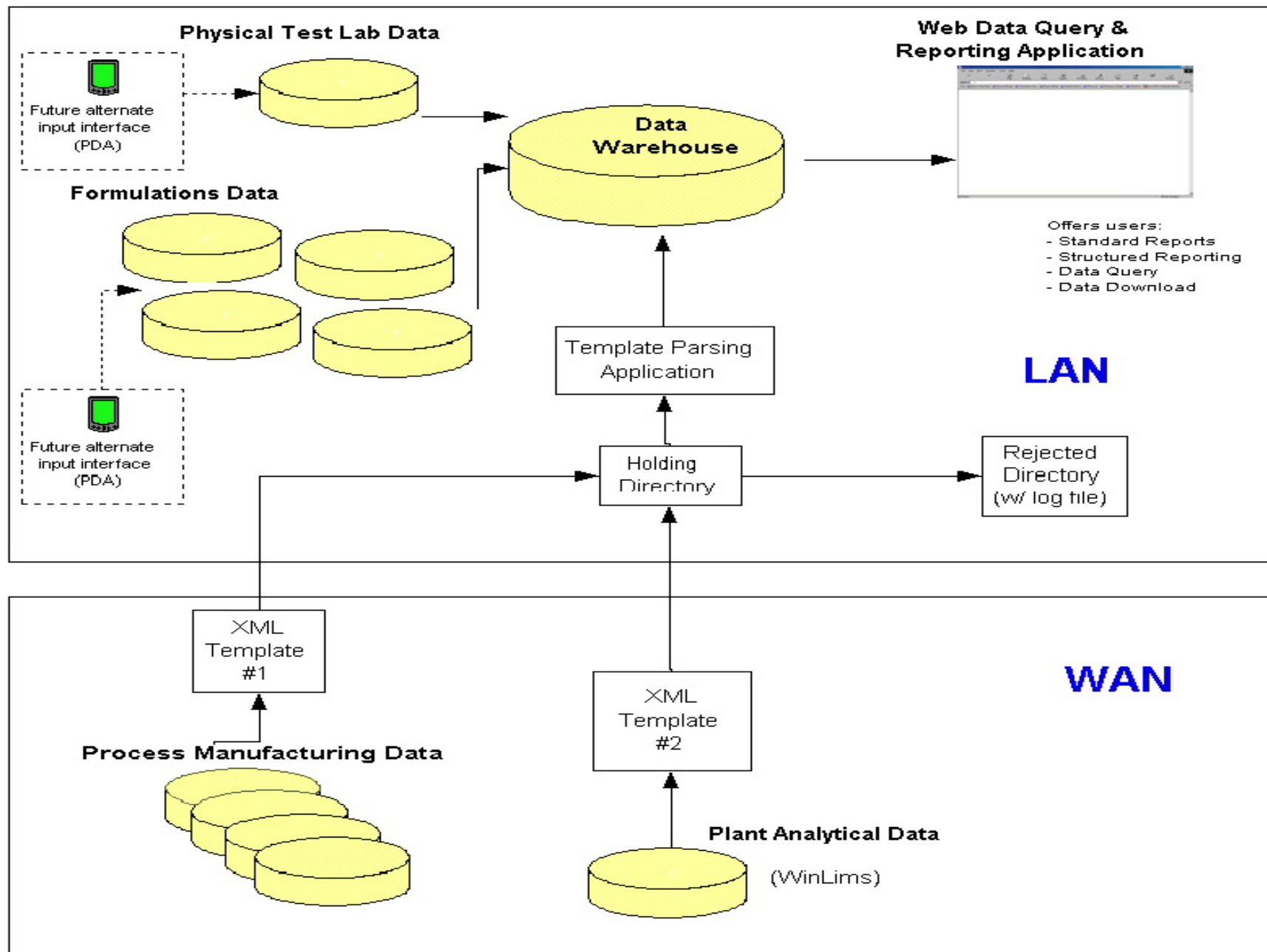
Confidential Chemical Company Enterprise Data Warehouse System

Information Management System That Integrates Formulation,
Manufacturing, Physical Testing and Analytical Databases

Web Application Allows Scientists and Engineers From
Corporate and Plant Sites To Access and Analyze Data

Automated Performance, Test and Formulation Data
Collections via Palm Pilots and Tablet PCs

Confidential Client Data Warehouse System



Confidential Chemical Company Enterprise Data Warehouse System

Results

An Informal ROI Calculation Indicated a Nine Month ROI Based On The Assumption That 50% Staff Time Was Expended On “Re-Dos” Based On The Inability to Capture The (Negative) Results of Previous Experiments.

APBI International

Business Process Re-Engineering

200+ Person Laboratory Suffered Low On-Time Delivery and High Defect Rate

Process Engineering Studies Demonstrated The Laboratory Was Servicing Diverse Regulatory Programs and Industry Segments

Entire Process Was Re-Engineered and The Laboratory Divided Into Four Mini Labs (Work Groups) Focused on Delivering Products To Specific Industry Segments

Result On Time Delivery From 71% to 98% and Defect Rate Dropped From 1.9% to 0.3% (factor of 6)

US Biosystems

Flexible Staffing Solutions

100 Person Laboratory With \$6.5mm Fixed Labor Pool

Project Based Work Fluctuations +/- 20%

Traditionally Dealt With Fluctuations Utilizing High Cost
Overtime and Second and Third Shifts

Overtime Rate Was 18% of Salaries or \$1.17mm annually

Employee Turnover Rate Was Close to 7% Per Year

Major Reasons for Turnover Was “Burnout”

Internal Surveys Indicated 31% of Labor Pool Dissatisfied
With Their Job

US Biosystems

Flexible Staffing Solutions

Flexible Staffing Targeted 10% of the Workforce
(Varied 5%-15% During Year 1)

Overtime Rate Dropped From 18% to 4%
(\$910,00 reduction)

Flexible Staffing Costs Averaged \$710,000 annually
(Overall Salary Related Cost Savings \$200,000)

Employee Turnover Rate Dropped From 7% to 2%

Internal Surveys Indicated 9% of Labor Pool Dissatisfied
With Their Job (Dropped From 31%)

Summary

Institutionalizing Data and Implementing An Electronic Data Management Strategy Has Many Benefits and Substantial Return on Investment

Process Re-Engineering That Is Aligned With Customer Expectations Can Have Transformational Value

A Flexible Staffing Model Can Increase Customer Satisfaction, Improve Employee Satisfaction and Transform A Traditional Fixed Expense To A Variable Expense

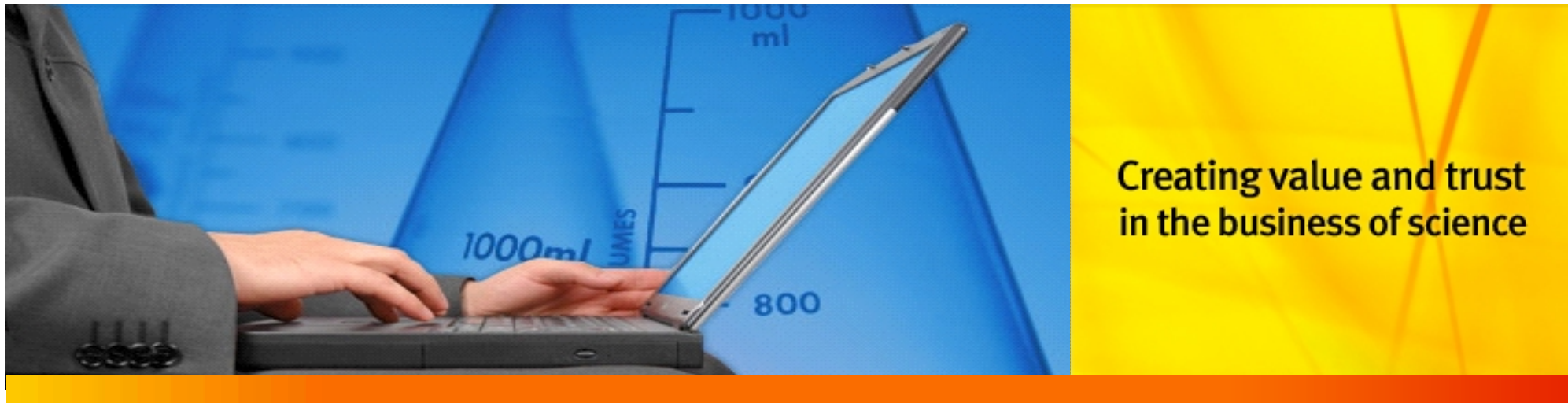
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