ARDEC's Quest for Excellence

Mary Manser – Director, Financial Management

6th Annual IBM Cognos Government Forum

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Bottom Line Up Front

- 2007 Malcolm Baldrige National Quality Award Recipient
- It's a journey – not a destination
- External feedback accelerates excellence
- Baldrige framework provides balanced approach
- Integration of best practices amplifies benefits
- Learning from others invaluable

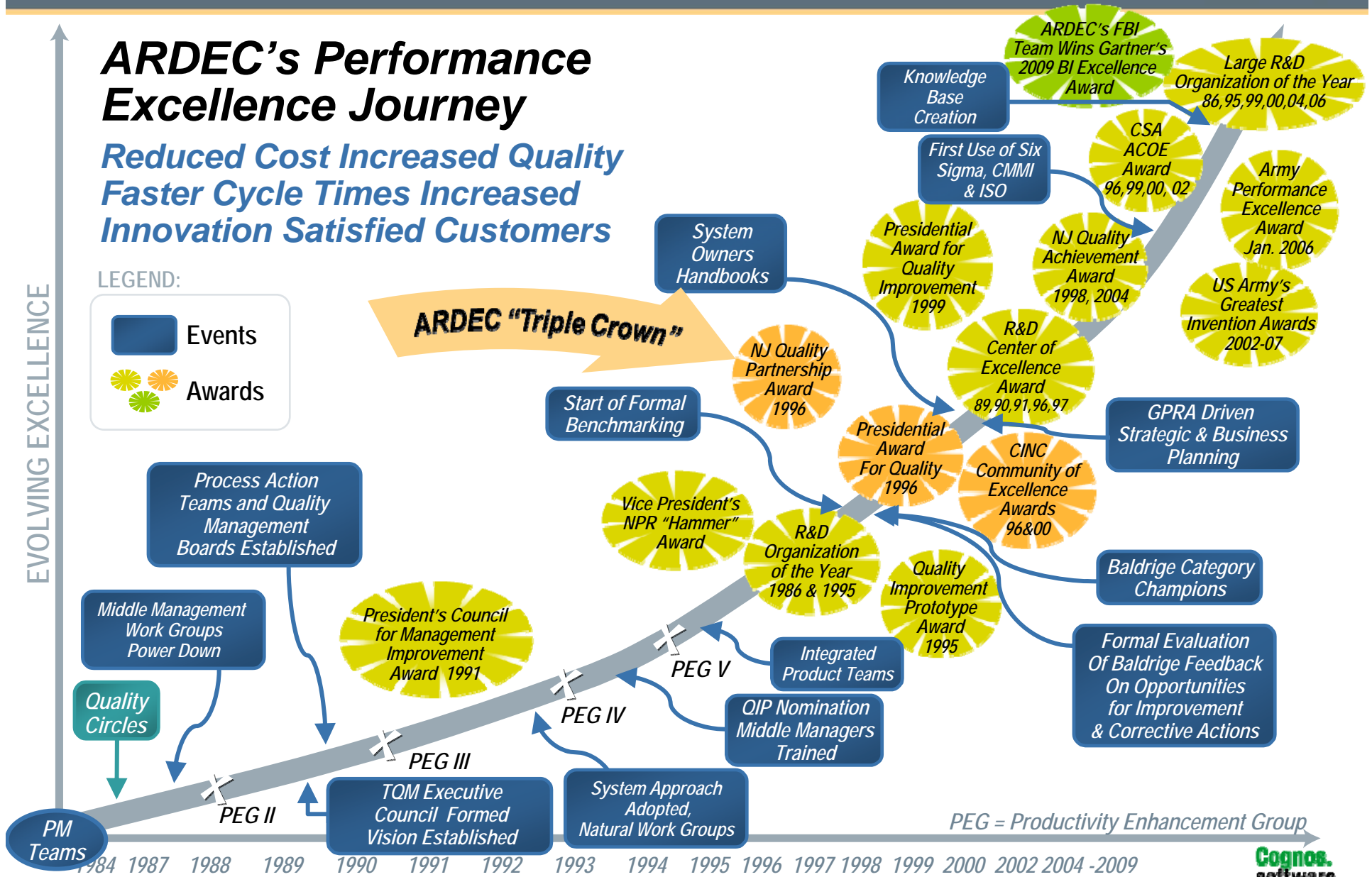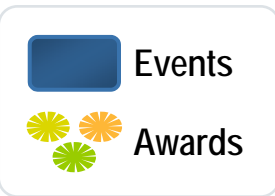*ARDEC will always be in the state of 'becoming'*

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ARDEC's Performance Excellence Journey

Reduced Cost Increased Quality Faster Cycle Times Increased Innovation Satisfied Customers

EVOLVING EXCELLENCE

LEGEND:

Events

Awards

ARDEC "Triple Crown"

ARDEC's FBI Team Wins Gartner's 2009 BI Excellence Award

Knowledge Base Creation

Large R&D Organization of the Year 86,95,99,00,04,06

First Use of Six Sigma, CMMI & ISO

CSA ACOE Award 96,99,00, 02

Army Performance Excellence Award Jan. 2006

System Owners Handbooks

Presidential Award for Quality Improvement 1999

NJ Quality Achievement Award 1998, 2004

US Army's Greatest Invention Awards 2002-07

NJ Quality Partnership Award 1996

R&D Center of Excellence Award 89,90,91,96,97

Start of Formal Benchmarking

Presidential Award For Quality 1996

CINC Community of Excellence Awards 96&00

GPRA Driven Strategic & Business Planning

Vice President's NPR "Hammer" Award

Process Action Teams and Quality Management Boards Established

R&D Organization of the Year 1986 & 1995

Quality Improvement Prototype Award 1995

Baldrige Category Champions

Middle Management Work Groups Power Down

President's Council for Management Improvement Award 1991

Integrated Product Teams

Formal Evaluation Of Baldrige Feedback On Opportunities for Improvement & Corrective Actions

Quality Circles

PEG V

QIP Nomination Middle Managers Trained

PEG IV

PEG III

PEG II

TQM Executive Council Formed Vision Established

System Approach Adopted, Natural Work Groups

PM Teams

PEG = Productivity Enhancement Group

1984 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2002 2004 -2009

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Understanding What is Important

BG Boddie – ARDEC Commander from 1993 - 1996

Brig. Gen. James W. Boddie

'The Soldier is Our Ultimate Customer'

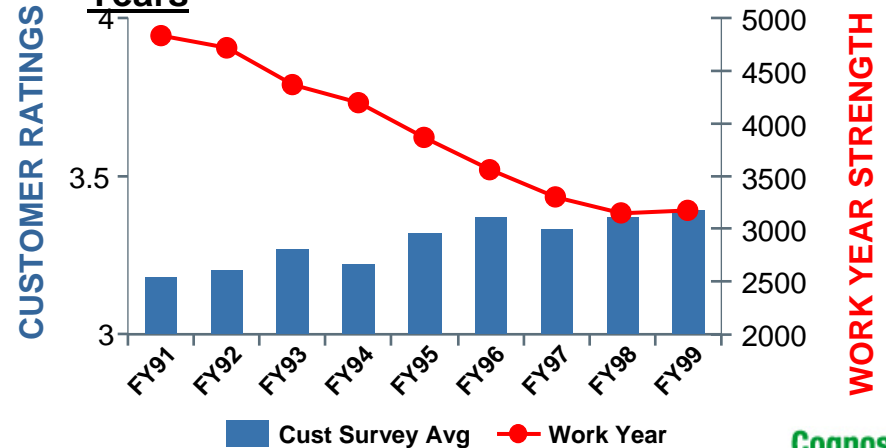| 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | ... | 2002 | 2003 | ... | 2007 | 2008 |

Close Call for ARDEC with Base Realignment and Closure

ARDEC Win's Baldrige-based "Triple Crown" Army, DoD and NJ State Awards

Submission of ARDEC's First Baldrige-based Application

'I want our customers to think of us like they do Jiffy Lube. When the customer comes in, they will know what work will be performed, how much it will cost and when it will be finished.'

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Deploying What is Important

Average Workforce Age: 48

FY91- FY99 Revenue and Work Year Analysis

Dollars ($M) / WORK YEAR STRENGTH

FY91 FY92 FY93 FY94 FY95 FY96 FY97 FY98 FY99

■ Army   ■ Non-Army   ■ Carryover   ● Work Year

BG Boddie – ARDEC Commander from 1993 - 1996

1993 | 1995 | 1996 | 1997 | 1998 | 1999 | ... | 2002 | 2003 | ... | 2007 | 2008

Close Call for ARDEC with Base Realignment and Closure

ARDEC Win's Baldrige-based "Triple Crown" Army, DoD and NJ State Awards

Creation of Business Units for Product-based Financial Solvency, Reinvention Waiver To Allow Hiring to Budget

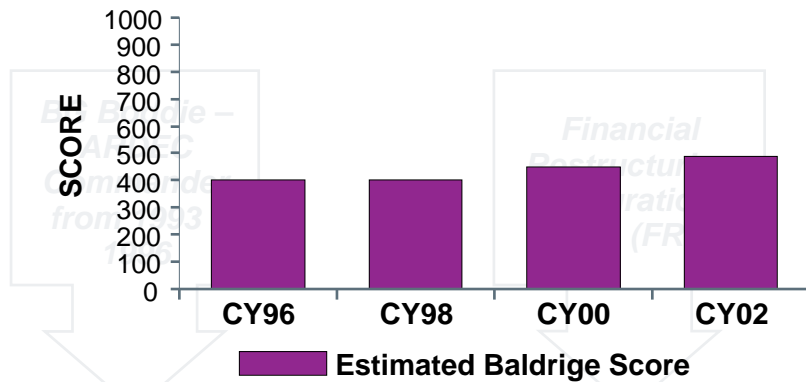*Submission of ARDEC's First Baldrige-based Application*

ARDEC Customer Ratings & Work Years

CUSTOMER RATINGS / WORK YEAR STRENGTH

FY91 FY92 FY93 FY94 FY95 FY96 FY97 FY98 FY99

■ Cust Survey Avg   ● Work Year

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Integrating What is Important

BG Boddie – ARDEC Commander from 1993 - 1996

Financial Restructuring Integration Team (FRIT)

Six Sigma Evaluation of Organization, Extensive Competency Study, Strategic Facility Master Plan
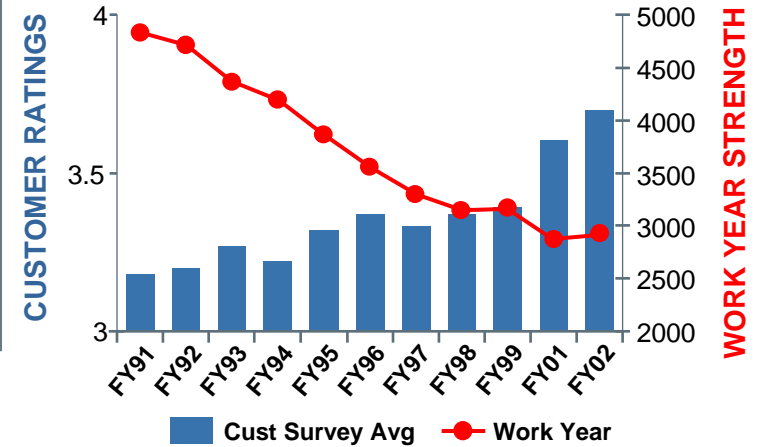
Implementation of a Competency Based Organization, Balanced Score Cascade (Results) , Fully Integrated Planning

Lean Six Sigma Study Indicates Minor Realignment, Con Ops Study (Ongoing) for More Effective and Efficient Horizontal Integration of Key Processes and Vertical Competency Structure

| 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | ... | 2002 | 2003 | ... | 2007 | 2008 |

Close Call for ARDEC with Base Realignment and Closure

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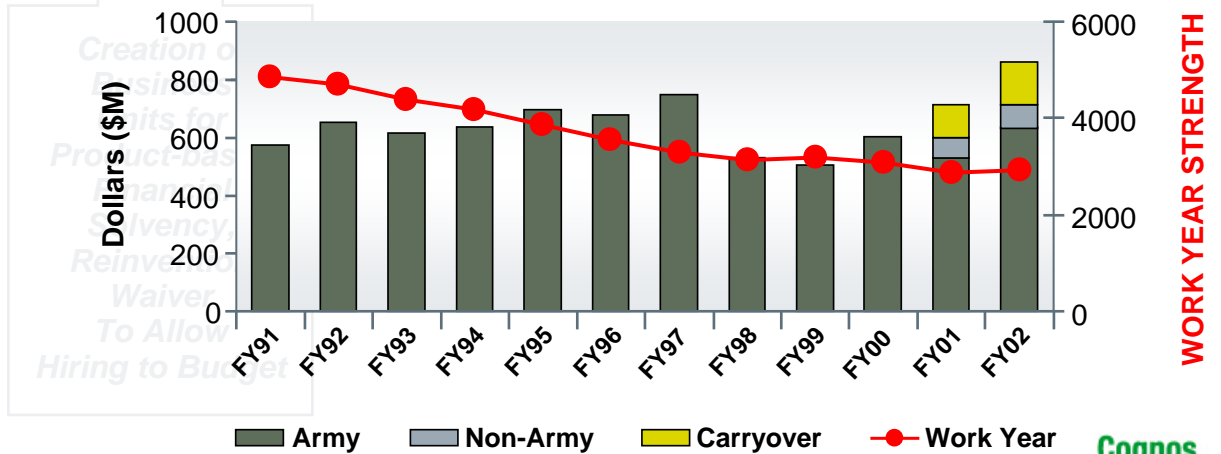
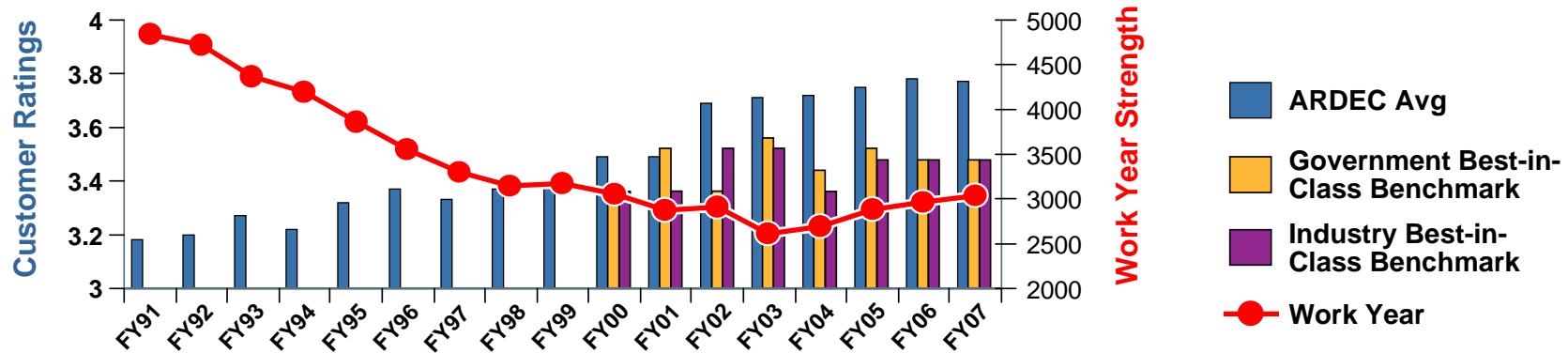**Submission of ARDEC's First Baldrige-based Application**
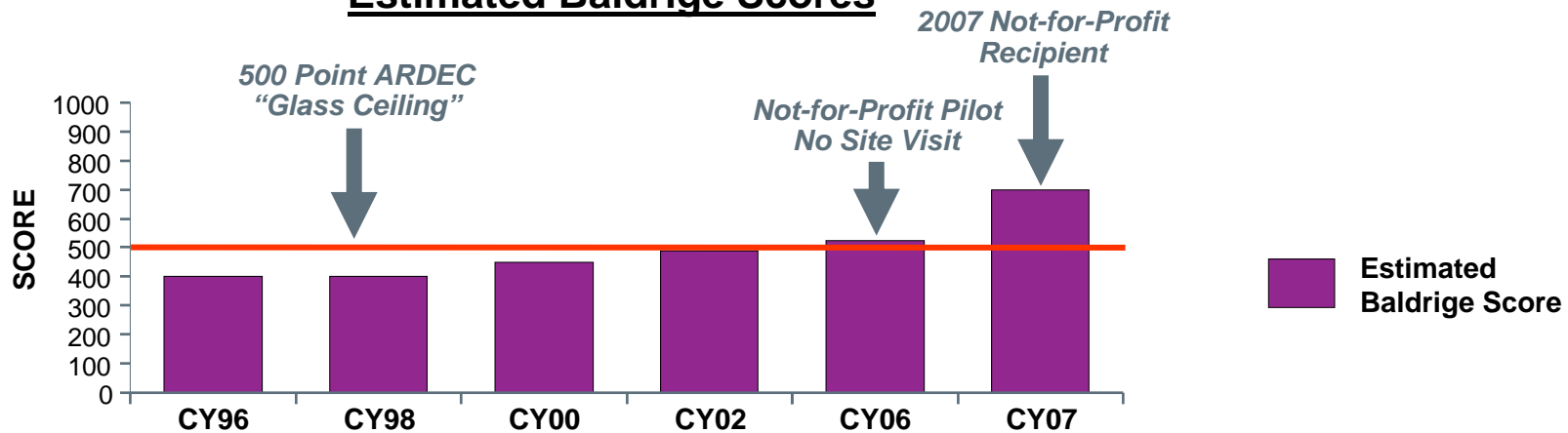
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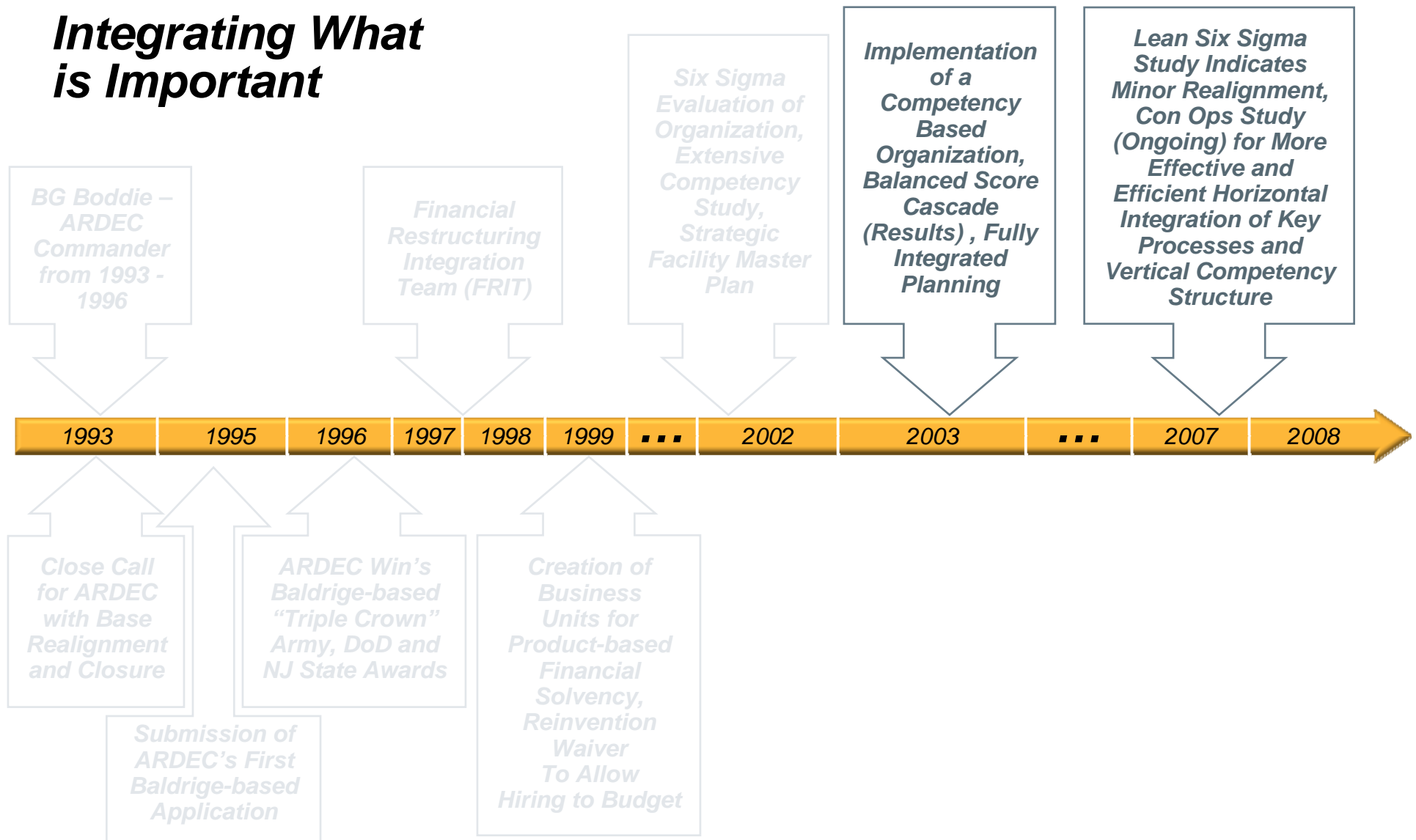
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Integrating What is Important for Optimum Results

ARDEC Customer Ratings, Benchmarks & Work Years

Estimated Baldrige Scores

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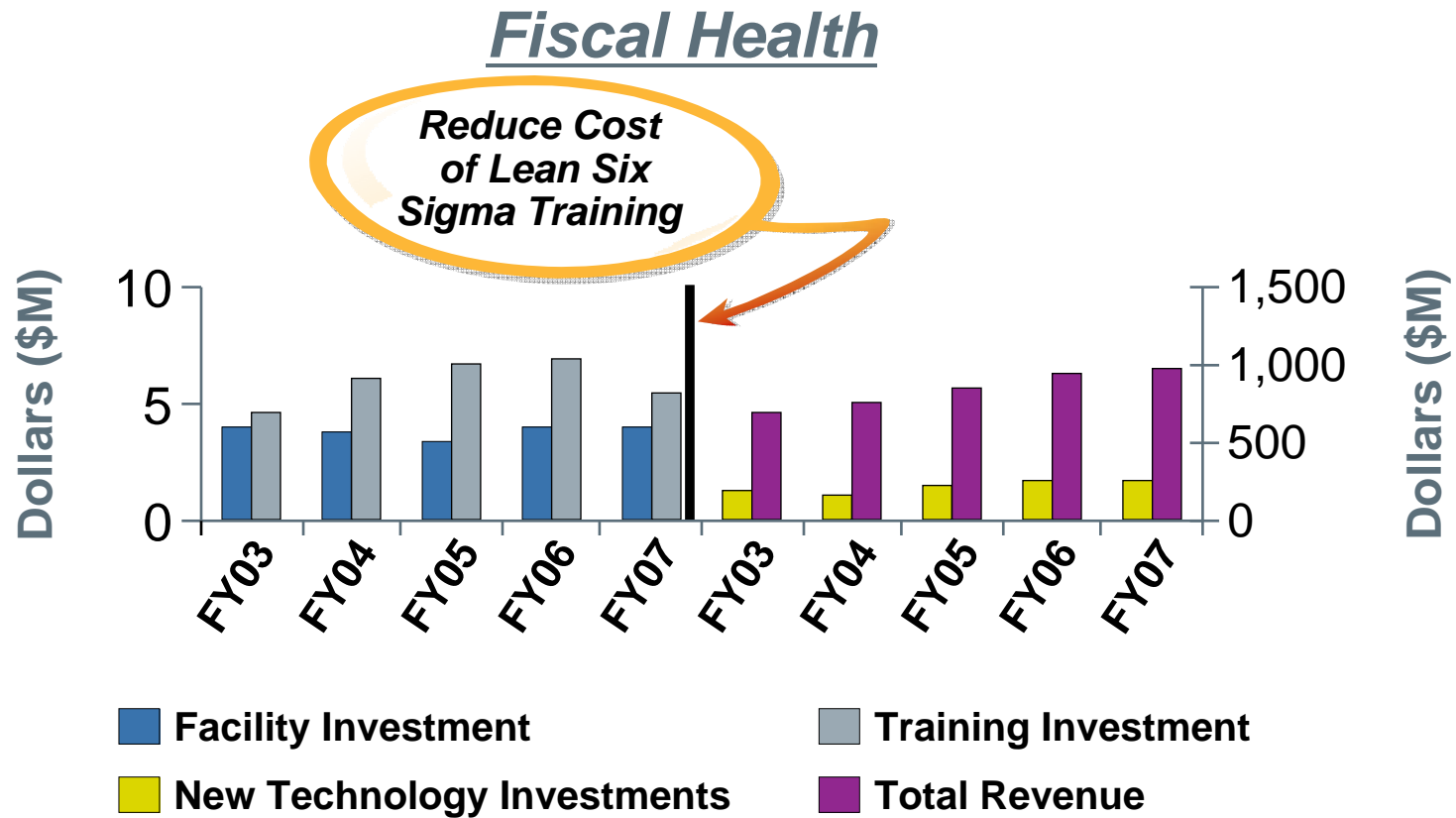
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Integrating What is Important for Optimum Results

Fiscal Health

Reduce Cost of Lean Six Sigma Training

Legend:
- **Facility Investment** (blue)
- **Training Investment** (gray)
- **New Technology Investments** (yellow)
- **Total Revenue** (purple)

Integrating What is Important for Optimum Results

Average Age: 43

FY91- FY99 Revenue and Work Year Analysis

Effectiveness/ Efficiency

Dollars ($M) — 1400, 1200, 1000, 800, 600, 400, 200, 0

WORK YEAR STRENGTH — 6000, 5000, 4000, 3000, 2000, 1000, 0

FY91 FY92 FY93 FY94 FY95 FY96 FY97 FY98 FY99 FY00 FY01 FY02 FY03 FY04 FY05 FY06 FY07

■ **Army**   ■ **Non-Army**   ■ **Carryover**   ●— **Work Year**

Diversity in Markets Integrated Business Development

Carryover Supports Business Sustainability
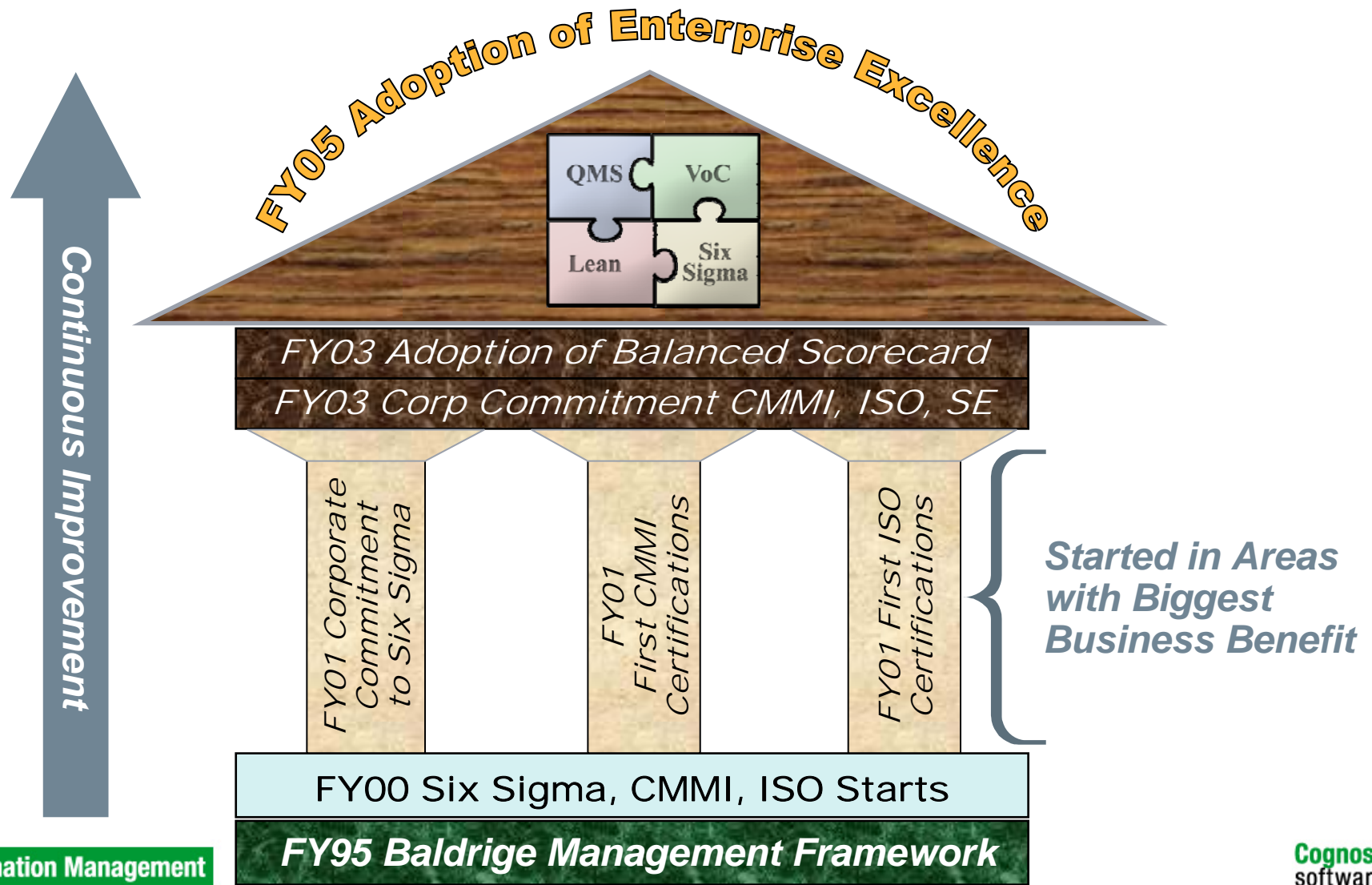
Productivity, Effectiveness, Efficiency

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Summary of Critical Success Factors

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Enterprise Excellence Integrates Best Practices

Continuous Improvement

FY05 Adoption of Enterprise Excellence

QMS | VoC | Lean | Six Sigma

FY03 Adoption of Balanced Scorecard

FY03 Corp Commitment CMMI, ISO, SE

FY01 Corporate Commitment to Six Sigma

FY01 First CMMI Certifications

FY01 First ISO Certifications

Started in Areas with Biggest Business Benefit

FY00 Six Sigma, CMMI, ISO Starts

FY95 Baldrige Management Framework

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ARDEC Enterprise Excellence

Do Things Consistently

Do the Right Thing

Baldrige as management framework; Controlled, repeatable, tailorable processes (CMMI, ISO); Balanced Scorecard

Systems Engineering for common understanding of customer requirements

Drive efficiency – Fewer steps

Drive effectiveness

QMS | VoC

Lean | Six Sigma

Do Things Right

ARDEC Leadership Walks the Talk – Director's Black Belt Project

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Baldrige as Management Framework Of QMS

Accelerates Continuous Improvement

Leadership

Process Mgmt

Strategic Planning

Business Results

Human Capital

Customer & Market Focus

Info, Analysis, Knowledge Mgmt

External Feedback For Gap Analysis

Review Feedback Report and Revised BNQP Criteria	→	Identify & Work Opportunities for Improvement

CONTINUOUS IMPROVEMENT LOOP

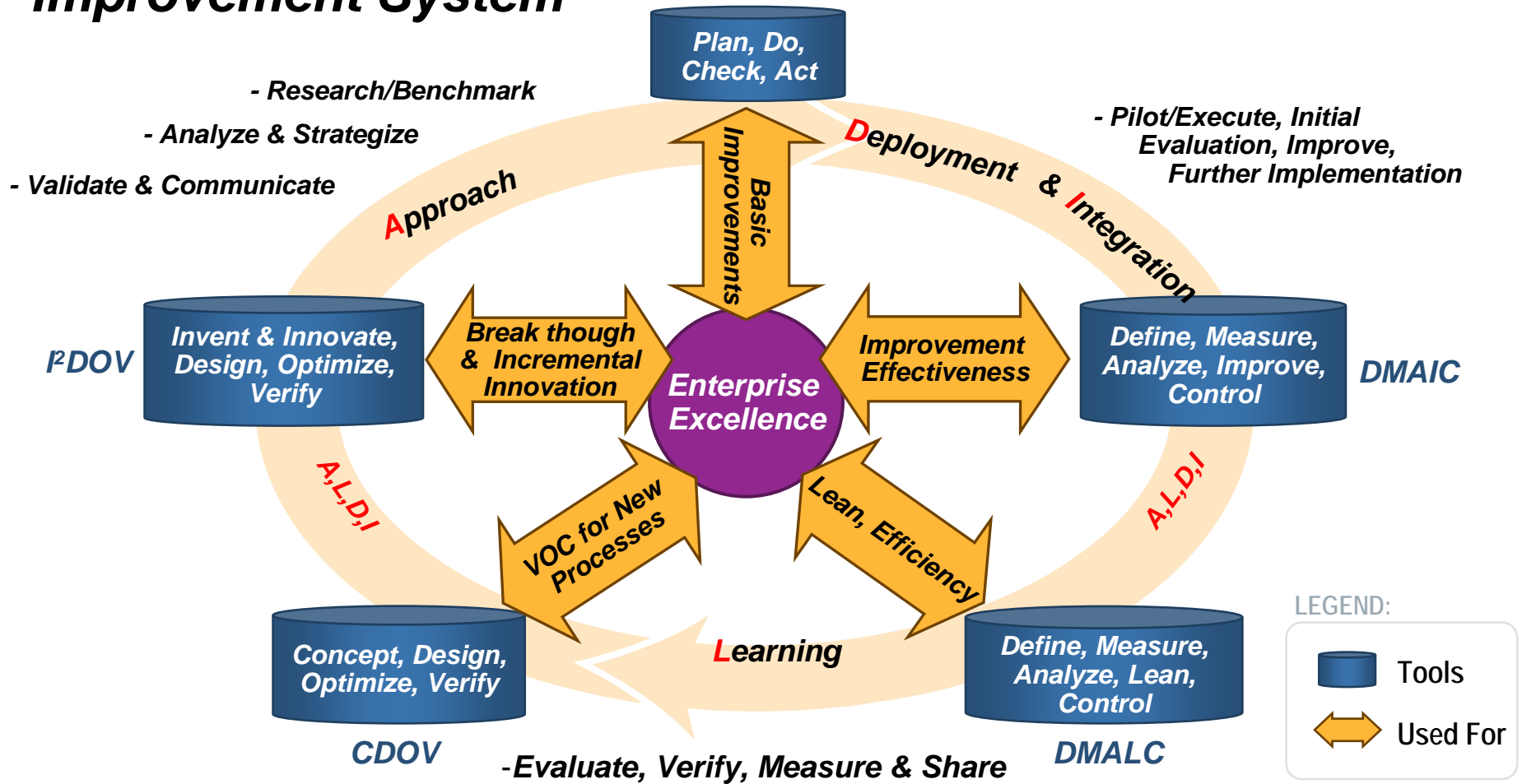| External Evaluation	←	Communicate & Implement Improvements

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Integrated & Aligned Planning & Results
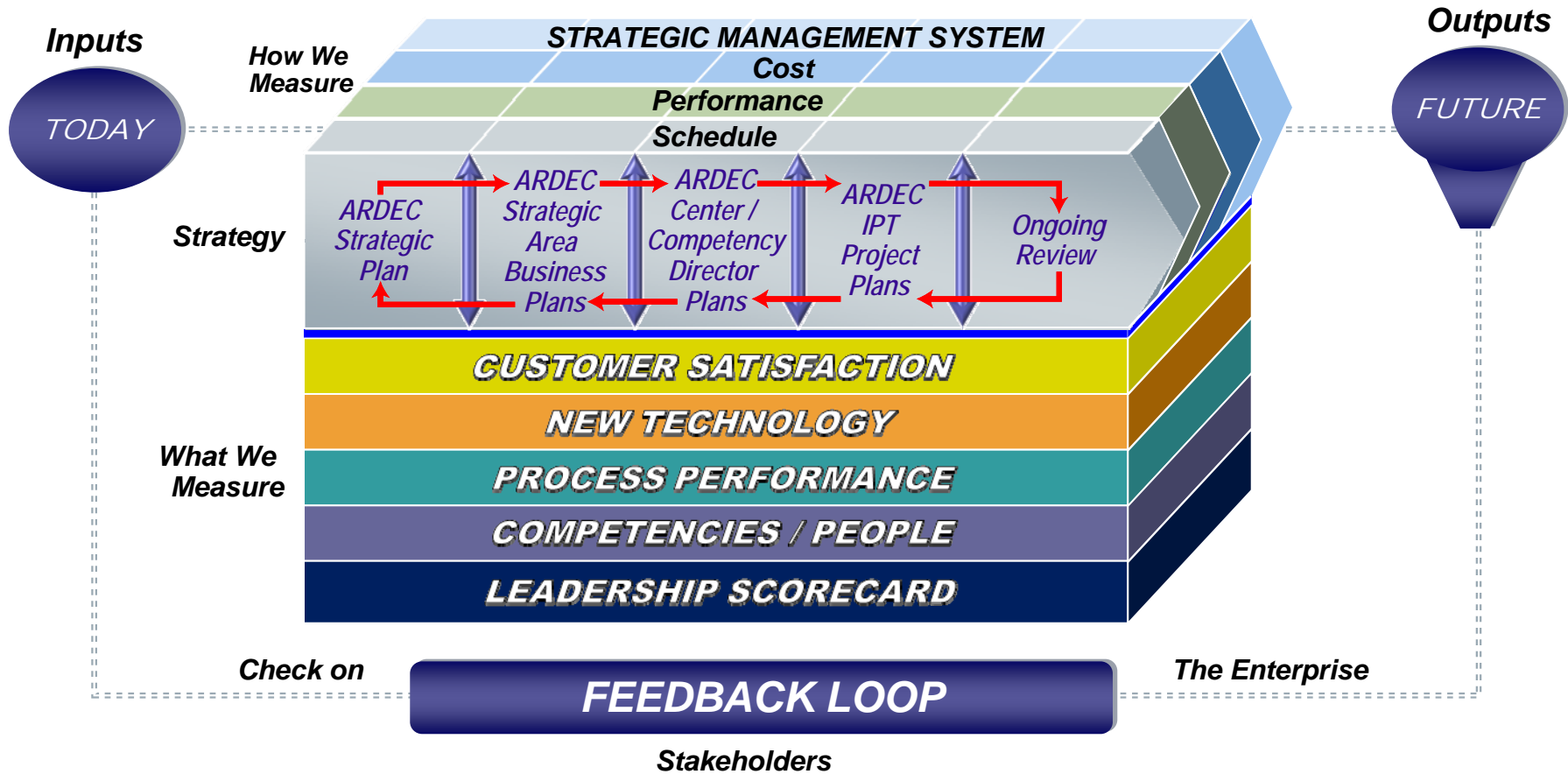
Workforce has a Clear Line-of-Sight of What is Important

Improvement System

Plan, Do, Check, Act

- **Research/Benchmark**
- **Analyze & Strategize**
- **Validate & Communicate**

Approach

Basic Improvements

Deployment & **I**ntegration

- **Pilot/Execute, Initial Evaluation, Improve, Further Implementation**

I²DOV

Invent & Innovate, Design, Optimize, Verify

A,L,D,I

Break though & Incremental Innovation

Enterprise Excellence

Improvement Effectiveness

Define, Measure, Analyze, Improve, Control

DMAIC

A,L,D,I

VOC for New Processes

Lean, Efficiency

Concept, Design, Optimize, Verify

CDOV

Learning

- **Evaluate, Verify, Measure & Share**

Define, Measure, Analyze, Lean, Control

DMALC

LEGEND:

Tools

Used For

The Right Tool at the Right Time to Do it Right the First Time

Path to Optimum Results

Phase I: Launch & Management Buy-In	Phase II: Full Scale Deployment	Phase III: Self Sustain for Continuous Improvement

Burning Platform Initiated by Major Customer

ARDEC Leadership Black Belt (BB) Trained & Working Projects

Leadership Deploys ARDEC Enterprise Excellence Plan

Begin Development of Design For Lean Six Sigma (DFLSS) Course

2000	2001	2002	2003	2004	2005	2006	2007

Leadership Transition to ARDEC

LSS Competency Office Established & Initiated Transactional (Administrative) Green Belt (GB) Training

GB Training & Consulting Moved In-House

LSS Center of Excellence for all R&D Labs

Army Performance Excellence Award

"[ARDEC] is one of the Army leaders in Lean Six Sigma and serves as a benchmark for other Army organizations to emulate."

– Francis J. Harvey, Secretary of the Army, 16 January 2006

Our Six Sigma Journey Continues…

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Lean Six Sigma Results

Training and Certification
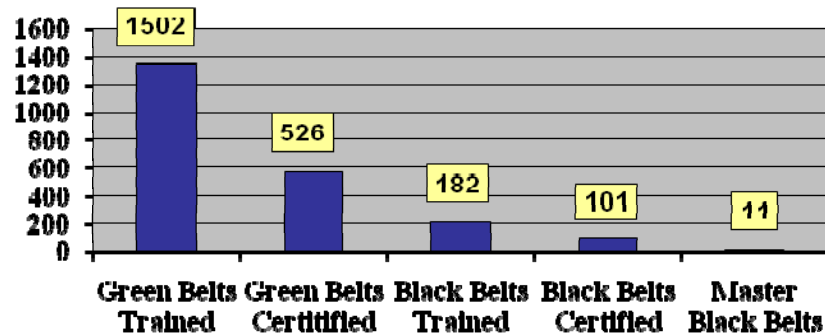
Fiscal Year	ARDEC Cost Benefit / Avoidance ($M)
FY01	$37.76
FY02	$1,511.43
FY03	$670.12
FY04	$105.17
FY05	$541.73
FY06	$58.04
FY07	$300.10
FY08	$280.10
Total	**$3,224.35M**

By Baldrige Category

	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	Cat 6	Total
Green Belt - Completed	2	8	1	5	17	112	145
Green Belt - On-going		4	4	22	13	155	198
Black Belt - Completed			2	1	7	33	43
Black Belt - On-going	3	1		5	5	31	45
TOTAL	**5**	**13**	**7**	**33**	**42**	**331**	**431**

Processes Impacted by LSS Projects

- Engineering
- Production
- Business
- Management
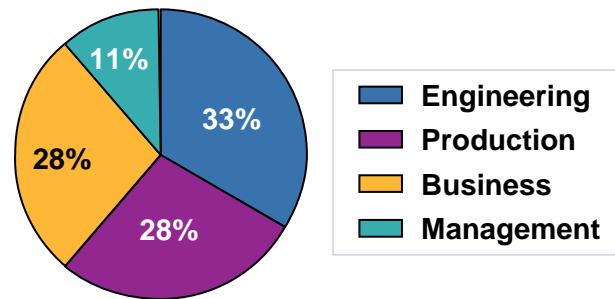
Q$SR Improvements:
- *Quality (91%)*
- *co$t (70%)*
- *Schedule (67%)*
- *Risk (84%)*

ARDEC Actively Leans Our Lean Six Sigma

FM's 6 Sigma Deployment Develops BI Strategy

- Discovery through the use of Baldrige and 6 Sigma
  - Director's 6 Sigma Black Belt identifies:
    - Problems:
      - Low customer satisfaction
      - No Common User Interface (CUI)
      - Disjointed requirements generation
    - Challenges:
      - Non-System owner
      - User adoption BI tools
   - Complex workflows
      - Report quality
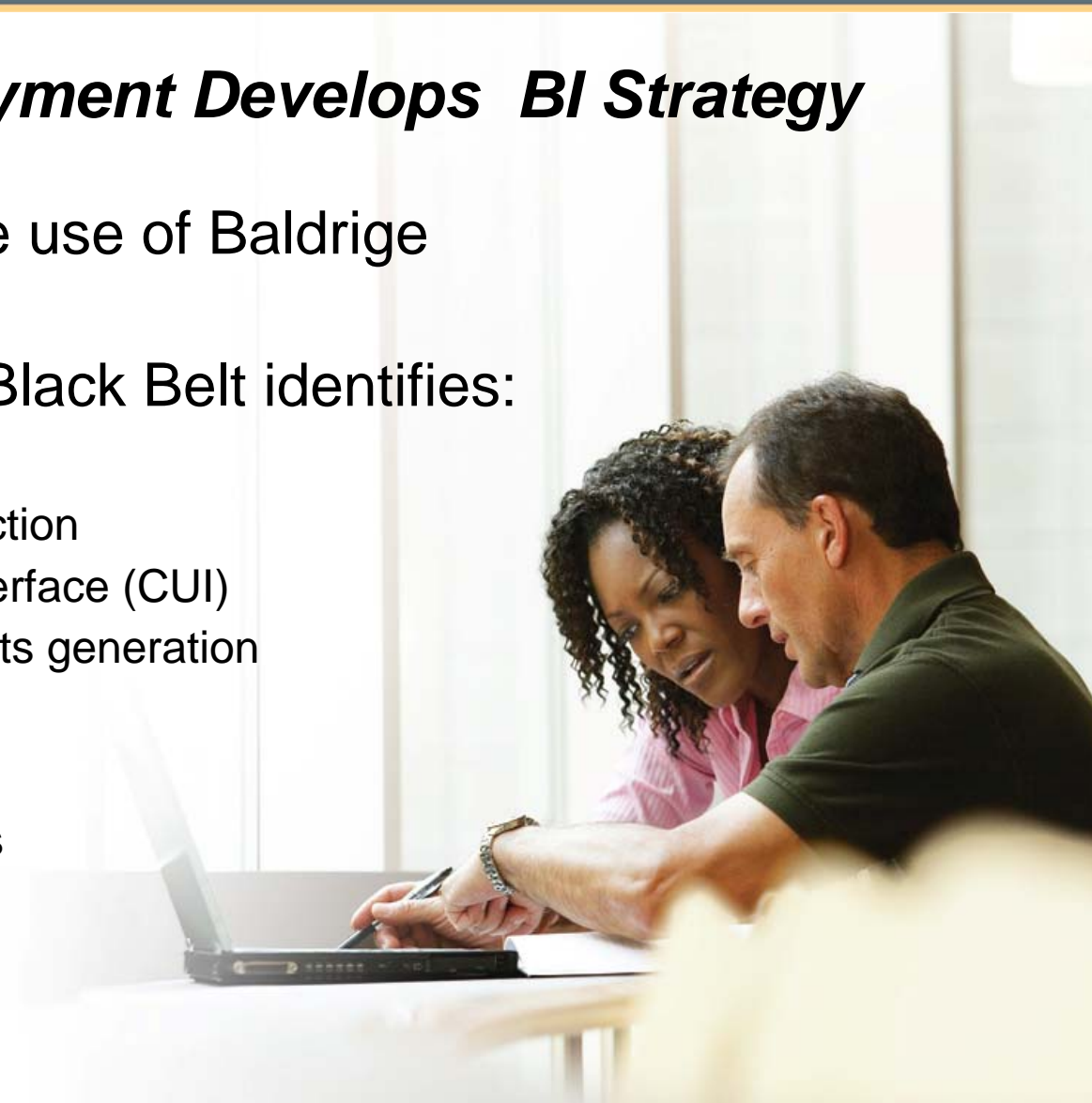
BI Strategy Evolves

- 2 Green Belt Projects spawned from Black Belt results:
  - CUI – Financial Integrated Reporting Environment (FIRE)
    - SAP Integration
      - SAP and Cognos portals used to integrate SAP BW w/Cognos as single repository
    - Upgrade to Cognos BI v 8.3 w/features designed specifically to broaden adoption
      - User driven report building, self-service query building, browser-based interfaces
  - BICC – Financial Management Requirements Panel (FMRP)
    - Best practice propagation
    - Non-ownership of ERP system still exists
      - FBI staff dedicated part time to internal BI consultancy and creation/ dissemination of best practices
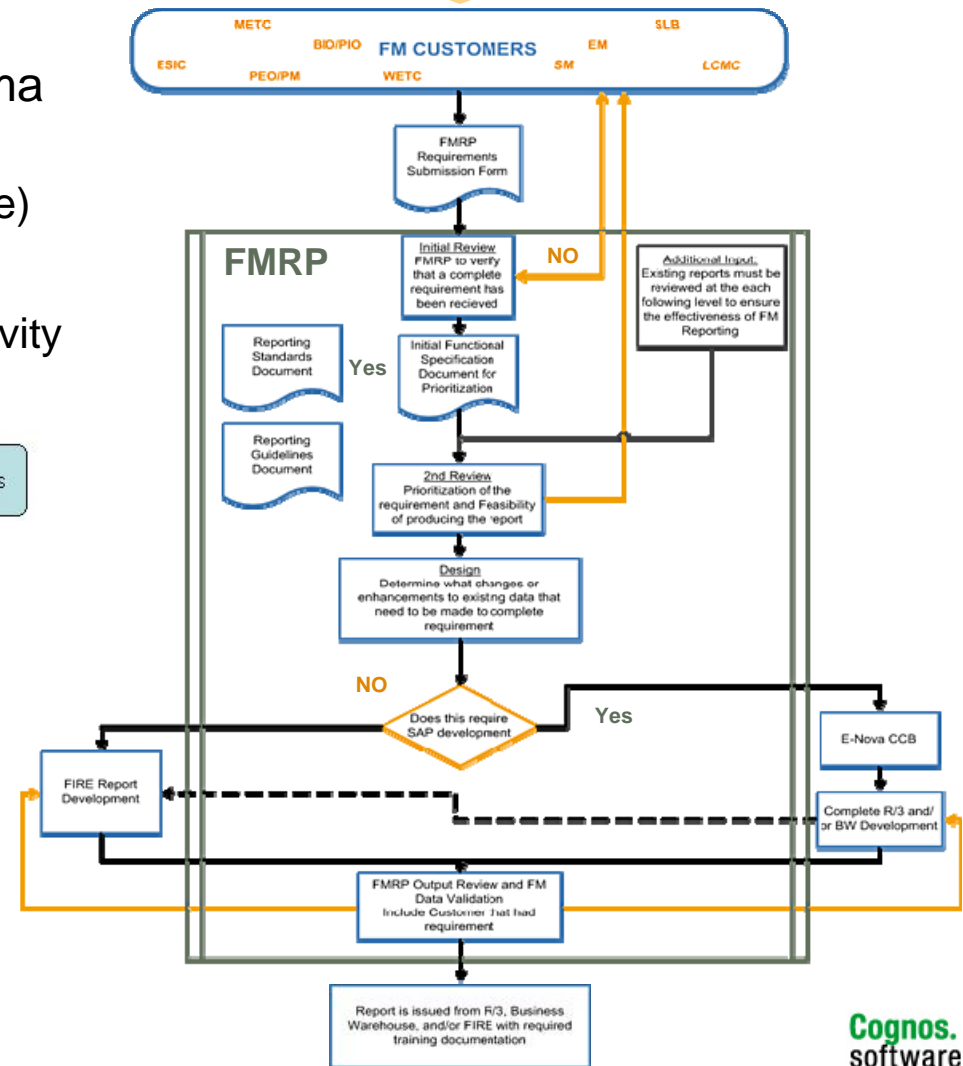   - Standardized report creation

Information Managen
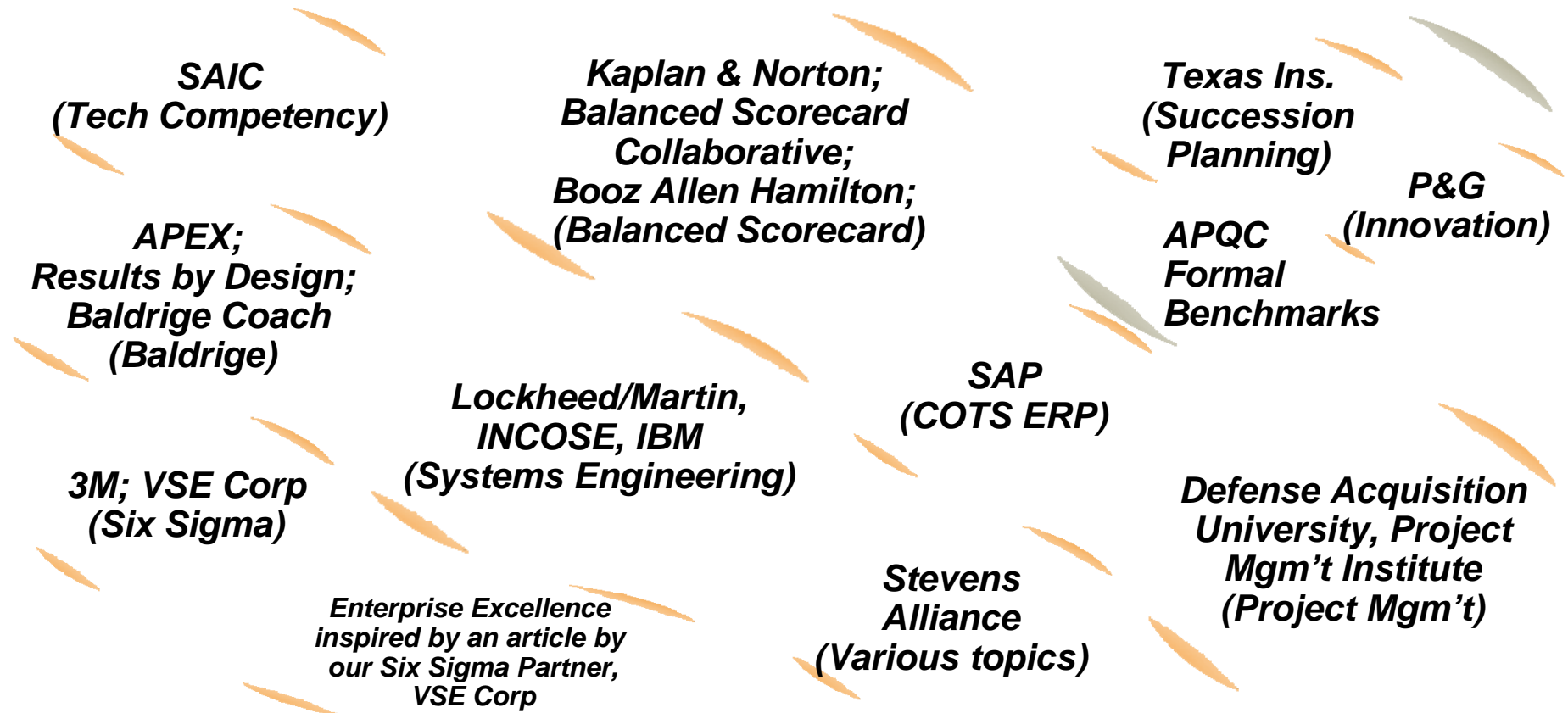
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BI Benefits

- **Tangible Business Value**
  - Return on Investments per 6 Sigma
    - CUI = $208K year (cost avoidance)
    - BICC = $265K year (cost avoidance)
  - Nucleus Research study
    - ROI = 146% @yr increase productivity
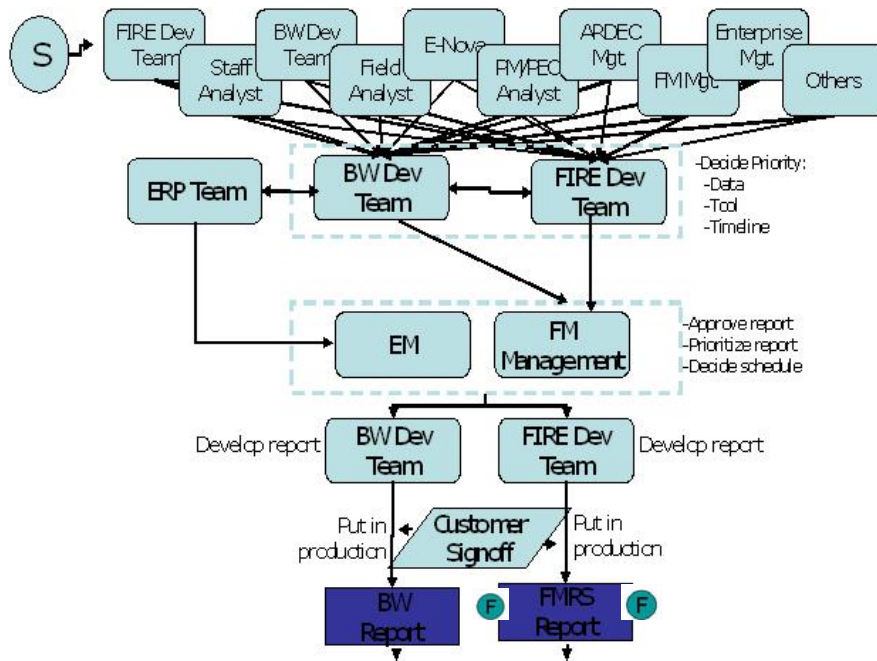
Financial Management Requirements Process (FMRP) Map

Learn from Others Adopt Industry Best Practices

SAIC
(Tech Competency)

Kaplan & Norton;
Balanced Scorecard
Collaborative;
Booz Allen Hamilton;
(Balanced Scorecard)

Texas Ins.
(Succession
Planning)

P&G
(Innovation)

APEX;
Results by Design;
Baldrige Coach
(Baldrige)

APQC
Formal
Benchmarks

Lockheed/Martin,
INCOSE, IBM
(Systems Engineering)

SAP
(COTS ERP)

3M; VSE Corp
(Six Sigma)

Defense Acquisition
University, Project
Mgm't Institute
(Project Mgm't)

Enterprise Excellence
inspired by an article by
our Six Sigma Partner,
VSE Corp

Stevens
Alliance
(Various topics)

**Recent member of Baldrige Award Recipients Consortium,
The Association for Strategic Planning**

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Where we are TODAY

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ARDEC - the Role Model

Role Model

- Competency Management
- Learning Organization
- Knowledge Management
- Process Management
- Enterprise Excellence
- Human Capital
- Innovation
- Strategy
- Business Intelligence

Evidenced By

- No Known Peer
- 6th of 102 ASTD International
- Armaments Knowledge Base
- CMMI Maturity Level 5
- APQC Business Process Management Best-in-class
- $3.2 Billion Impact
- 2007 MBQA Recipient

First Federal Co-share First Non-Profit

- Top 10% in Overall Talent Maturity
- 13 Soldier Choice Awards
- Top 15% in Innovation
- Goodman Award

First Federal

- 2009 Gartner Business Intelligence Excellence

## The Cycles of Refinement Continue

What's Next for BI

- New Chapter

  - Extending BI to the entire site (650 to 3,500 users)

  - Increase use of time-dimensioned role based, self-serviced dashboards and scorecards
    - Performance Management Black Belt project for Senior Leaders dashboard

  - Increasing the use of alerts to dashboards, blackberries, emails and cell phones

  - Increase use and initiate changes based on user and system statistics and analyses which will be accomplished by the use of Genware.

  - Consolidation of current reports for a more effective product by a more efficient use of PM/BI/IT resources.

Additional projects identified weekly…..

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Why This is Important…
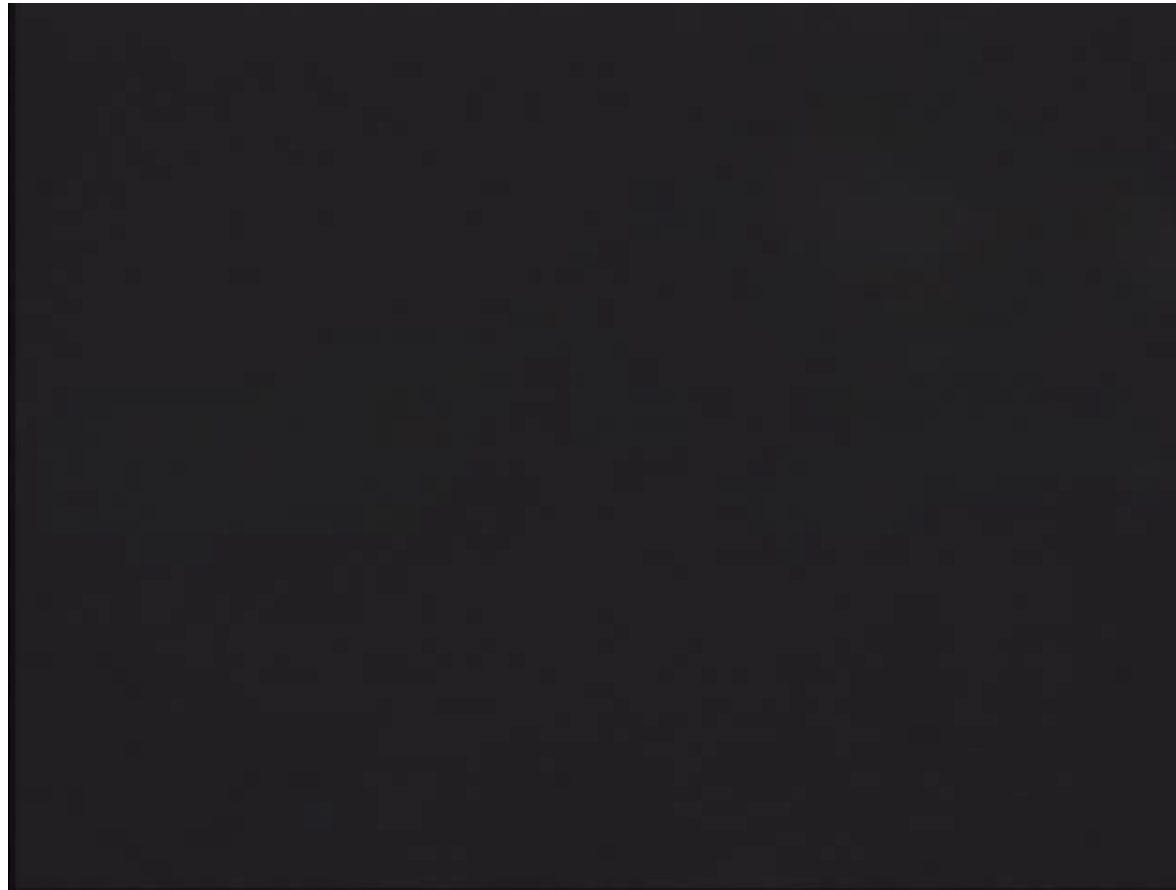
> *Warfighters' lives and the security of our Nation depend on our innovation, rapid response and quality of our products…*

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