

Driving Six Sigma Cultural Change within Quest Diagnostics

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Master Black Belt,
Quest Diagnostics

North Jersey Section
General Section Meeting
Wednesday March 19, 2008



Your Presenter

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| | |
|----------------|------------------------------------------------------|
| 2003 - Present | Master Black Belt, Quest Diagnostics |
| 2002 | Director of Quality, National Manufacturing |
| 2000 - 2001 | Process Engineering Mngr., Airtron, Northrop Grumman |
| 1997 - 2000 | Process Devel. Mngr., Amorphous Metals, AlliedSignal |
| 1996 | Sr. Process Eng. Amorphous Metals, AlliedSignal |
| 1991- 1995 | Process Eng. Amorphous Metals, AlliedSignal |

One of AlliedSignal's first wave of Black Belts - 1995



Who is Quest Diagnostics?

Leader in Providing Healthcare Insights and Solutions

Vision

Dedicated People Improving the Health of Patients through Unsurpassed Diagnostic Insights

Overview

- ❖ **\$5.3 B+ Revenue**
- ❖ **38,500+ Employees**
- ❖ **33 Regional Laboratories**
- ❖ **2 Esoteric Testing Centers**
- ❖ **2,000 Patient Service Centers**
- ❖ **140 Rapid Response Laboratories**
- ❖ **Serving 50% of US Hospitals & Physicians**



Touching ≈ 150 Million Patients Annually

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Our strategy and focus is simple

**PATIENTS
GROWTH
PEOPLE**



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Our Unique Value Proposition

- ✓ Six Sigma Quality
- ✓ Unparalleled Access and Distribution
- ✓ Innovative Science & Medicine
- ✓ Advanced Information Technology

Why Quest Diagnostics Deployed Six Sigma

Our Strategic Intent: To Be The Gold Standard in Healthcare Services

From a Survey by RW Johnson Foundation:

95% of physicians have witnessed a serious medical error...61% of health care providers surveyed...say they accept common errors as routine practice...

...“We want to see a Toyota in health care. That’s been one of the barriers in health care. No one can point to a health system and say ‘That’s how it ought to be done’...”

USA Today May 9, 2001

**Virtual Perfection
Is Demanded In Healthcare**



Does “Six Sigma” mean the same thing everywhere?



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There is a difference between a company that does Six Sigma and a Six Sigma company.

Our approach to driving Six Sigma Cultural Change within Quest Diagnostics



The People Side of Cultural Change

Too often we spend all our time on the “technical” side of a change—what has to happen by when, etc.

We ignore the people side of the change—how to help those who will have to change make the transition

There are three elements of the people side:

Communication: *the exchange of information both from you to others and from others to you*

Education: *providing people with what they will need to know*

before they successfully implement the desired changes

Participation: *involving people in the planning & execution of a change so they can develop shared ownership & commitment*



Five Influencing Strategies

**Reward and
Punishment**

**Assertive
Persuasion**

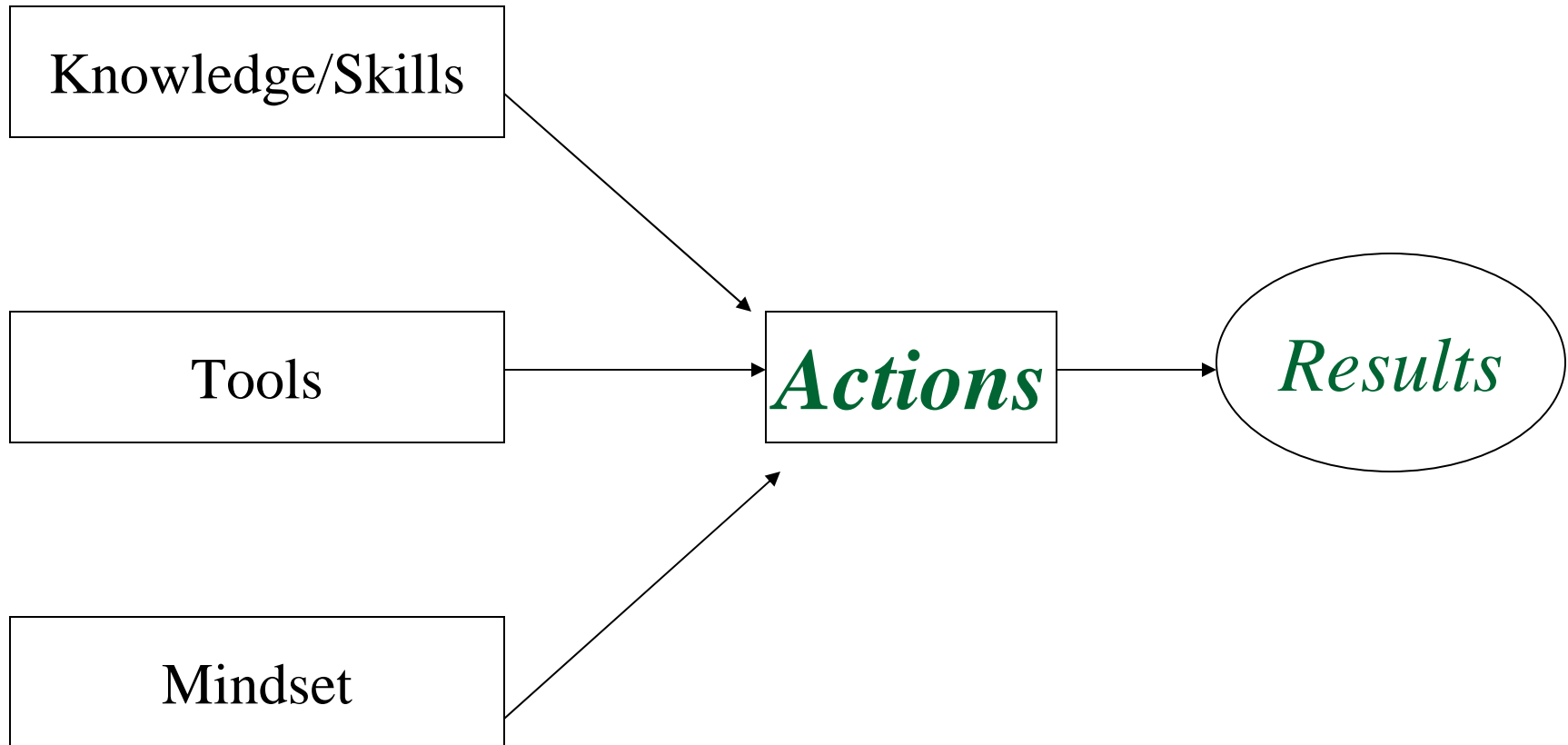
**Participation and
Trust**

Negotiation

**Creating a
common vision**

- If you have authority over the stakeholder, or a powerful sponsor, you may be able simply to tell the stakeholder to support your efforts.
- If you have a compelling case, you may be able to convince the stakeholder to support your project.
- If you involve the stakeholder in designing or implementing the change, they will be more likely to support it.
- If you have or can do something of value for the stakeholder, you can offer it in exchange for their agreement to support, or at least not oppose, your project.
- If you appeal to the stakeholder's ideals or higher values, they may sacrifice their personal or parochial interests for the greater good.

The Requirements for Results



Appropriate Actions are the key to Results

Methods Quest used to drive Six Sigma

1. Start from the Top Down with:
Communication, Education and Participation
2. Start with DMAIC:
Communication, Education and Participation
3. Tailor it our Situation with:
Communication, Education and Participation
4. Supplement the “Hard” tools w/ Behavioral Benchmarking & Improvement:
Communication, Education and Participation
5. Add Lean and DFSS:
Communication, Education and Participation

Top Down: Communication, Education and Participation

Communication: **Leaders:**

“Create A Vision, Articulate the Vision, Passionately Own that Vision, and Relentlessly Drive It To Completion.”

- Jack Welch

Education
and
Participation:

Personal Examples by our CEOs:

- *Ken Freeman became a certified BB*
- *Surya Mohapatra a certified GB*

*Unwavering Top Level
Commitment to
Six Sigma!!*



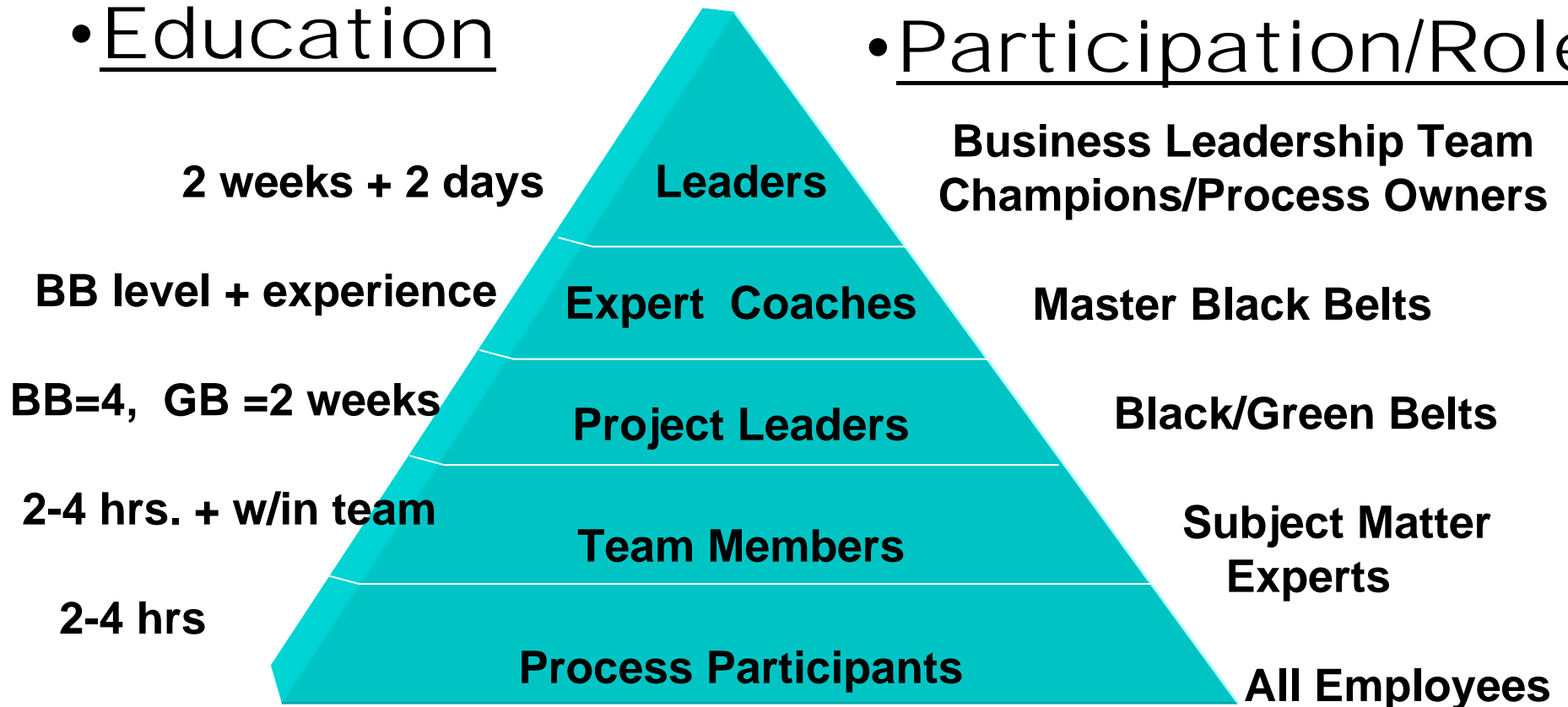
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Top Down: Education and Participation

*Six Sigma demands learning and accountability
at all levels of the organization*

• Education

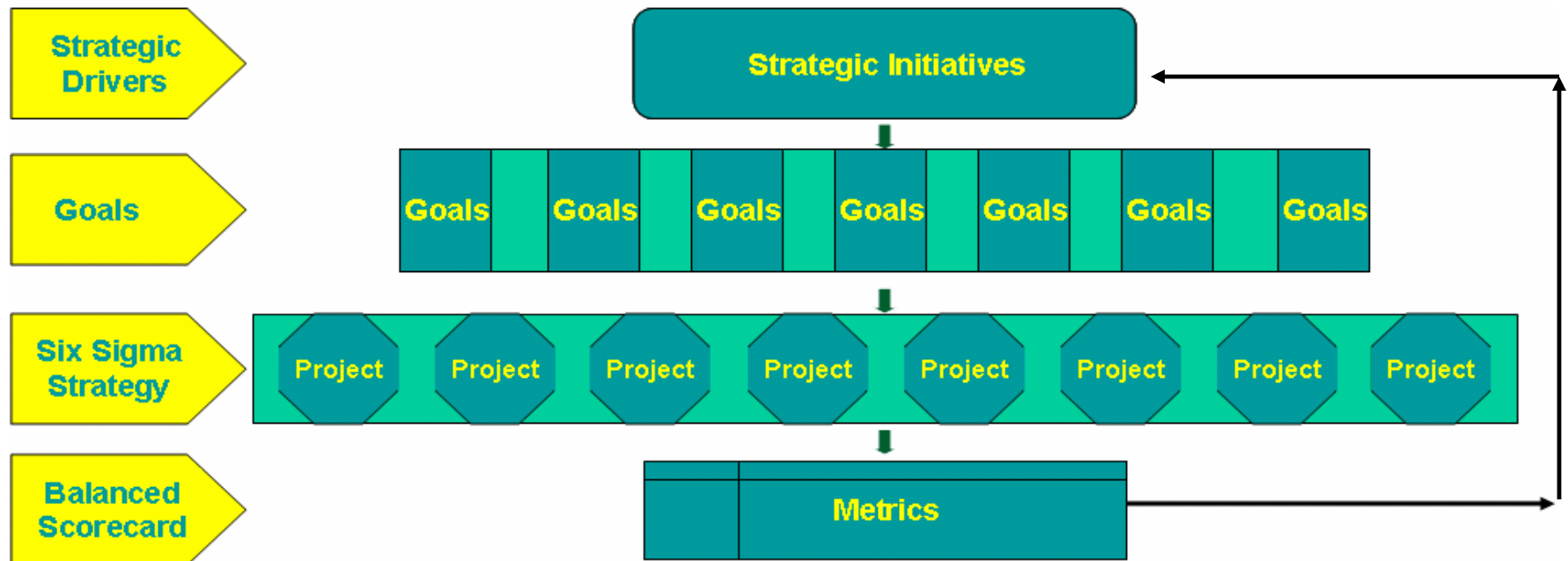
• Participation/Role



Top Down: Participation

Six Sigma project selection is key

- **Projects in top tier of impact and priority**
- **Best project descriptors:**
 - **strategic need, chronic problem area,**
 - **complex cross-functional scope, high impact**



Top Down: Education, Communication and Participation

First Phase Goals...

I
**Demonstrate Success
2000 - 2001**

- **Educate/Engage Leadership**
- **Provide Six Sigma Foundation for All Employees**
- **Establish Credible Project Results**
- **Create Improvement Foundation In Strategic Arenas**
- **Current & Future Leaders Begin Development as Black Belts**
- **Initiate All Regions/Major Business Units**

Tiered Communication, Education and Participation for all

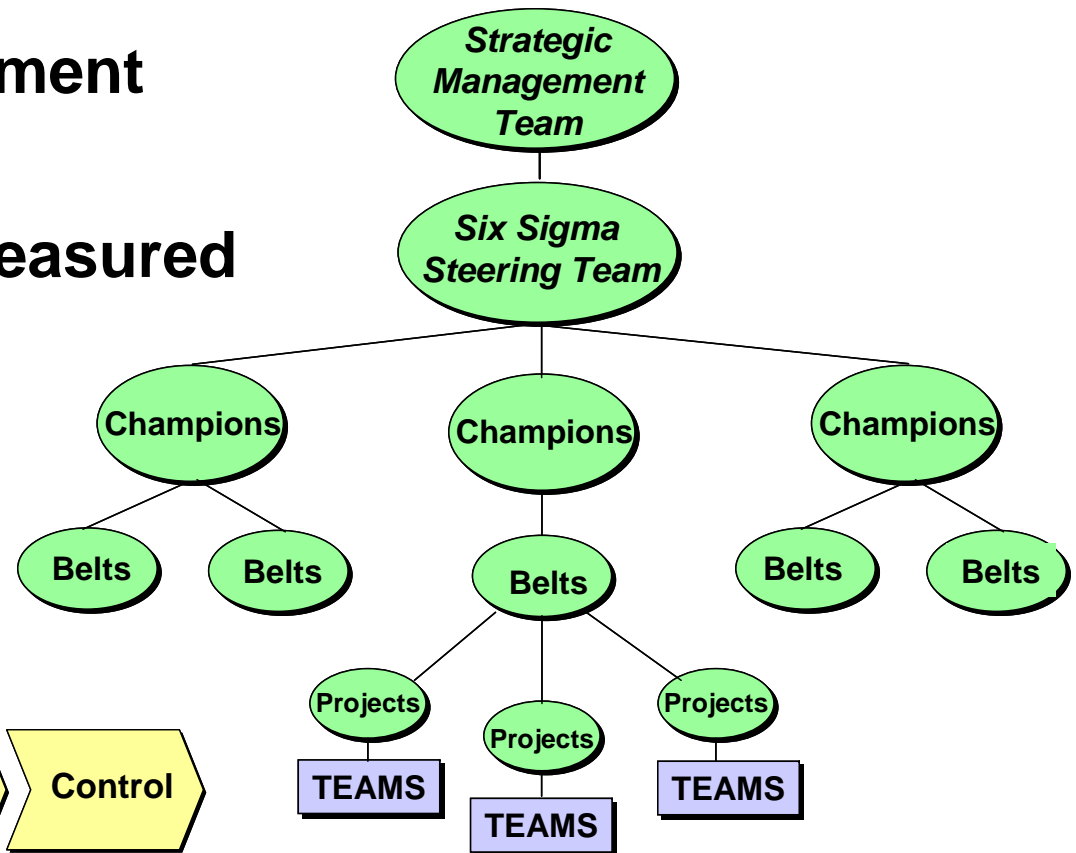
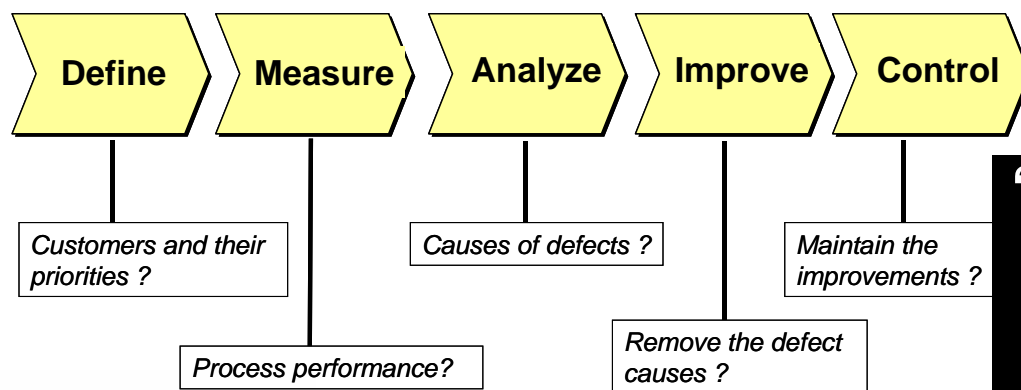


Start with DMAIC (Define, Measure, Analyze, Improve and Control)



First Pass - Traditional DMAIC Deployment

1. Classic DMAIC deployment
2. Full-time Black Belts
3. Project productivity measured
4. Project ROI measured
5. 2 year rotation



“Standard” model to start driving results, participation and education w/ Six Sigma



DMAIIC First: Education, Communication & Participation

Our BBs receive the most education, communicate to the most employees and engage the most participants in Six Sigma.

Learn/Become Expert In The Methodology and Approach

- In Class, In Application & Self-Directed Learning

Deliver Business Results Through High Impact Projects

- Jointly Accountable With Champion for Process Improvement and Financial Results
- Well-Documented Projects and Solutions - Maximize Benefit to Quest Diagnostics

Change Leadership: Ambassador For Six Sigma

- Demonstrate Success to the Organization
- Change Mindsets: Influence Business Unit/Functional Leadership, Peers & Front Line

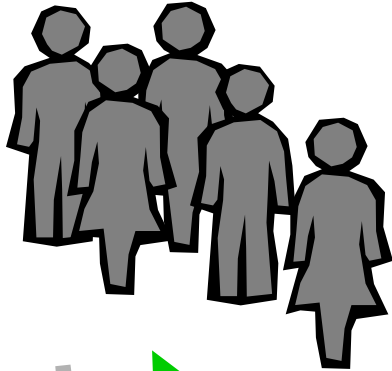


The Black Belt Role: full-time for min. of 18 mo's

DMAIC First: Education and Communication of a New Vocabulary & New Principles for All

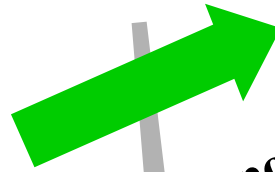
1. What do customers want?

Customer-Driven



VOC

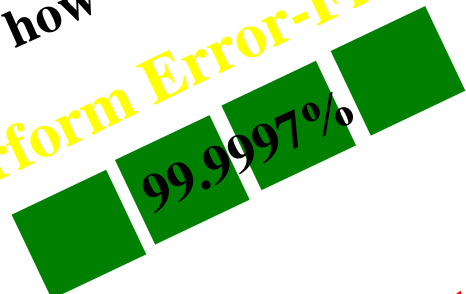
CTQ



3. How do we know how we're doing?

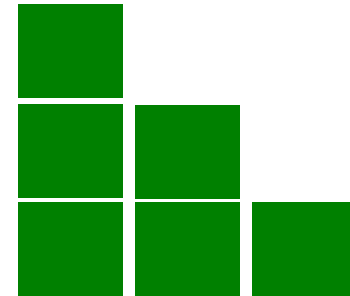
Variation

Perform Error-Free Work



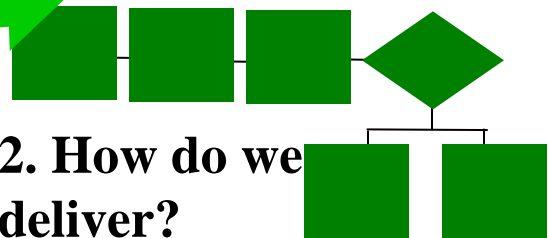
4. How do we improve?

Decide Based on Facts & Data



2. How do we deliver?

Process-Oriented



SIPOC

Dashboard

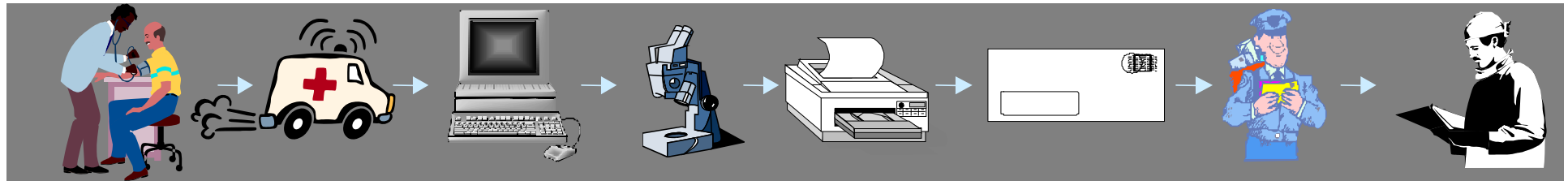
$$Y = f(x_1, x_2, \dots)$$

Continuously Improve



DMAIC First: Communication and Education for all that: "Six Sigma means Customer Focus"

Example: Draw to Test Report Process (data is for illustration and is not actual)



Physician
collects
specimen

Specimen
Transported
by Courier

Specimen
accessioned at
lab

Specimen is
tested and
result is
generated

Report is
created

Report is sent
to physician

Courier or
Post
Office
delivers
report

Physician
receives
report

**Six Sigma's focus on
the Customer
broadens
perspective.**

Internal View:

**Application on system - average time to
test a specimen - 68 minutes**

Client's View:

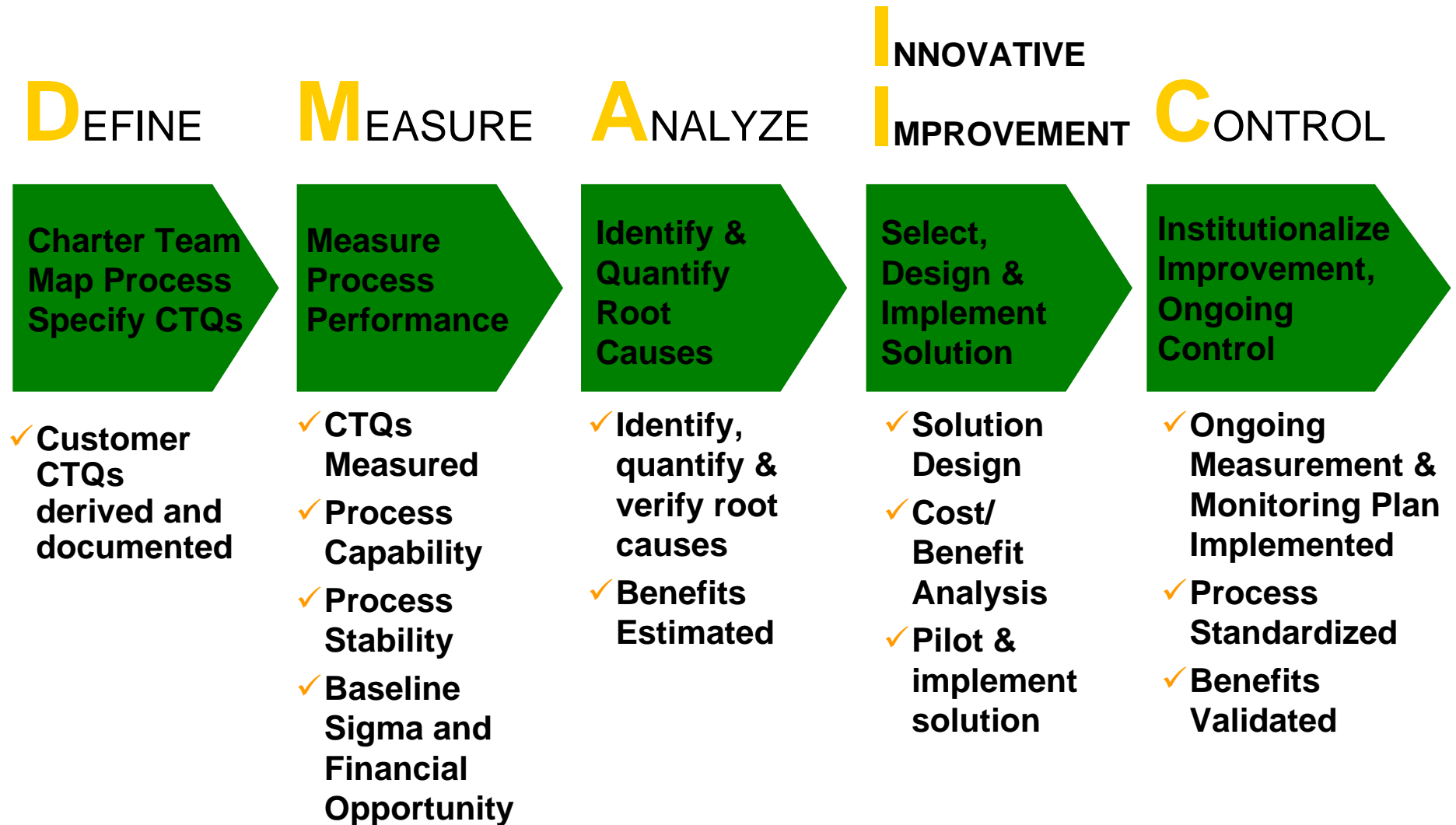
**" I fill out a requisition & collect the
specimen - 1 to 4 days later
(sometimes more than 1 week) I
receive the test results"**



***Tailor it to Our Situation,
then remember to:
Work on our Behaviors as well***



Tailor it to our Situation: Communication & Education



DMAIC: Tollgates at Quest Diagnostics

Tailor it to our Situation: Participation

Critical Strategic Objectives, Clear Accountability...



Roadmap 2004: Build on Strength – Focus on Execution

Values:

Quality, Integrity, Innovation, Accountability, Collaboration, Leadership

Vision:

Dedicated People Improving the Health of Patients
Through Unsurpassed Diagnostic Insights

Mission:

We will be the Undisputed Leader in Diagnostic Testing, Information and Services
in the Eyes of our Customers and Employees

Quality

- Make Medical Quality a Competitive Advantage
- Drive Standardization
- Move Six Sigma to the Next Level

Satisfied Employees

- Develop our Employees
- Improve Employee Satisfaction
- Advance Diversity

Satisfied Customers

- Improve Customer Satisfaction
- Improve the Patient Experience

Aggressive Innovation

- Accelerate Development & Launch of Profitable New Tests
- Maximize Differentiation through Esoteric Test Menu
- Drive Development of Enabling Technologies

Profitable Growth

- Grow Sales
- Expand Operating Margins



- A few “Six Sigma” Objectives are on the scorecard of Top Corporate Objectives

- Six Sigma Projects are aligned to detailed corporate objectives
- Master Black Belts facilitate alignment of projects:
 - 1) to “our Roadmap”, and
 - 2) amongst our 35 BUs

34 metrics tied to these areas of focus.
Many are being driven by Six Sigma methods.

Tailor it to our Situation: Education & Participation

Second Phase Goals...

II
Expand & Replicate
2001- 2002

- Full Project Execution Capabilities
- Replicate/Standardize Demonstrated Successes
- Impact in Strategic Processes
- Build On Foundation Training
- Initiate Green Belt Deployment

Refresher training for all employees; GB training vision set for all management: top down approach at first



Work on Behaviors as well: Communication, Education & Participation

Supplement the "Hard" tools w/ Behavioral Benchmarking & Improvement:

Behavior

- A Six Sigma Company
→ Behavioral Expectations

Results = f(Behaviors)

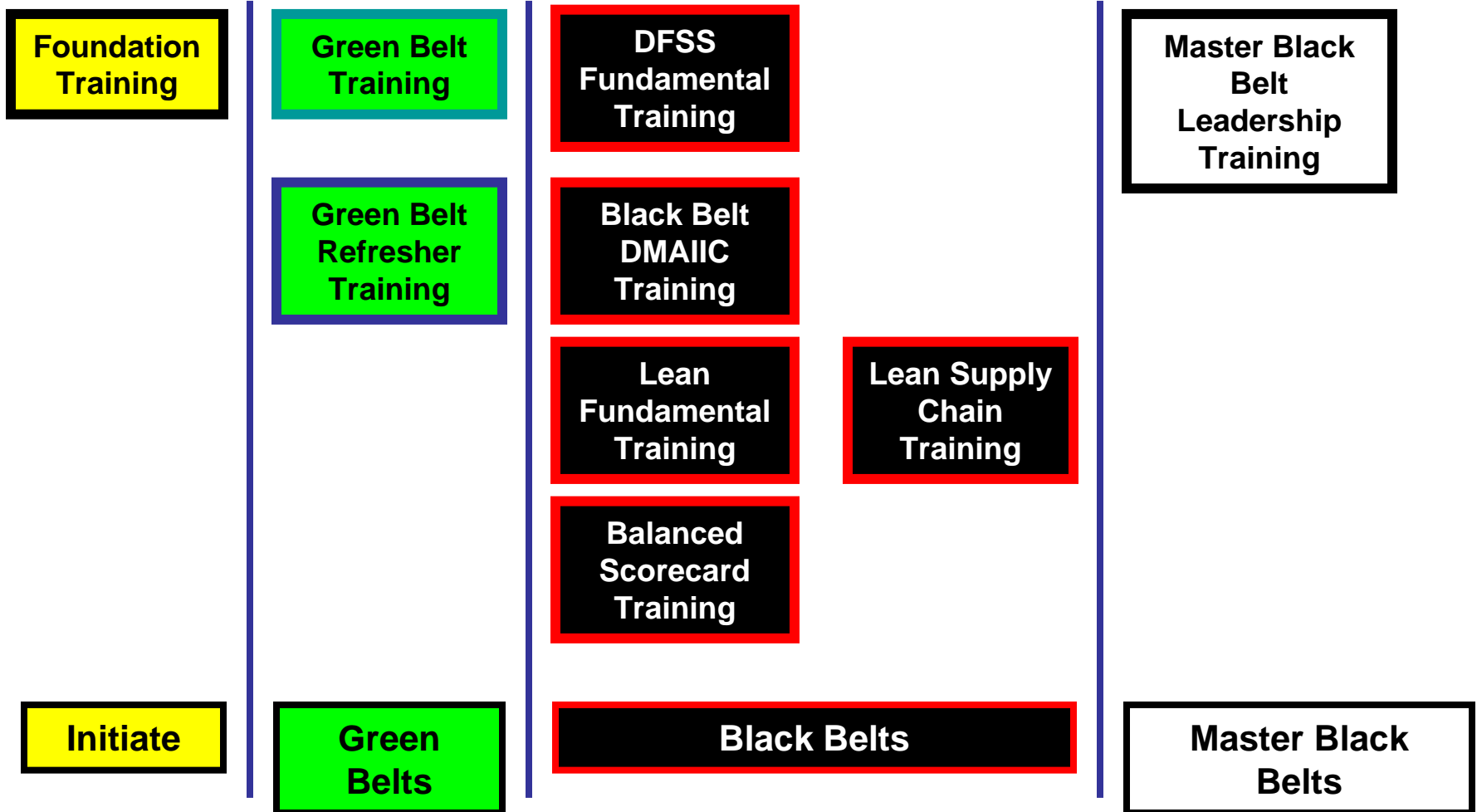


To be a Six Sigma Company, both results AND appropriate behaviors are required

Add Lean and DFSS (Design for Six Sigma)



Add Lean & DFSS: Education of Black Belts, then communication and participation thru projects



Add Lean & DFSS: Education, communication & participation

Third Phase Goals...

**III
Institutionalize
2002-2006+**

- Train Green Belts
- Train Top 2000 Leaders as GBs
- Initiate Design for Six Sigma (2005)
- Add Lean methods (2005)
- Initiate Process Management (2006)
(Balanced Scorecard)

*Lean has blossomed thru the efforts of our new
VP of Six Sigma: Denis Gallagher*



Changing the Way We Do Business - Lean in the Lab

- *Identify and **Eliminate/Reduce Non-Value Added Steps***
- ***Co-Locate Value Added Steps** based upon ordering patterns versus specialty. Create a working environment that forces all process steps to be open and visible.*
- ***Reduce/Optimize Batch Size***
- ***Reduce Work in Process (Specimens Waiting)***
- ***Decrease set-up time***
- ***Reduce Complexity/Increase Flexibility***
- ***Specimens arrive at Lab instrument ready***
- *Create a **physical working environment** that complements/supports the flow of work and **encourages the efficient and timely flow of ideas and information.***

Some Control Mechanisms for our Program and Some Six Sigma Deployment Data



Control mechanisms for our program: Driving Participation from the Top Down

Six Sigma Certification

Six Sigma Requirement for Management Position

Directive 14
(Number assigned by Program Office)

PROGRAM DIRECTIVE

| | | | |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------|
| Dates: | Effective Date | Inactivity Date | Issue Date |
| | 1/1/2005 | / / | 10/24/2005 |
| Sensitivity* (select one): | <input checked="" type="checkbox"/> General <input type="checkbox"/> Limited to Decision Handbook Holders/ Confidential | | |
| Process Area* | Six Sigma | | |

| | |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Directive Title* | Six Sigma Requirements for Management Positions |
| Directive * | This directive describes the requirements for managers, managing directors and directors to be nominated or promoted to such positions. |
| Description* | <ul style="list-style-type: none"> Beginning in 2005, all nominee candidates for a management position must submit as a Green Belt or achieve Green Belt certification within 24 months of hire. Beginning in 2006, all internal candidates for an open director level position must submit as a Certified Green Belt prior to appointment. Beginning in 2007, all internal candidates for an open managing director position must be a Certified Green Belt prior to appointment, and Beginning in 2008, qualified hires for all open managing director, director and manager job categories must achieve Green Belt certification within 24 months of hire. |
| Applicability and Scope* | Quest Diagnostics Six Sigma |
| Targeted Businesses | See targeted business table |
| Directives Replaced | |
| Roll-out Responsibilities* | Local Master Black Belt and Human Resources |
| Process Owner* | Denis Gallagher, Vice President of Six Sigma |
| Delegated to | Human Resources |
| SOPs and Other Attachments | November 2004 Memo regarding Green Belt Certification and Promotions |
| Distribution List | All Employees |
| Signatures: | Mike Pevonnik, David Zove |

*Required fields

Six Sigma Requirement for Maintaining Certification

Directive 12
(Number assigned by Program Office)

PROGRAM DIRECTIVE

| | | | |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------|
| Dates: | Effective Date | Inactivity Date | Issue Date |
| | 1/1/2006 | / / | 11/18/2005 |
| Sensitivity* (select one): | <input checked="" type="checkbox"/> General <input type="checkbox"/> Limited to Decision Handbook Holders/ Confidential | | |
| Process Area* | Six Sigma | | |

| | |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Directive Title* | Six Sigma Requirement for Green Belts, Repatriated Black Belts, and Master Black Belts |
| Directive * | This directive describes the requirements for Green Belts, Repatriated Black Belts and Master Black Belts to remain certified. |
| Description* | <p>Green Belts</p> <ul style="list-style-type: none"> Employees must be required to earn certification by participating in the Six Sigma projects on their own or as a project sponsor. All employees must complete the training and receive their Six Sigma certification within 24 months of hire. All Green Belts must maintain their Six Sigma certification status and will be assessed from their Green Belt program and will be required to maintain the status including the following: <ul style="list-style-type: none"> All Green Belts must be required to keep their certification current by satisfying one of the following: <ul style="list-style-type: none"> Complete the Six Sigma project successfully every 12 months Complete the Six Sigma project successfully every 12 months If a Green Belt fails to satisfy one of the above requirements, they will not have the Green Belt certification status and will be required to undergo the Green Belt re-evaluation training and complete one of the above requirements to bring the certification status current. The requirement of participating in a Six Sigma project will be required for all Green Belts every year and will be a requirement for all future promotions. Local Master Black Belt and Human Resources will help development and track status requirements. <p>Repatriated Black Belts and Master Black Belts</p> <ul style="list-style-type: none"> Repatriated Black Belts and Master Black Belts must maintain their Six Sigma status by satisfying one of the following: <ul style="list-style-type: none"> Complete the Six Sigma project successfully every 12 months Complete the Six Sigma project successfully every 12 months Complete 20 hours of approved Six Sigma training every 12 months If a repatriated Black Belt or Master Black Belt ceases to satisfy one of the above requirements, they will not have the Master Black Belt or Green Belt status and will be required to undergo the Green Belt re-evaluation training and complete one of the above requirements to bring the Six Sigma status current. The requirement of participating in the Six Sigma project will be required for all Green Belts every year and will be a requirement for all future promotions. Local Master Black Belt and Human Resources will help development and track status requirements. <p>Any exceptions to the above policies will be carefully reviewed and approved on a case-by-case basis by the Vice President of Six Sigma in consultation with concerned site or functional leadership.</p> |
| Applicability and Scope* | Quest Diagnostics Six Sigma |

#12 - Six Sigma Requirements for GB, RB and MB (v2.1 11-15-05).doc

1



GB certification required of mngmnt: new hires & promotions

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Control mechanisms for our program: Encouraging Sustained Participation via annual goals

| GB or Repatriated BB | Mentor | Cert. Or Re-cert. Due Date | Project or Project Credit Status | Proposed Six Sigma MBO for 2008 |
|----------------------|--------|----------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| GB #2 | | TBD: 7/1/2007 or later | 1st closed, 2nd credited for Reshape work | GB refresher training, and champion 1 more Six Sigma projects by 12/31/08. |
| GB #3 | | 7/11/07 | 1st closed, 2nd needed | GB refresher training, and close 1 more GB projects in 2008. |
| GB #4 | JC | ~9/2008? | 1st closed, plus earned GB project credit for Reshape work, 2nd project in Improve | Close PSC Biowaste Project by 4/29/08, thus achieving GB certification. |
| GB #5 | NS | 11/07/08 | 1st closed, started 2nd | Close 1 or more GB projects by 11/7/08 thus achieving GB certification. |
| GB #6 | JC | 11/07/08 | 1st closed, has a 2nd | Close 1 or more GB projects by 11/7/08 thus achieving GB certification. |
| GB #7 | NS | 06/30/09 | 2 projects closed in 2007 | Complete measure phase (or more) of his next GB project to position himself for re-certification by 6/30/09. |
| Repatriated BB | NS | 06/30/09 | Championing 3 projects: PO Dispatching, Eliminate Man. Req's, Reduce 1001s. Leading Match Exceptions. | Champion closure of 2 or more Six Sigma (GB or BB) projects in 2008. |
| GB #8 | | 12/31/08 | 1st and 2nd re-cert. projects closed in 2006 | Close 1 or more GB projects by 12/31/08. |
| Repatriated BB | NA | 06/30/09 | 1 project open, Reshape project credit earned 2007 re-cert. | Close 1 more BB project by 12/31/08. |
| GB #9 | | 06/30/09 | Certified. 1 project open, Reshape project credit earned 2007 re-cert. | Close 1 or more GB projects by 12/31/08. |

Annual communication of certification and "re-certification" performance encourages sustained participation



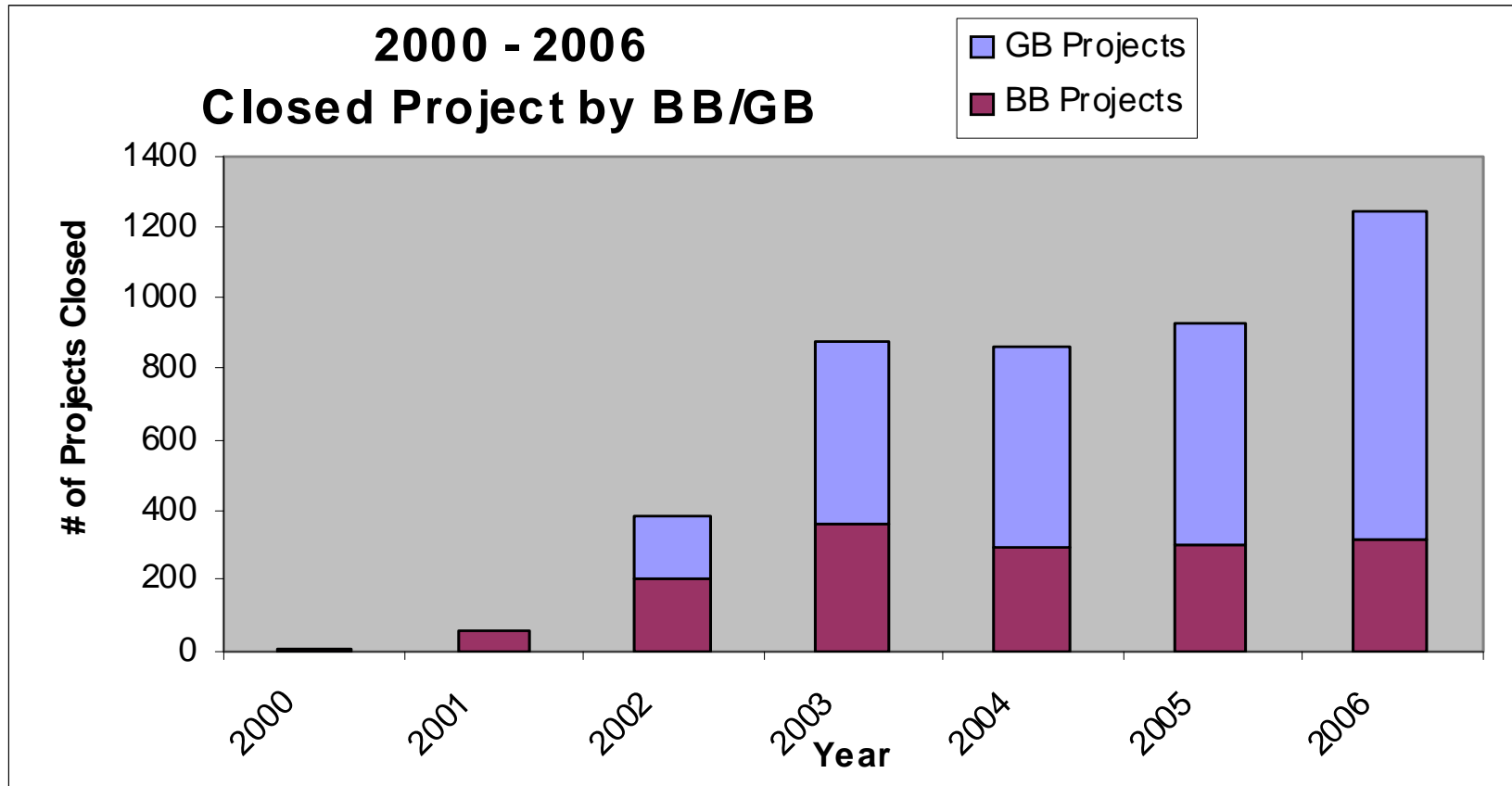
Where We Are

- *In 2006 we completed 1,249 projects for a total ACTUAL 2006 financial benefit of \$148,000,000 (Lean: 143; DMAIIC 1,045; DFSS 70)*
- *Since the deployment began to the end of 2006, we have completed 5,245 Six Sigma projects*
- *Since the deployment began to the end of 2006, we have trained 2,025 GBs*
- *In 2007 - we have launched extensive lean-in-the-lab and centralized cost savings initiatives via Six Sigma*

*End of 2006 full-time Six Sigma staffing:
32 MBBs, 114 BBs, 3 support staff*



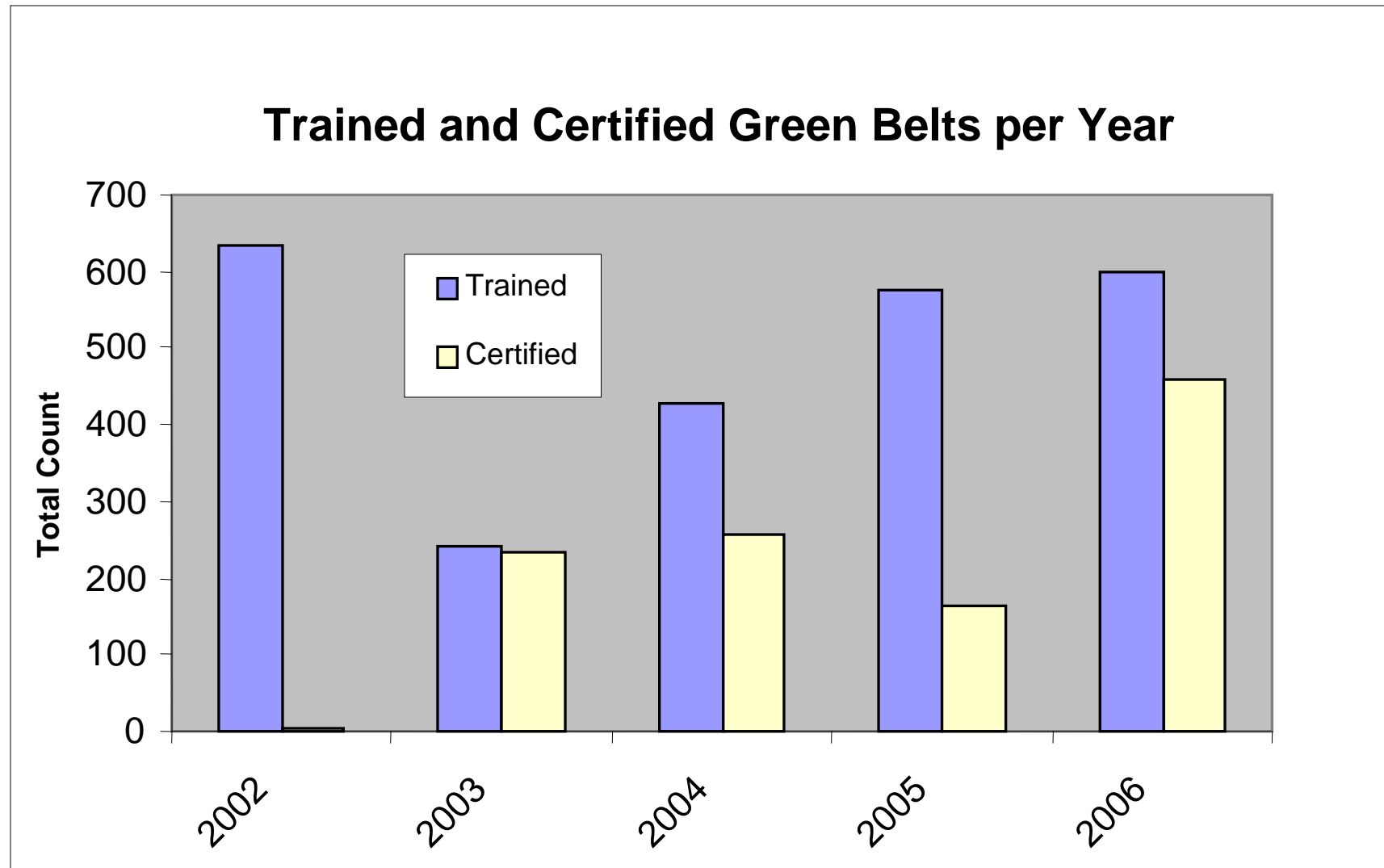
Portfolio of Closed Projects



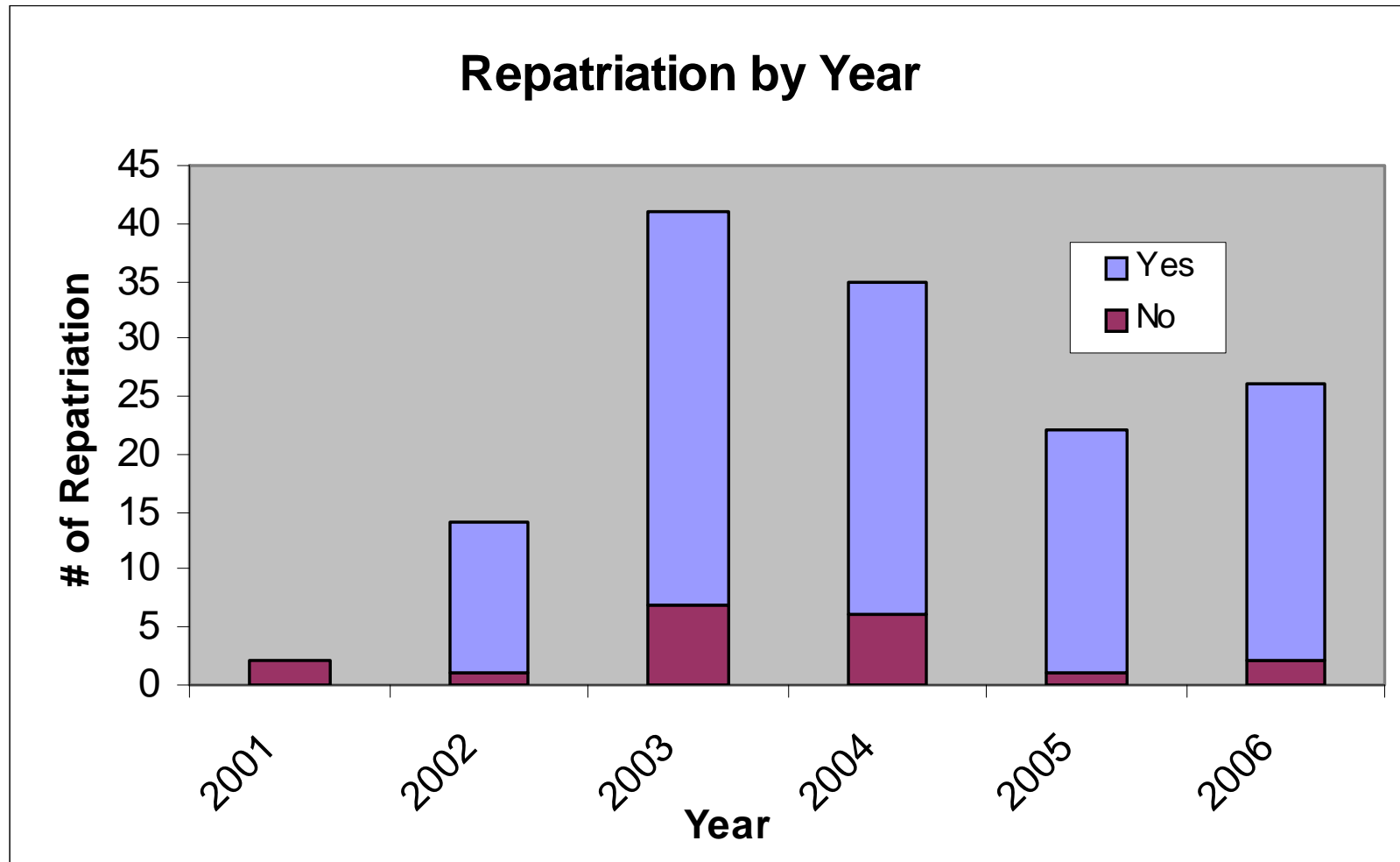
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | Total |
|--------------------|----------|-----------|------------|------------|------------|------------|-------------|-------------|
| BB Projects | 7 | 61 | 203 | 364 | 296 | 300 | 315 | 1546 |
| GB Projects | 0 | 0 | 179 | 516 | 567 | 629 | 934 | 2825 |
| Total | 7 | 61 | 382 | 880 | 863 | 929 | 1249 | 4371 |



Green Belt Certification



Six Sigma BB & MBB Repatriation



87% Have Been Repatriated into a Manager & Above Positions

Our Deployment Strategy

*8 Years Into
The Journey...*

III Institutionalize 2004-2006+

II Expand & Replicate 2001 - 2004

- ▶ Launch Lean and DFSS
- ▶ Customers Recognition of Effort
- ▶ Six Sigma Behavior Assessments
- ▶ BBs in Key Leadership Roles
- ▶ Standard Metrics/Control Systems
- ▶ Comprehensive VOC Systems
- ▶ Lean-in-the lab replication

I Demonstrate Success 2000 - 2001

- ▶ Engage/Educate Leadership
- ▶ Foundation For All Employees
- ▶ Achieve Credible Project Results
- ▶ Recruit/Develop Leaders as BB's
- ▶ Get All BU's/Functions in Game

- ▶ Expand Black Belt Capacity
- ▶ Replicate/Standardize Solutions
- ▶ Achieve Positive ROI
- ▶ Launch Green Belt: Drives Acceleration of Results & Behavior Change



An unsolicited gem I received w/ a re-assignment ...

.... *“Prior to your arrival, I wasn't quite sure what benefit Six Sigma was going to provide us, now I'm not sure how we'd manage with out it.”*

An anonymous Quest Diagnostics Director



Q & A



Quest
Diagnostics

Patients • Growth • People

Appendix



Lean in the Lab - 5 Characteristics of a Best-in-Class Lab

- 1. Smooth Specimen arrival profile (level-loading).**
- 2. Layout of Laboratory testing areas based on ordering patterns and shared specimen type as well as an 'open' floor plan.**
- 3. Consolidation of pre- and post-analytic steps (e.g. sorting, aliquoting, load build, etc.) increasing efficiency and productivity.**
- 4. Introduction of new technology (e.g. fully automated testing, platform consolidation, sorting and aliquoting platforms, other robotics).**
- 5. Just-in-time delivery of all supplies to the various testing areas.**