

# *Driving Six Sigma Cultural Change within Quest Diagnostics*

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Dr. Harris Hoke  
Master Black Belt,  
Quest Diagnostics

North Jersey Section  
General Section Meeting  
Wednesday March 19, 2008



# Your Presenter

*Harris C. Hoke, Jr.*

**Master Black Belt, Six Sigma  
Quest Diagnostics Inc  
1 Malcolm Avenue  
Teterboro, NJ 07608  
(w) 201-393-5965 (cell) 201-259-7314**

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**

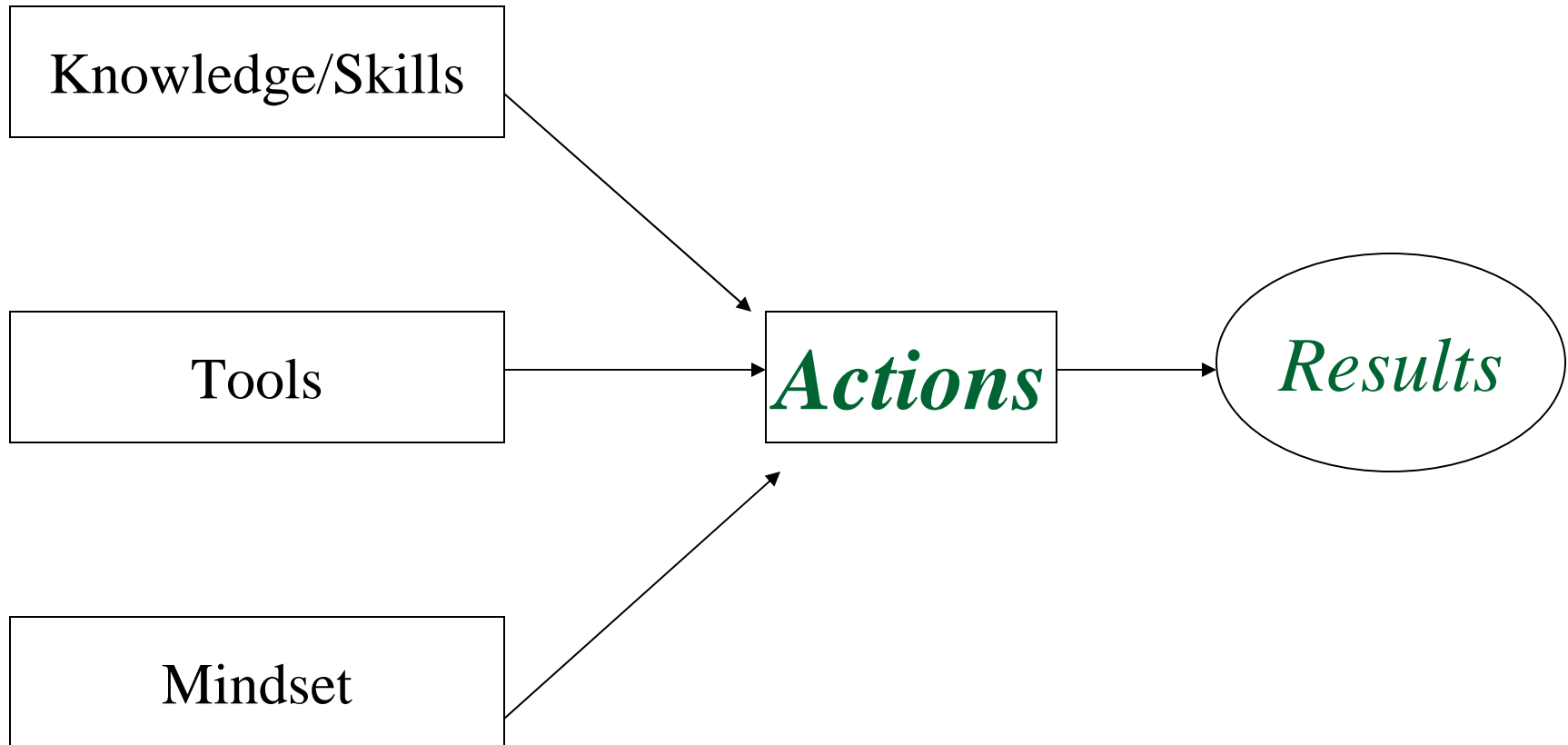
**Participation and  
Trust**

**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!!*



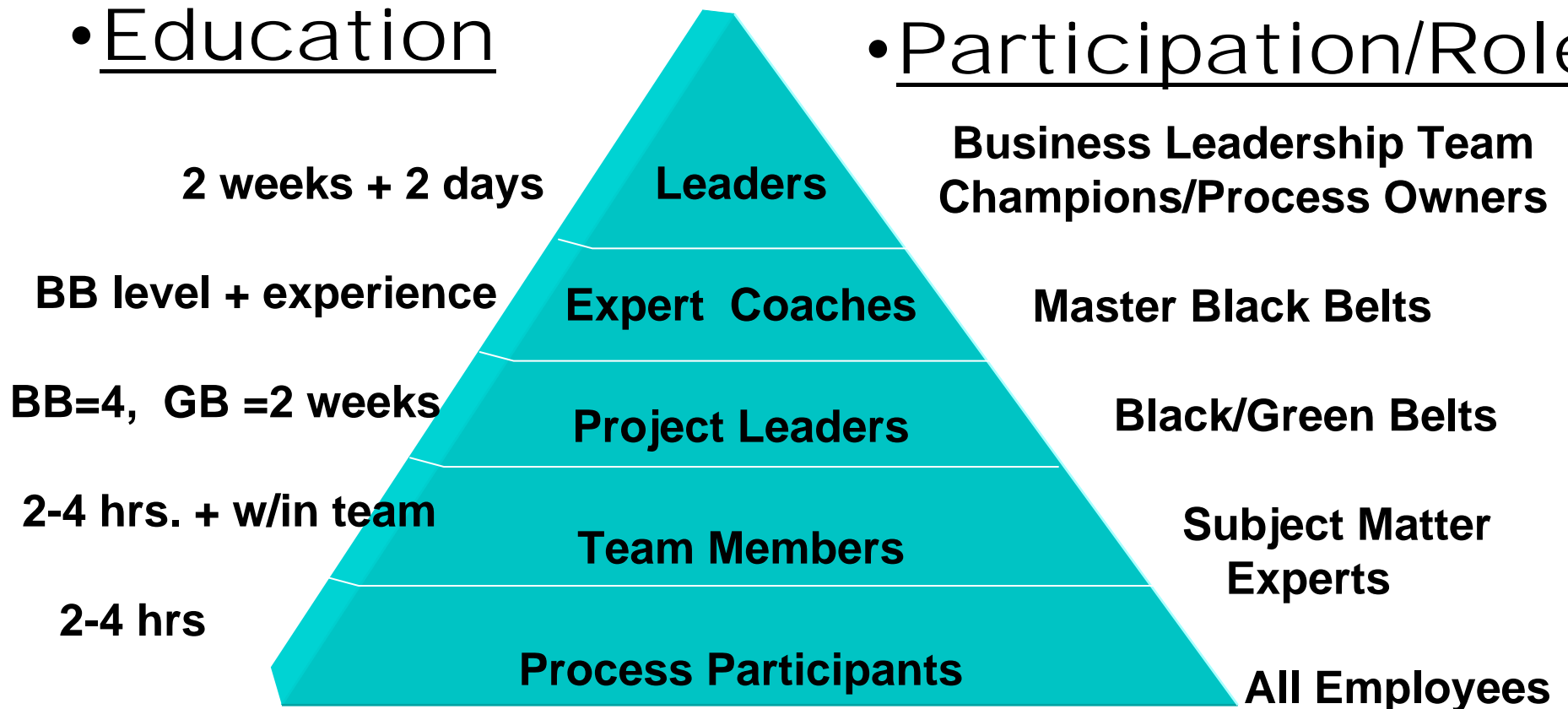
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# Top Down: Education and Participation

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

## • Education

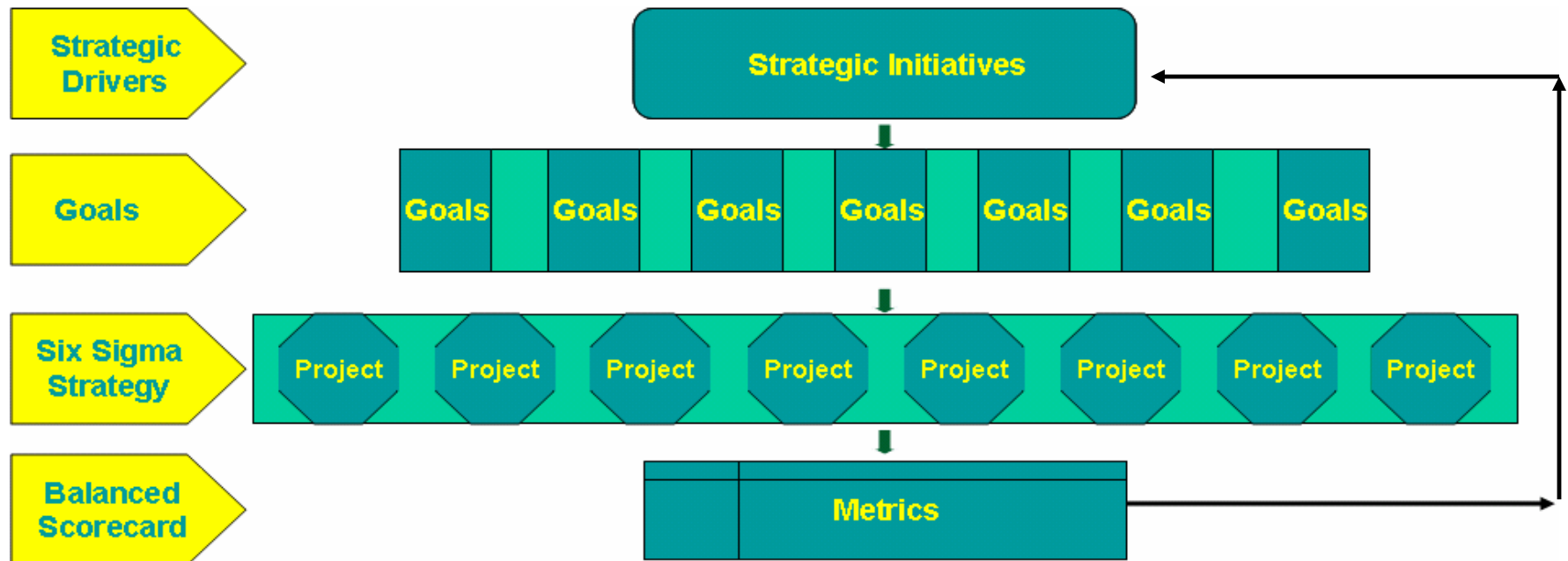
## • Participation/Role



# 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**



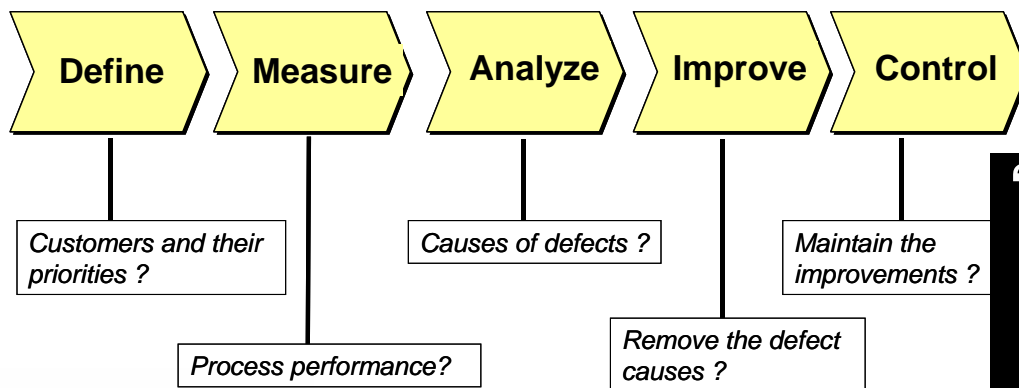
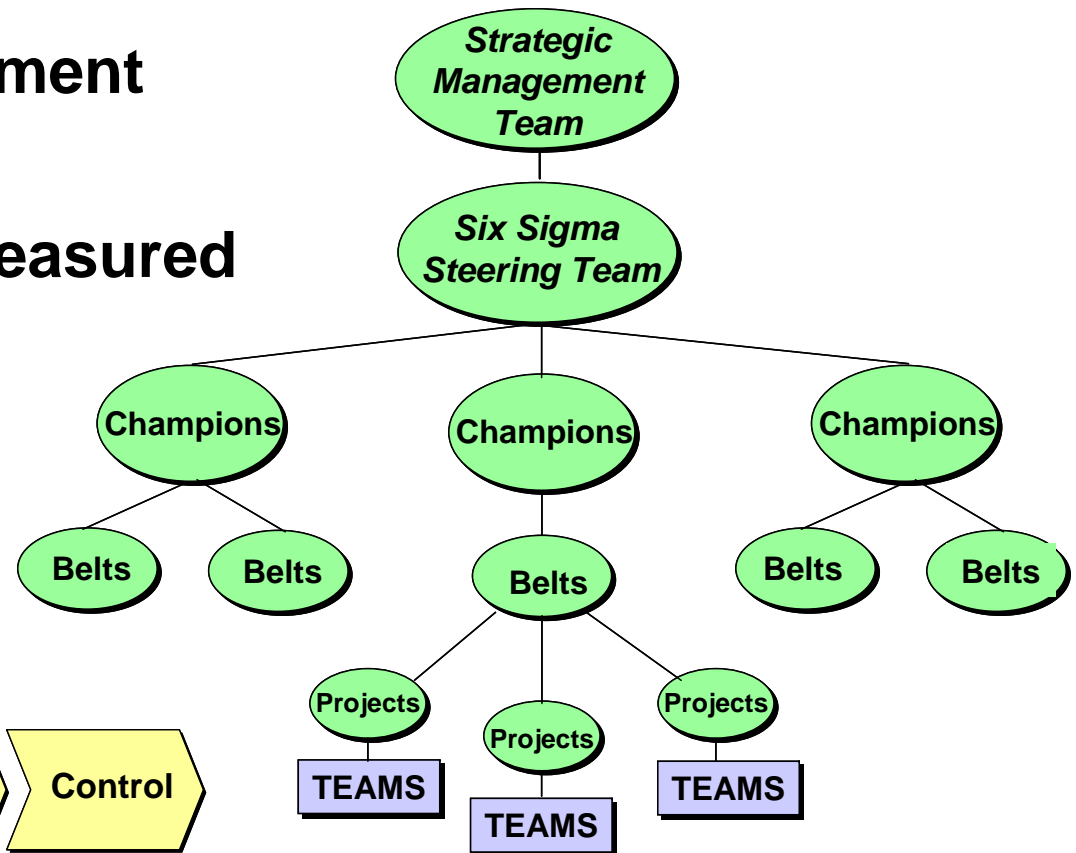


# ***Start with DMAIC (Define, Measure, Analyze, Improve and Control)***



# 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

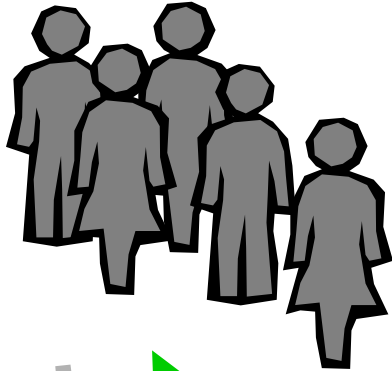


***The Black Belt Role: full-time for min. of 18 mo's***

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

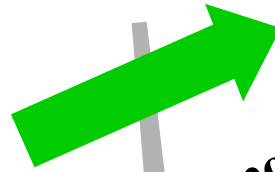
1. What do customers want?

Customer-Driven



VOC

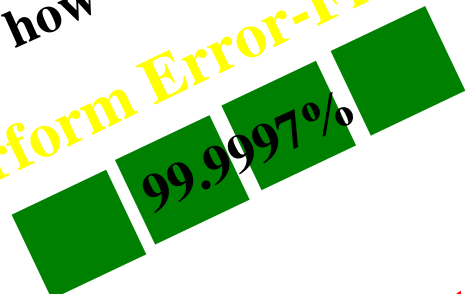
CTQ



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

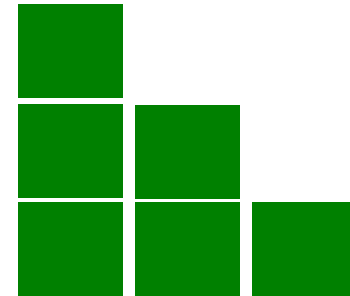
Variation

Perform Error-Free Work



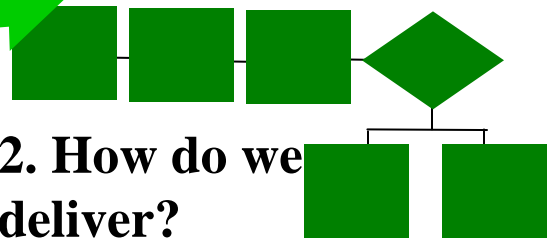
4. How do we improve?

Decide Based on Facts & Data



2. How do we deliver?

Process-Oriented



SIPOC

Dashboard

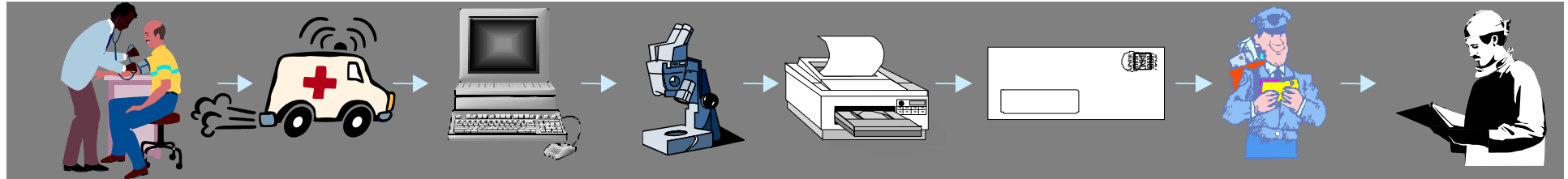
$$Y = f(x_1, x_2, \dots)$$

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:**

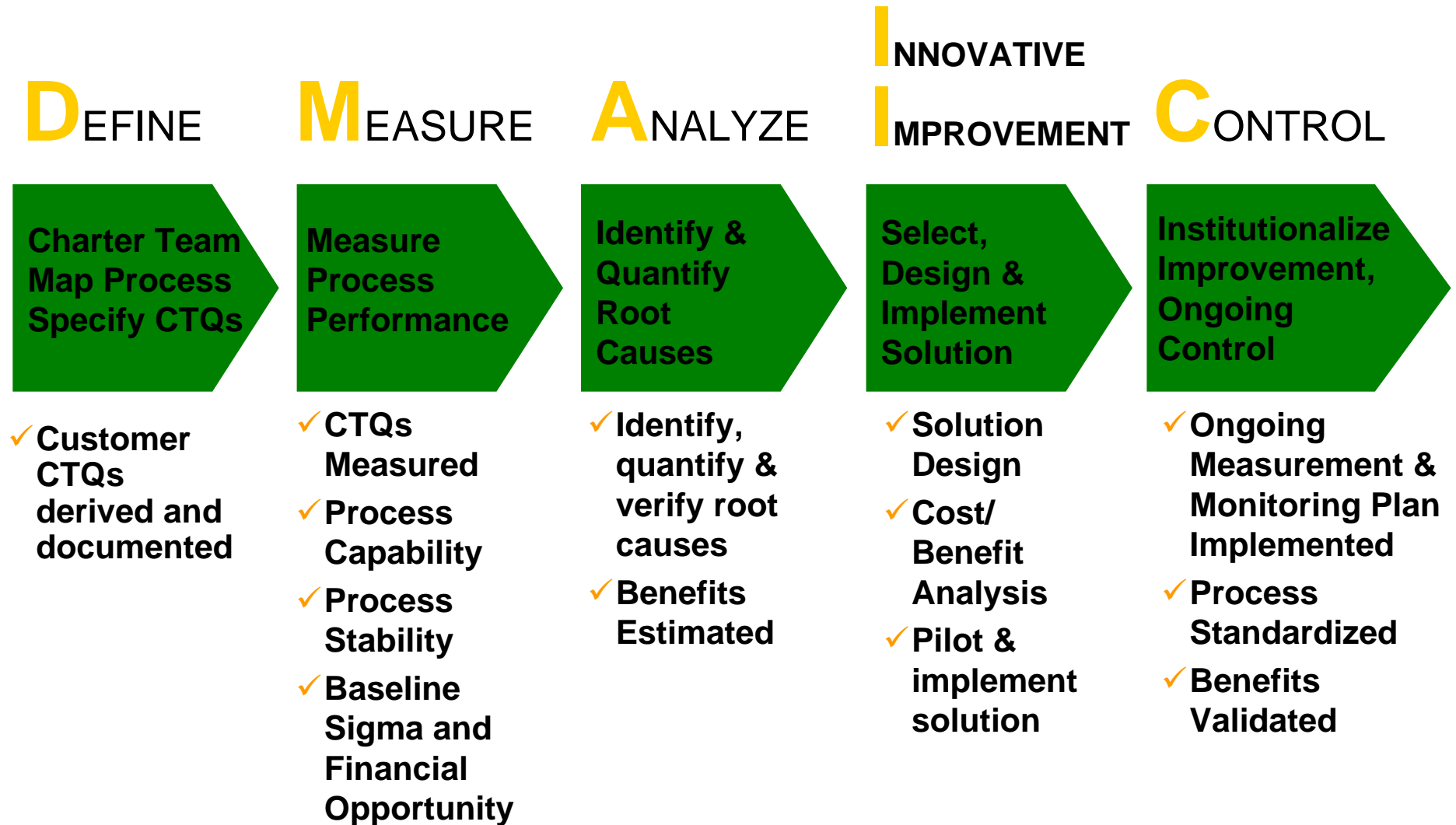
**" I fill out a requisition & collect the  
specimen - 1 to 4 days later  
(sometimes more than 1 week) I  
receive the test results"**



***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)

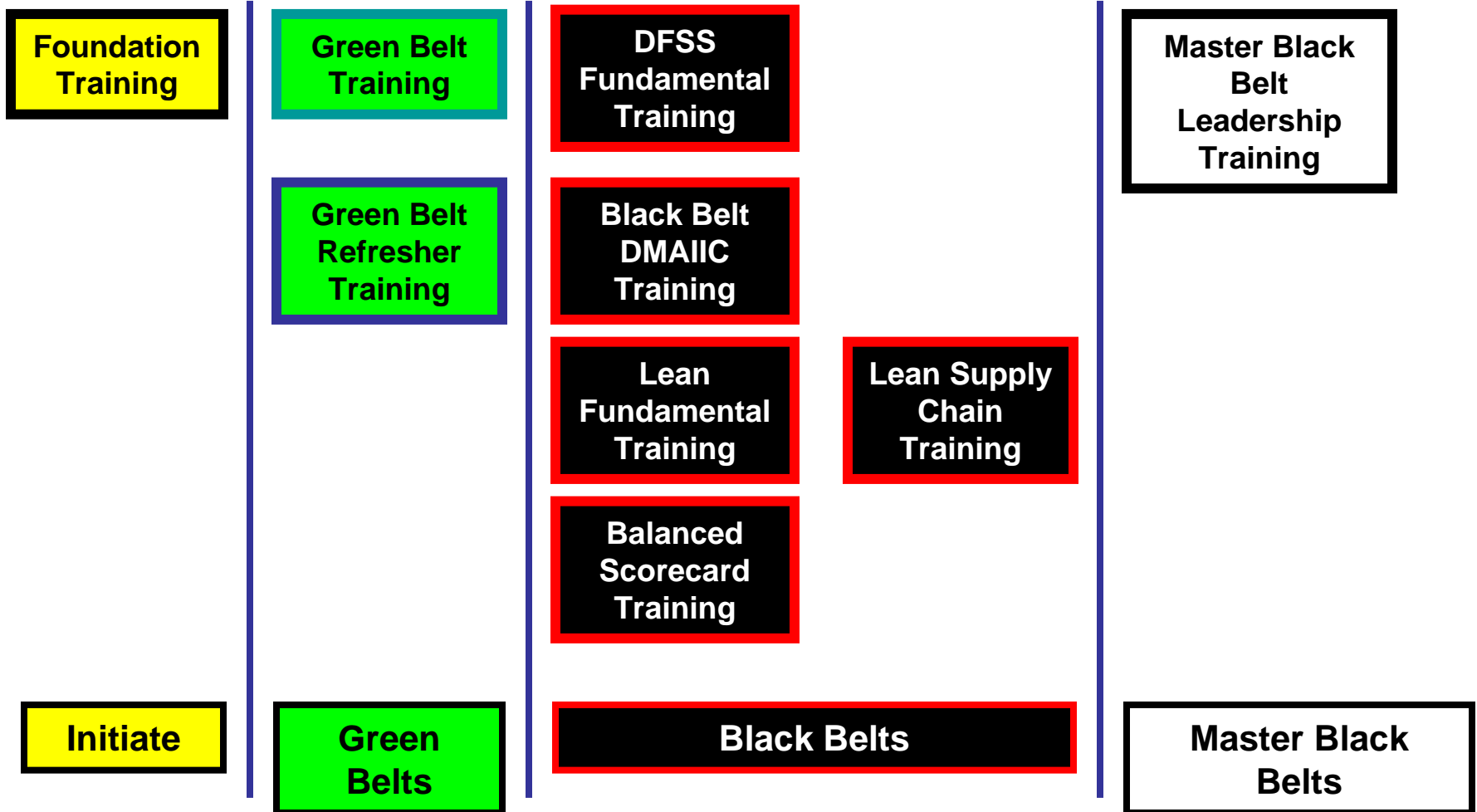


*To be a Six Sigma Company, both results AND appropriate behaviors are required*

# ***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

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

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

\*Required fields

### Six Sigma Requirement for Maintaining Certification

Directive 12  
(Number assigned by Program Office)

#### PROGRAM DIRECTIVE

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

<b>Directive Title*</b>	<b>Six Sigma Requirement for Green Belts, Repatriated Black Belts, and Master Black Belts</b>
<b>Directive *</b>	This directive describes the requirements for Green Belts, Repatriated Black Belts and Master Black Belts to remain certified.
<b>Description*</b>	<p><b>Green Belts</b></p> <ul style="list-style-type: none"> <li>Employees must be required to earn certification by participating in the Six Sigma projects on their own or through an organizational project within 24 months of finishing their role and no later than 24 months from leaving their role. Any Green Belt not certified within 24 months of finishing their role will be assessed from the Green Belt program and will be required to recertify the process including the process.</li> <li>All positions Green Belts will be required to keep their certification current by satisfying one of the following:             <ul style="list-style-type: none"> <li>Complete one Six Sigma project successfully every 12 months</li> <li>Complete three Six Sigma projects successfully every 24 months</li> </ul> </li> <li>If a Green Belt fails to satisfy one of the above requirements, he or she will lose 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.</li> <li>The requirement of participating in a managing Green Belt certification will be waived in Green Belt's 24th, every year and not be a requirement for all future promotions.</li> <li>Local Master Black Belt and Human Resources will help development and track Green Belt requirements.</li> </ul> <p><b>Repatriated Black Belts and Master Black Belts</b></p> <ul style="list-style-type: none"> <li>Repatriated Black Belts and Master Black Belts must recertify within the Six Sigma status by satisfying one of the following:             <ul style="list-style-type: none"> <li>Complete one Six Sigma project successfully every 12 months</li> <li>Complete or initiate three Six Sigma projects successfully every 24 months</li> <li>Provide 20 hours of approved Six Sigma training every 24 months</li> </ul> </li> <li>If a repatriated Black Belt or master Black Belt ceases to satisfy one of the above requirements, he or she will lose 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.</li> <li>The requirement of recertifying within the Six Sigma status will be waived in repatriated Green Belt's 24th, every year and not be a requirement for all future promotions.</li> <li>Local Master Black Belt and Human Resources will help development and track Green Belt requirements.</li> </ul> <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>
<b>Applicability and Scope*</b>	Quest Diagnostics Six Sigma

#12 - Six Sigma Requirements for GB, RBE and MBB v2.1 11-15-05.doc

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**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*



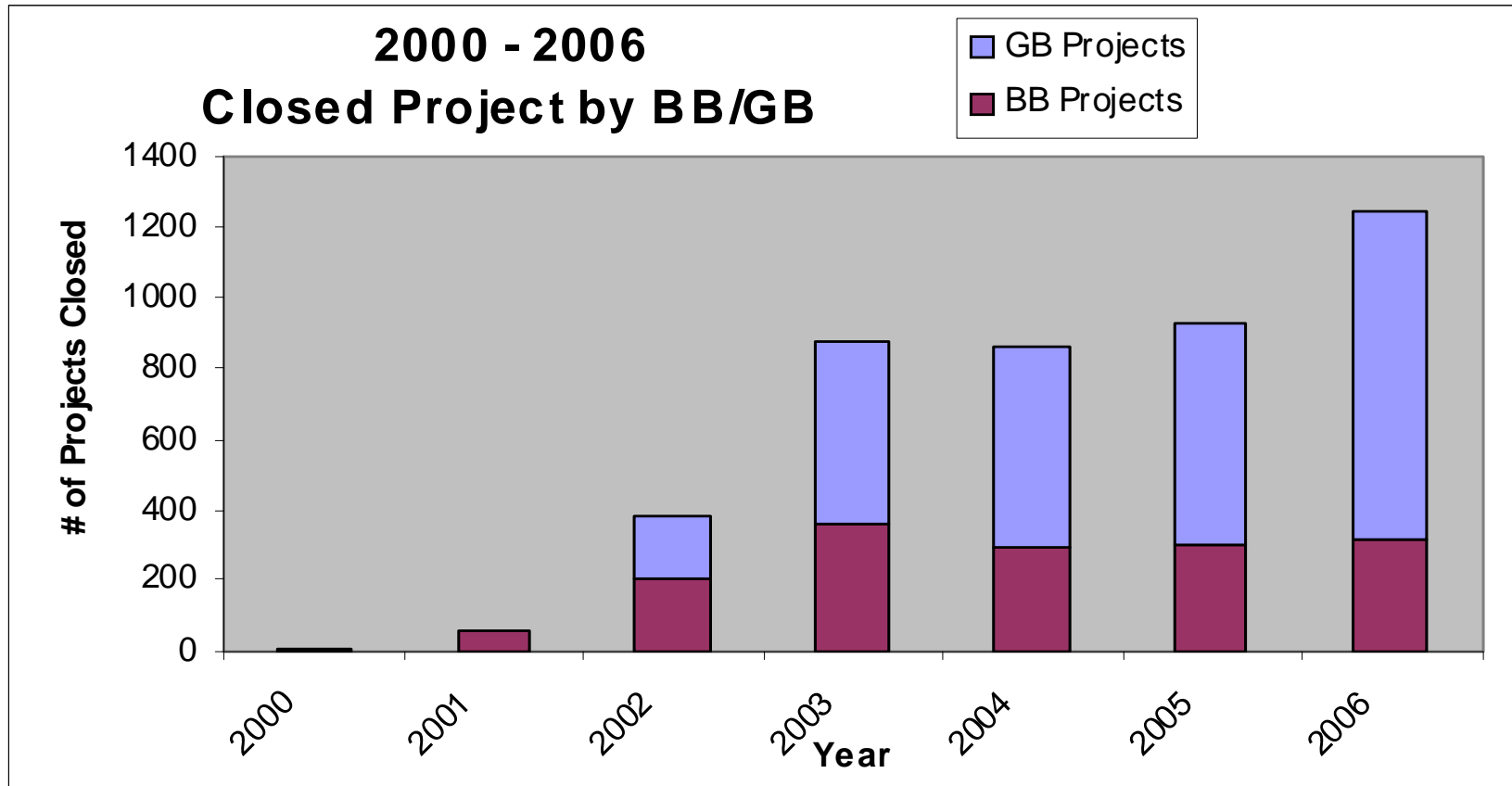
# Where We Are

- *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*



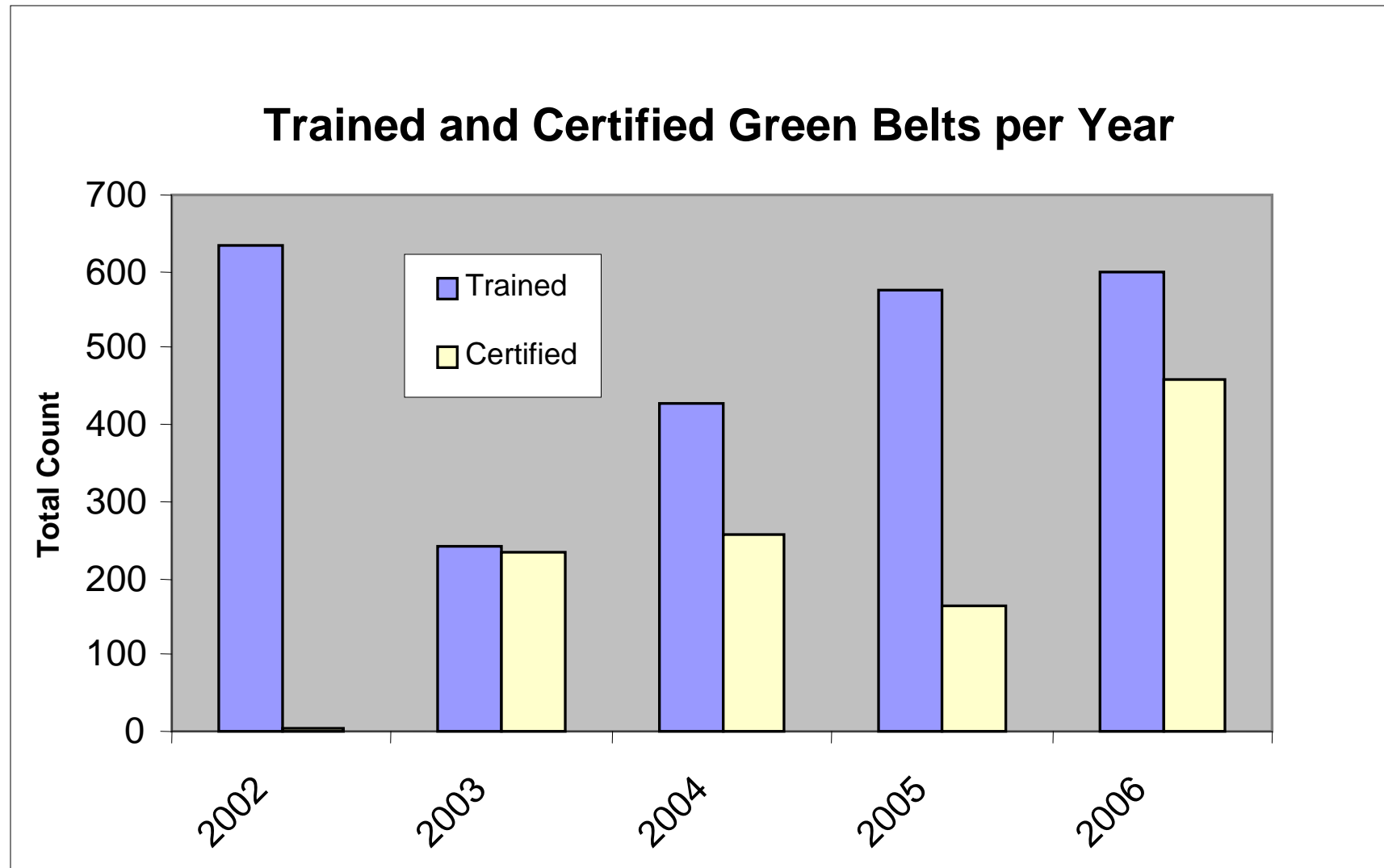
# Portfolio of Closed Projects



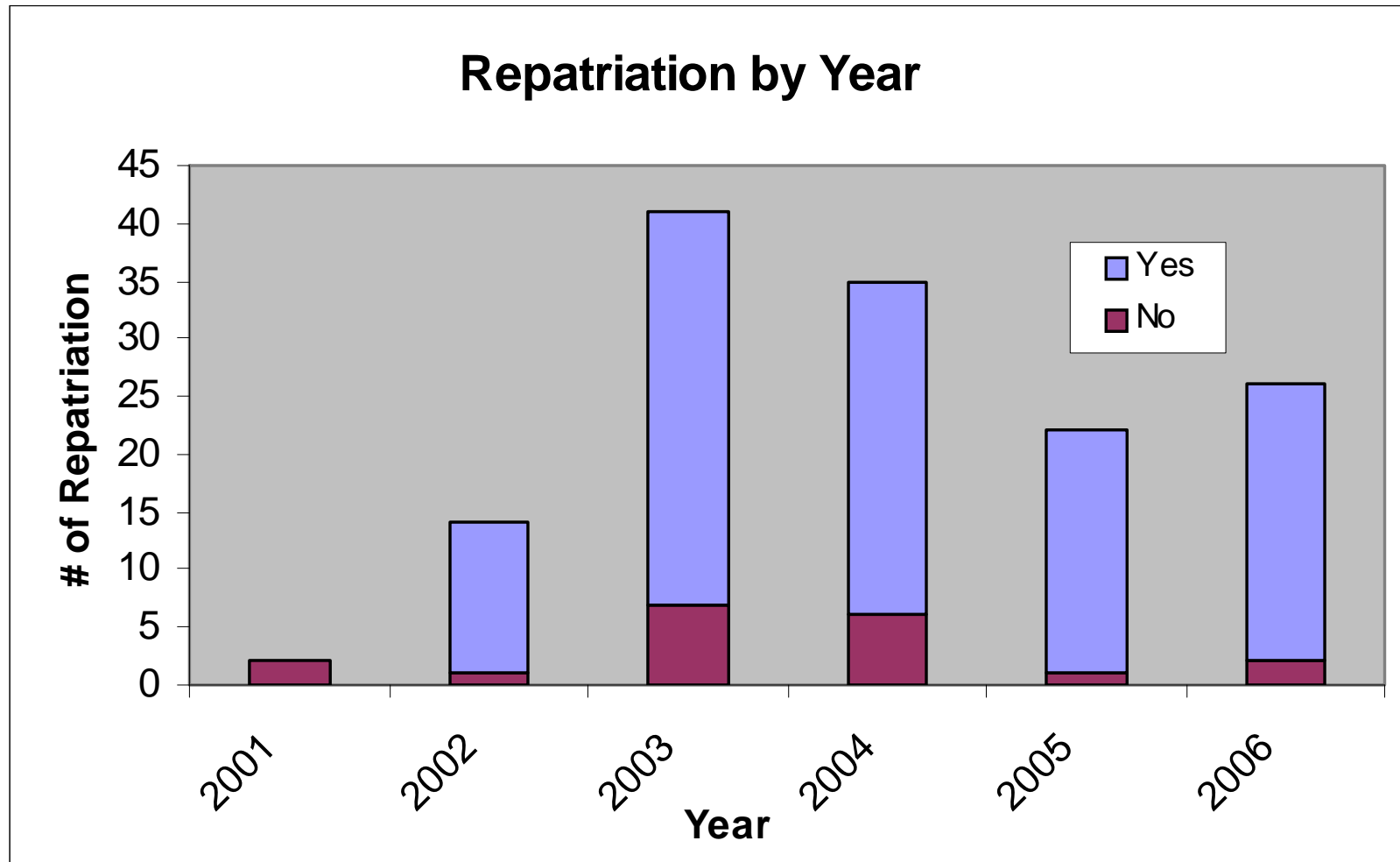
	2000	2001	2002	2003	2004	2005	2006	Total
<b>BB Projects</b>	7	61	203	364	296	300	315	<b>1546</b>
<b>GB Projects</b>	0	0	179	516	567	629	934	<b>2825</b>
<b>Total</b>	<b>7</b>	<b>61</b>	<b>382</b>	<b>880</b>	<b>863</b>	<b>929</b>	<b>1249</b>	<b>4371</b>



# 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

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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.**