

Applying Baldrige National Quality Program Methodology to Achieve Medical Physics Performance Excellence

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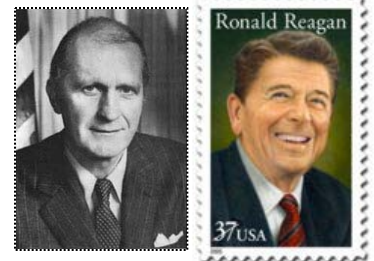
Rhode Island Hospital
A Lifespan Partner

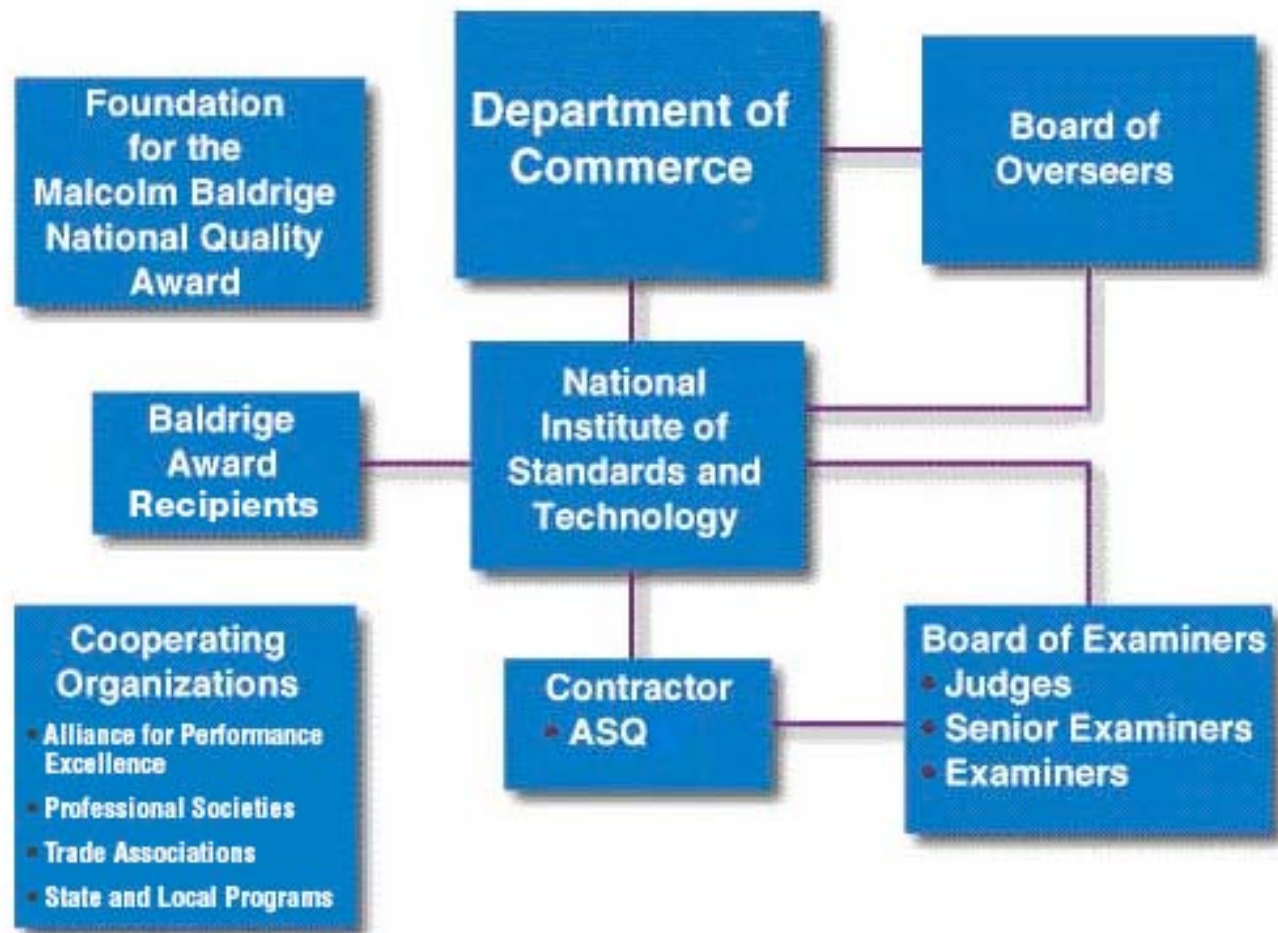


BROWN
Alpert Medical School

Malcolm Baldrige National Quality Improvement Act

- 1987 Federal law to advance business competitiveness and economic growth
- Created the Baldrige National Quality Program (BNQP)
- Administered by the National Institute of Standards and Technology (NIST)
- Directed at first to commercial organizations; categories for health care, education and non-profits added later





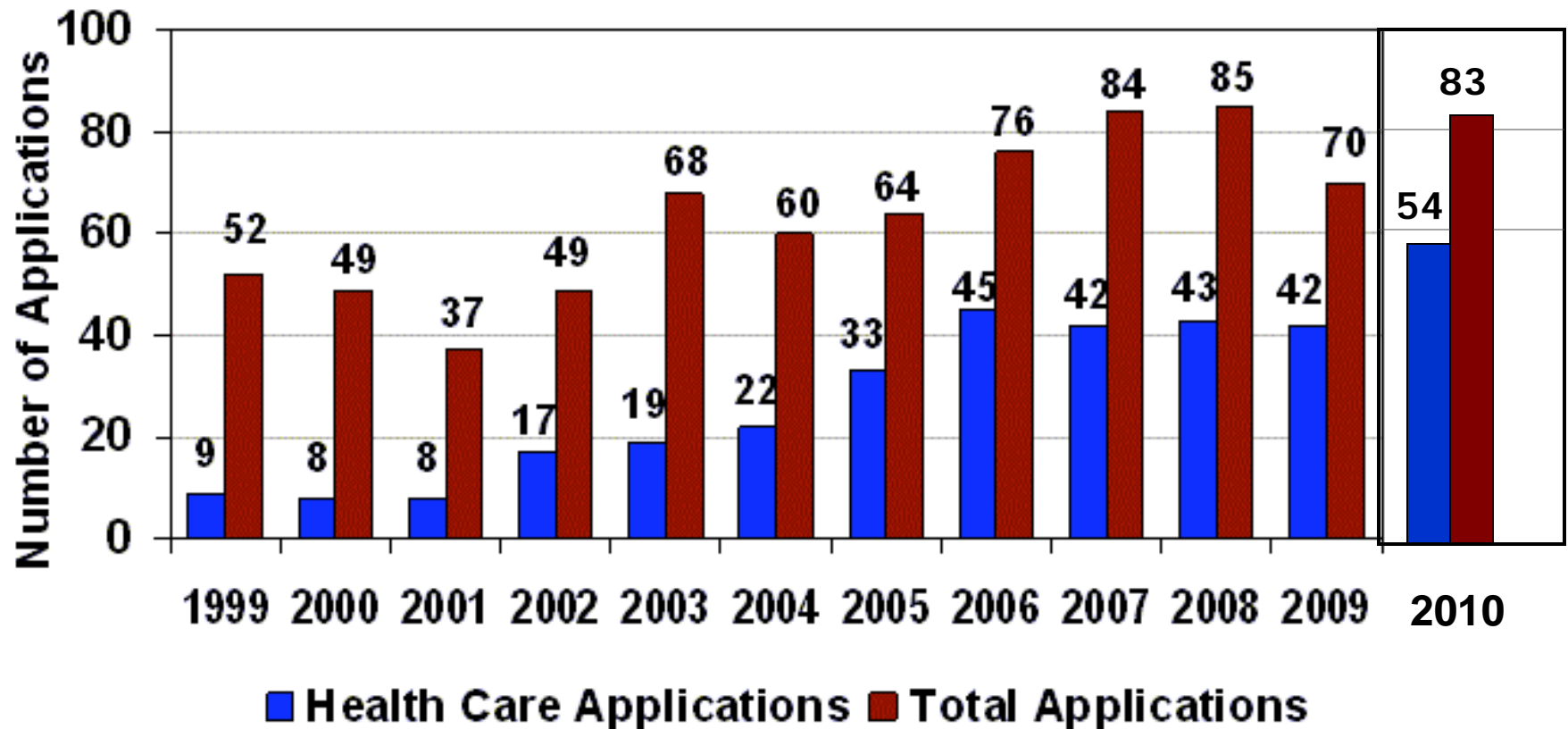


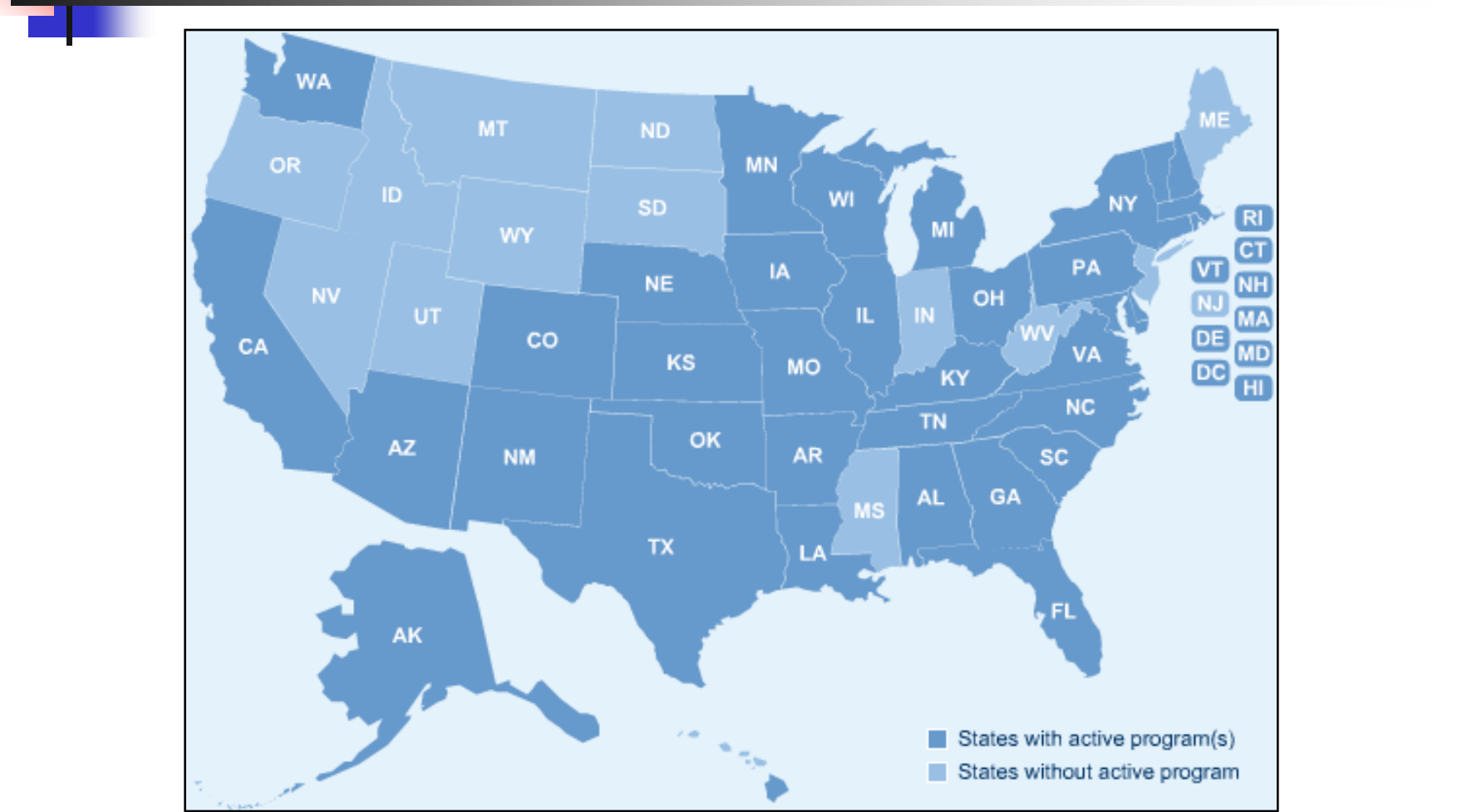
Baldrige Quality Awards

- Recognize outstanding organizational performance
- Board of Examiners evaluates and scores entries and provides detailed feedback to applicants
- Awards presented at an annual public ceremony by the President of the U.S.



Baldrige National Quality Program Award Entries





Core Values of High Performing Health Care Organizations

- Visionary Leadership
- Managing for Innovation
- Management by Fact
- Focus on Results
- Focus on the Future
- Learning
- Agility
- Systems Perspective

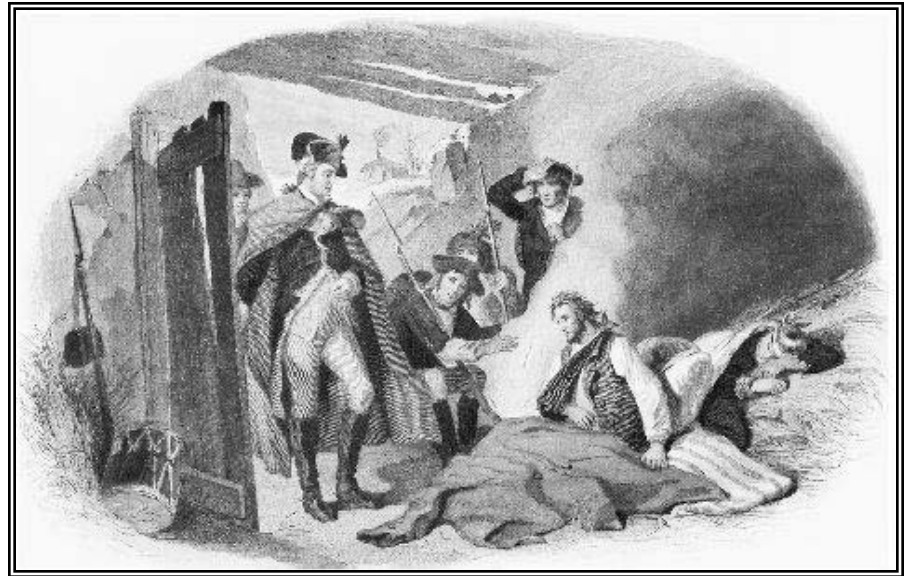


Washington Crossing the Delaware
From a Painting by Howard Chandler Christy/Barnett Johnson

**Washington Crossing the Delaware
December 25, 1776**

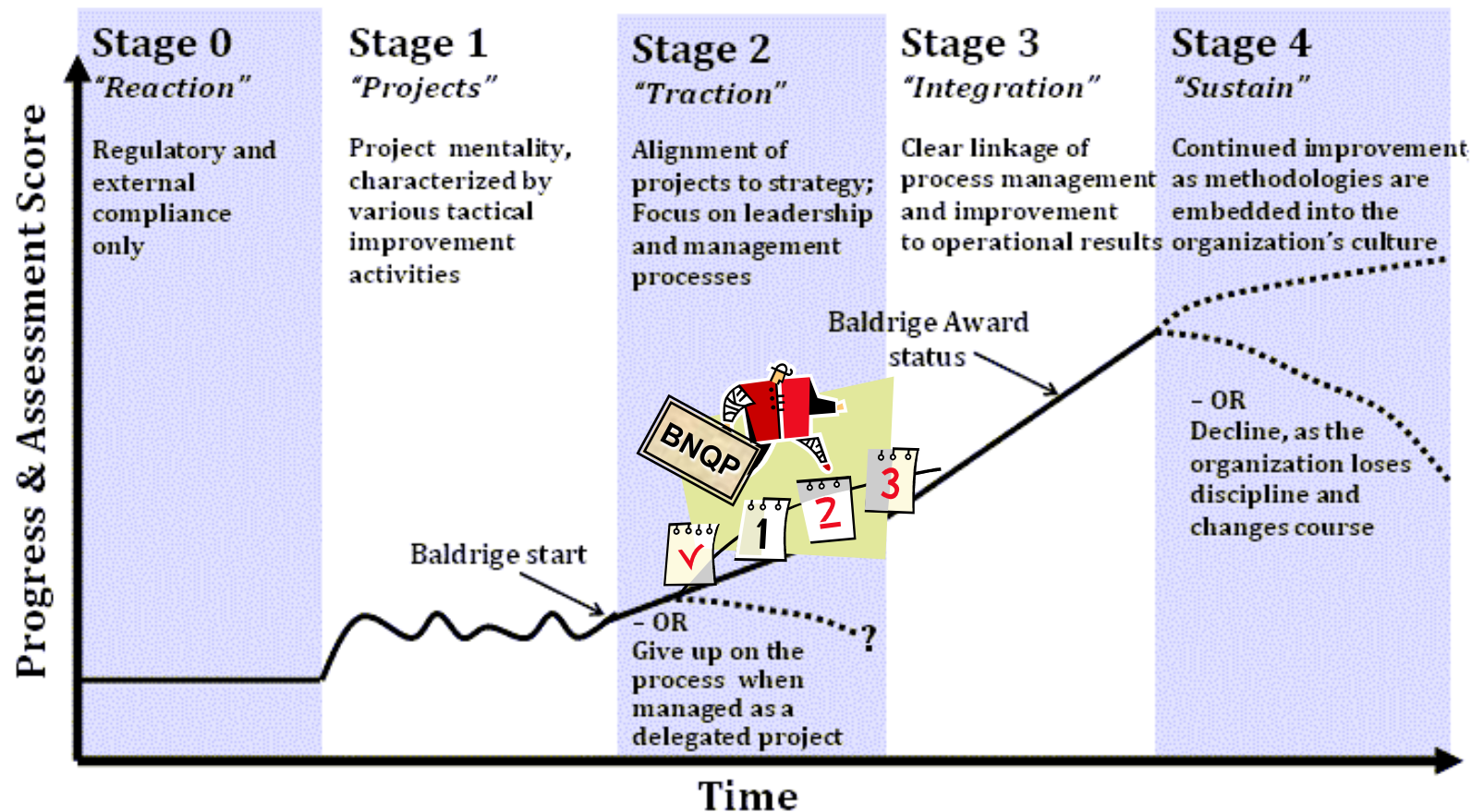
Core Values of High Performing Health Care Organizations

- Patient-Focused Excellence
- Valuing Staff & Partners
- Public Responsibility



Washington Visiting His Sick and Injured Troops

The Path to Performance Excellence



The Pursuit of Performance Excellence

"Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has"



Margaret Mead
(1901-1978)



DC Comics

SUPER HEROES



Superman



Wonder Woman



X1111

Chapter One

PLATE POSITION

X1111

36
x 20
\$7.00



SUPER HEROES



Qualified **M**edical **P**hysicists

*"The American Association of Physicists in Medicine regards board certification in the appropriate medical subfield as the appropriate qualification for the designation of **Q**ualified **M**edical **P**hysicist."*

Achieving Performance Excellence

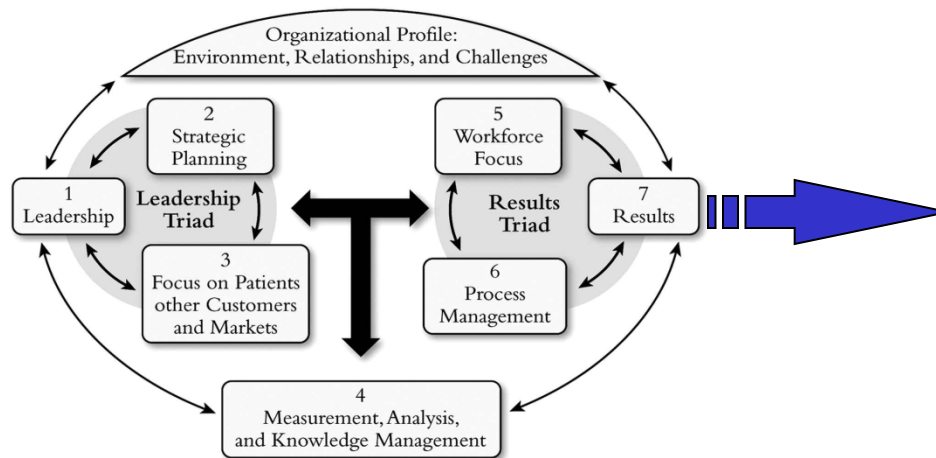
*"Give Us the Tools
and We Will
Finish the Job"*



**Winston Churchill
(1874-1965)**

Baldrige National Quality Program

- Provides a broad array of self-assessment tools to measure and improve health care organizational performance



2009–2010

Baldrige National Quality Program

Health Care Criteria for Performance Excellence

leadership ethics



recognition

Performance Excellence and Innovation

2009–2010

Baldrige National Quality Program



Medical Physics

Criteria for Performance Excellence

leadership ethics

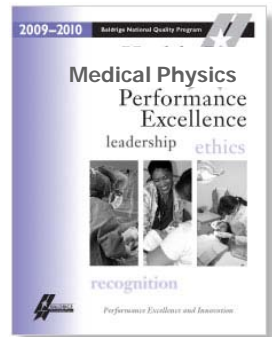


recognition

Performance Excellence and Innovation

Medical Physics Criteria For Performance Excellence

- Focus on Results
- Non-prescriptive & Adaptive
- Integrate Key Health Care Themes
- Support a Systems Perspective
- Geared to Goal-Based Self-Assessment



Medical Physics Criteria Goals

- To improve organizational practices, capabilities and results
- To facilitate communication and sharing of best practices information
- To assist the understanding and measurement of performance
- To guide organizational planning



Medical Physics Criteria Approaches

- Team-based self assessment for program evaluation and development
- Profile of strengths and Opportunities For Improvement (OFIs) generated
- Ordered examination of operations and trends and objective means of benchmarking performance against regulatory and professional society guidelines (e.g. NRC, ACR, ASTRO, AAPM, PQRI, JCAHO, etc.)



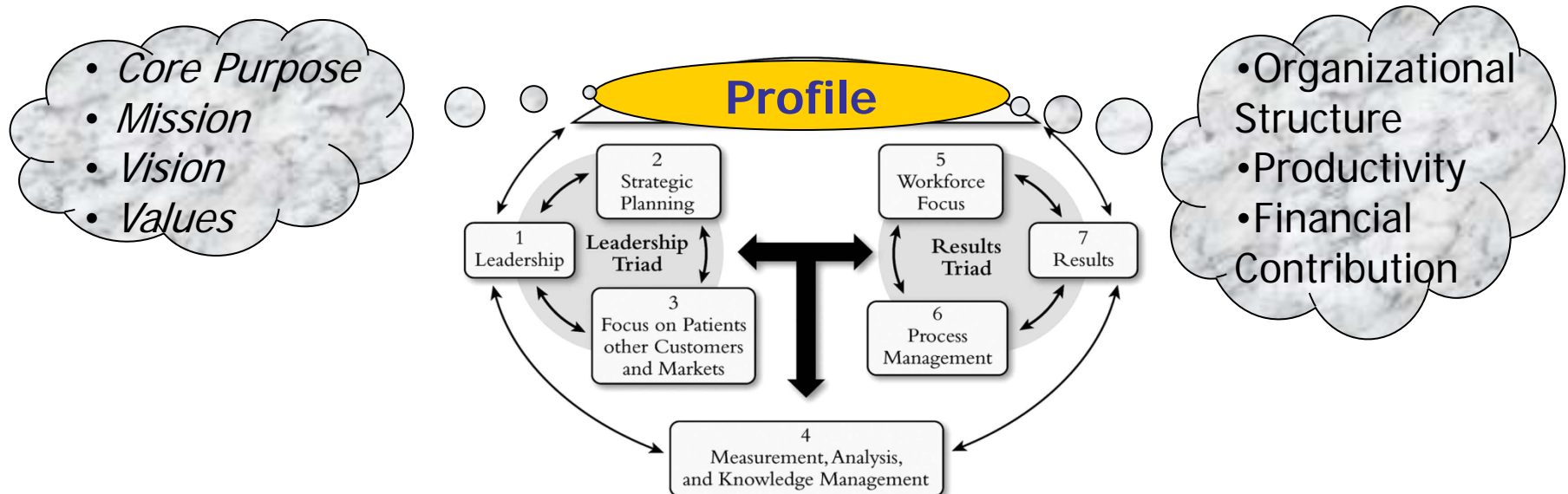
Baldrige ACTIONABLE Health Care Criteria Excellence Framework

A Systems Perspective

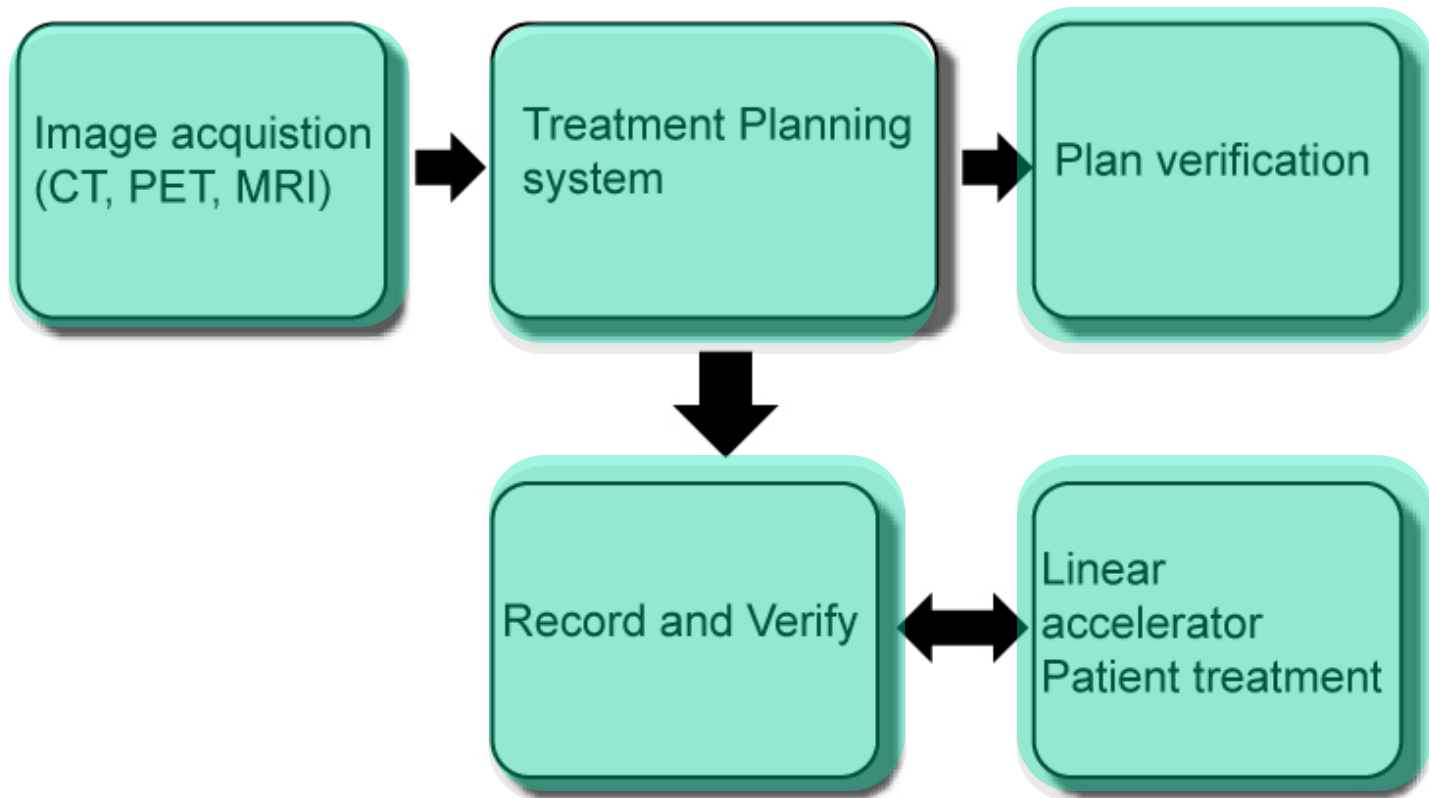


First Step: Organizational Profile

- Documents the work environment, important relationships and challenges
- Sets the stage for seven Category Assessment studies that follow



Radiotherapy Process Flow





Organizational Profile: Core Purpose

- What do we do?

The essential clinical responsibility of the Medical Physics Team is to assure the safe and effective delivery of radiation in support of patient care to achieve a prescribed therapeutic outcome. We develop, perform and/or supervise the appropriate procedures necessary to attain this goal.



Organizational Profile: Mission

- What are we trying to accomplish?

We are committed to providing high quality physics and dosimetry services, innovative scientific advances and teaching programs that support the clinical, research and educational objectives of the Department of Radiation Oncology, the Hospital and the Medical School.



Organizational Profile: Vision

- Where are we headed and how do we want to be viewed?

The exceptional quality and significance of the clinical, research and educational programs we offer will generate widespread acknowledgment among our professional peers and important stakeholders that we are a Center of Medical Physics Performance Excellence.



Organizational Profile: Values

- What is truly important to us?

- ***Excellence** – We strive for excellence, delivering the best possible medical physics services in an environment that attracts and retains outstanding professionals*

- ***Customer Focus** – We work diligently to satisfy our customers including patients, physicians, therapists, nurses, administrators, clerical staff and other stakeholders*

- ***Innovation** – We are constantly looking for ways to improve the quality of our services by supporting innovation, embracing change and encouraging the development of new ideas and knowledge*



Organizational Profile: Values (Continued)

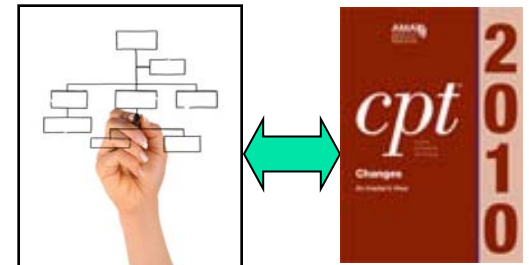
- What is truly important to us?

- ***Teamwork** – We strive to create a supportive, enjoyable working atmosphere where our collective energy and intelligence enable us to succeed at our highest potential, both individually and as a team*
- ***Compassion** – We earn trust through the courtesy, sensitivity and respect we demonstrate to our patients and co-workers*
- ***Integrity** – We are truthful, equitable and open in all our relationships*



Organizational Profile: Relationships & Productivity

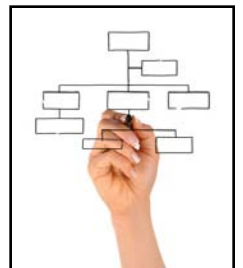
- Medical Physics organizational structure and reporting relationships
 - Are they appropriate to anticipate and meet the expectations and support of a wide-ranging constituency?
- Productivity measurement and revenue generation
 - Are clinical operations cost-effective?





Organizational Structure

- To whom does the Chief Medical Physicist report directly?
- Do the dosimetrists report directly to the medical physicists?
- Do the medical physicists have a formal role in the facility's budget processes?
- What medical physics services are provided?





Staffing

Position	# FTE
Medical Physicists	
Dosimetrists	
Physics Assistants	
Medical Physics Residents	



Medical Physics Clinical Services

Service	Annual Cases
External Beam Therapy	
Brachytherapy	
Radiopharmaceutical Therapy	
Intraoperative Radiotherapy	
Other	



Other Medical Physics Services





Service	% Time
Radiation Safety	
Computer Support	
Administration	
Research	
Teaching	



Clinical Equipment

Category	Description
Linear Accelerator(s)	
Simulator(s)	
Brachytherapy Equipment (LDR & HDR)	
Stereotactic Radiosurgery Equipment	
Treatment Planning System(s)	
Physics Instrumentation	

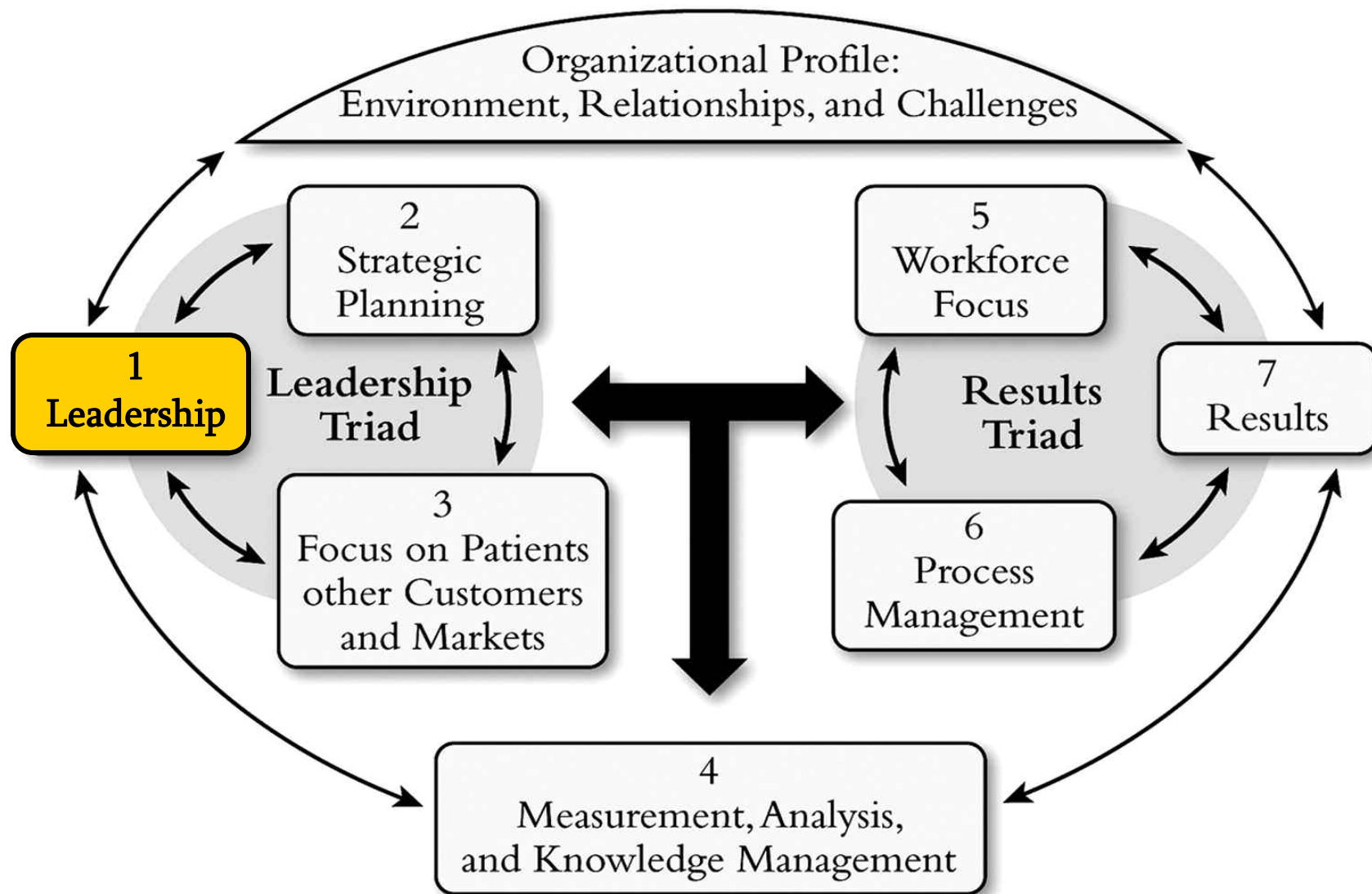
Medical Physics Productivity

Medical Physics CPT Codes	CPT Procedures Previous Period	CPT Procedures Current Period	Gross Revenue Previous Period	Gross Revenue Current Period
20+ Billing Code\$				
77295 etc.		<i>Projected Annual CPT Procedures</i>		<i>Projected Annual Gross Revenue</i>

- For every 100 treated radiation oncology patients:
 - Facility Total Gross Revenue ~ \$4 million
 - Medical Physics Gross Revenue ~ \$1.5 million

Medical Physics Excellence Criteria Framework

A Systems Perspective



Category 1: Leadership

- Describe how its Leaders guide and sustain the Medical Physics Team





Category 1: Leadership

- Evidence that Medical Physics leaders demonstrate:
 - Commitment – Dedication to promoting the Department's Core Purpose, Mission, Vision and Values
 - Professional Conduct and Ethics – Emphasis on legal and ethical practices
 - Patient Safety – Creation and endorsement of a culture of patient safety
 - Communication and Engagement – Encouragement of an open communications approach with coworkers, patients and other stakeholders
 - Action Orientation – A focus on action and results to accomplish the Department's objectives and attain its vision

Leadership

- Nelson Mandela equated a great leader with a shepherd:

" He stays behind the flock, letting the most nimble go out ahead, whereupon the others follow, not realizing that all along they are being directed from behind."



**Nelson Mandela
(1918 -)**



Leading for Innovation

- Leaders must ensure their organizations are willing to innovate
- Leaders must build the organizational capabilities necessary for engaging in the innovation process



Willingness to Innovate

- Building community
 - “. . .creating a world to which people want to belong”
 - People are valued for who they are and have an opportunity to contribute to something larger than themselves
 - Have a common purpose and shared values

1

Leadership



Organizational Capabilities

- Creative abrasion
 - Ability to generate ideas through discourse and debate
- Creative agility
 - Ability to test and refine ideas through quick pursuit
- Creative resolution
 - Ability to make decisions in an integrative manner



Category 2: Strategic Planning

- Valid and reliable definition of a set of decisions and actions that contribute to the creation and realization of plans for achieving defined objectives
 - SWOT(Strengths, Weaknesses, Opportunities, Threats) Analysis
 - Option Evaluation
 - Objectives Selection
 - Implementation
 - Evaluation



Category 2: Strategic Planning (cont.)

- ***SWOT Analysis*** – A synopsis of internal capabilities and the potential impact of external environmental factors
- ***Option Evaluation*** – Scrutiny of various alternative strategies that are consistent with available resources and the environment as determined by the SWOT Analysis
- ***Objectives Selection*** – Identification of the most desirable options that are consistent with the Department's mission
- ***Implementation*** – Allocation of necessary personnel, equipment and financial resources and deployment of accompanying action plans to achieve defined strategic objectives
- ***Evaluation*** – Development and assessment of performance indicators that track progress to the defined strategic objectives



SWOT Analysis

- **SWOT** Analysis is a well-established management planning tool that has been employed advantageously by diverse industries, including health care, for many years. It is a useful system also for providing medical physicists with a structured, systematic approach to strategic planning.



SWOT Process

- **SWOT** Analysis can be regarded as a form of “brainstorming” that begins with the definition of a desired end state or outcome.
- During the discussion that follows, a comprehensive matrix is created that summarizes the **S**trengths, **W**eaknesses, **O**pportunities and **T**hreats impacting the Medical Physics Team.
- If the objective appears to be reasonably obtainable following the analysis, the **SWOT** reflections can be further harnessed to create a set of strategies that will move the implementation stage forward effectively by utilizing **S**trengths, confronting **W**eaknesses, taking advantage of **O**pportunities and minimizing **T**hreats



SWOT Components

- **S**trengths - Organizational characteristics that contribute positively to achieving the defined objective.
- **W**eaknesses – Organizational characteristics that are detrimental to achieving the defined objective.
- **O**pportunities – External factors that will assist with achieving the defined objective.
- **T**hreats – External factors that could hinder the achievement of the defined objective.



Environmental Factors

- Strengths and Weaknesses are viewed as being internal to the organization, while Opportunities and Threats often relate to external factors.



SWOT Matrix

Strengths

(Internal Environment)

- What do we excel at?
- What resources do we have?
- What do others view as our strengths?

Weaknesses

(Internal Environment)

- What resources are we lacking?
- What services require improvement?
- What do others view as our weaknesses?

Opportunities

(External Factors)

- What new technology is being considered?
- What institutional resources will be available?
- What are the Department's broader strategic goals?

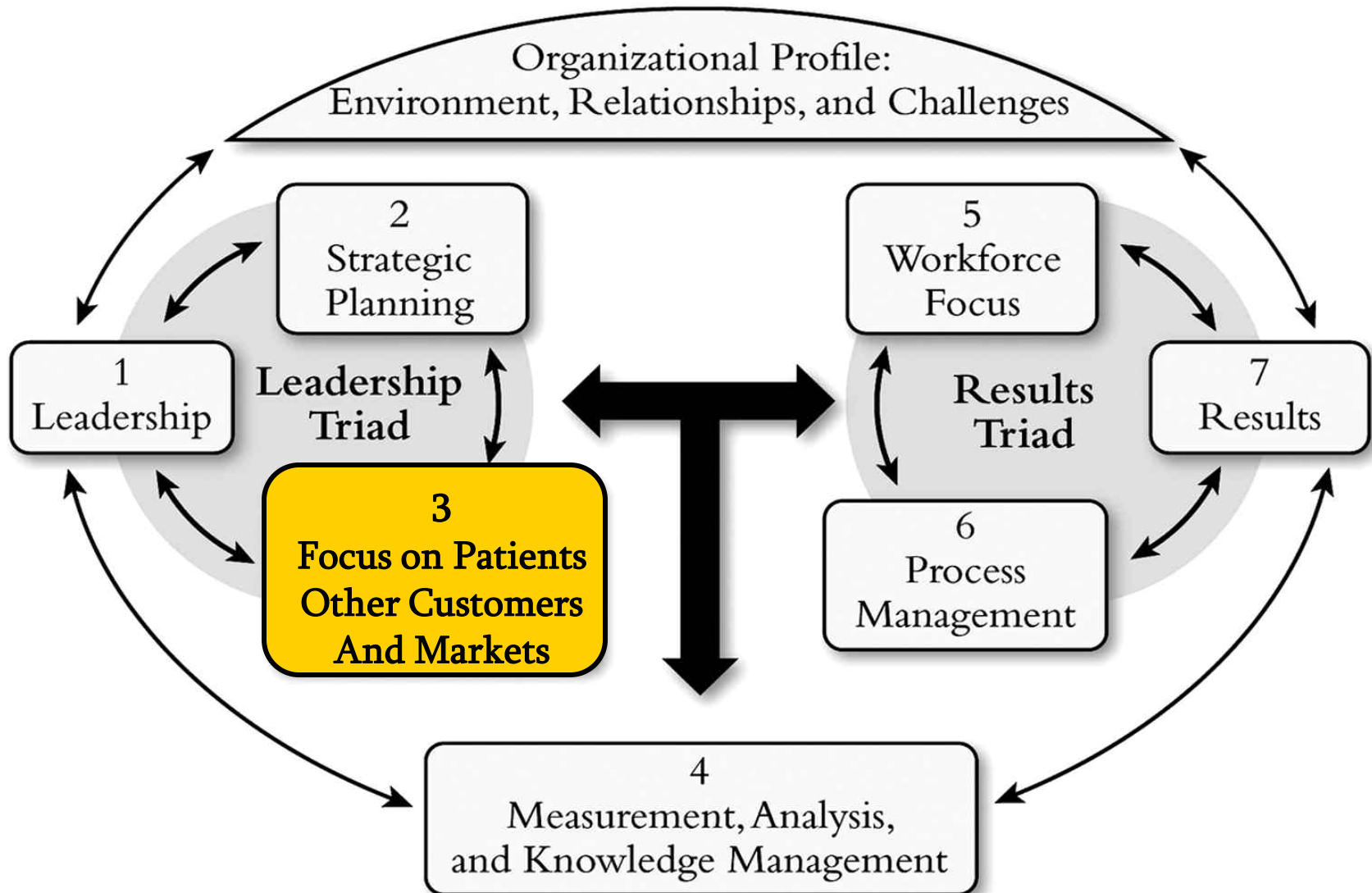
Threats

(External Factors)

- What institutional resistance might impede us?
- What competition for resources do we face?
- What will restrict our ability to recruit and retain required well-qualified staff ?

Medical Physics Excellence Criteria Framework

A Systems Perspective



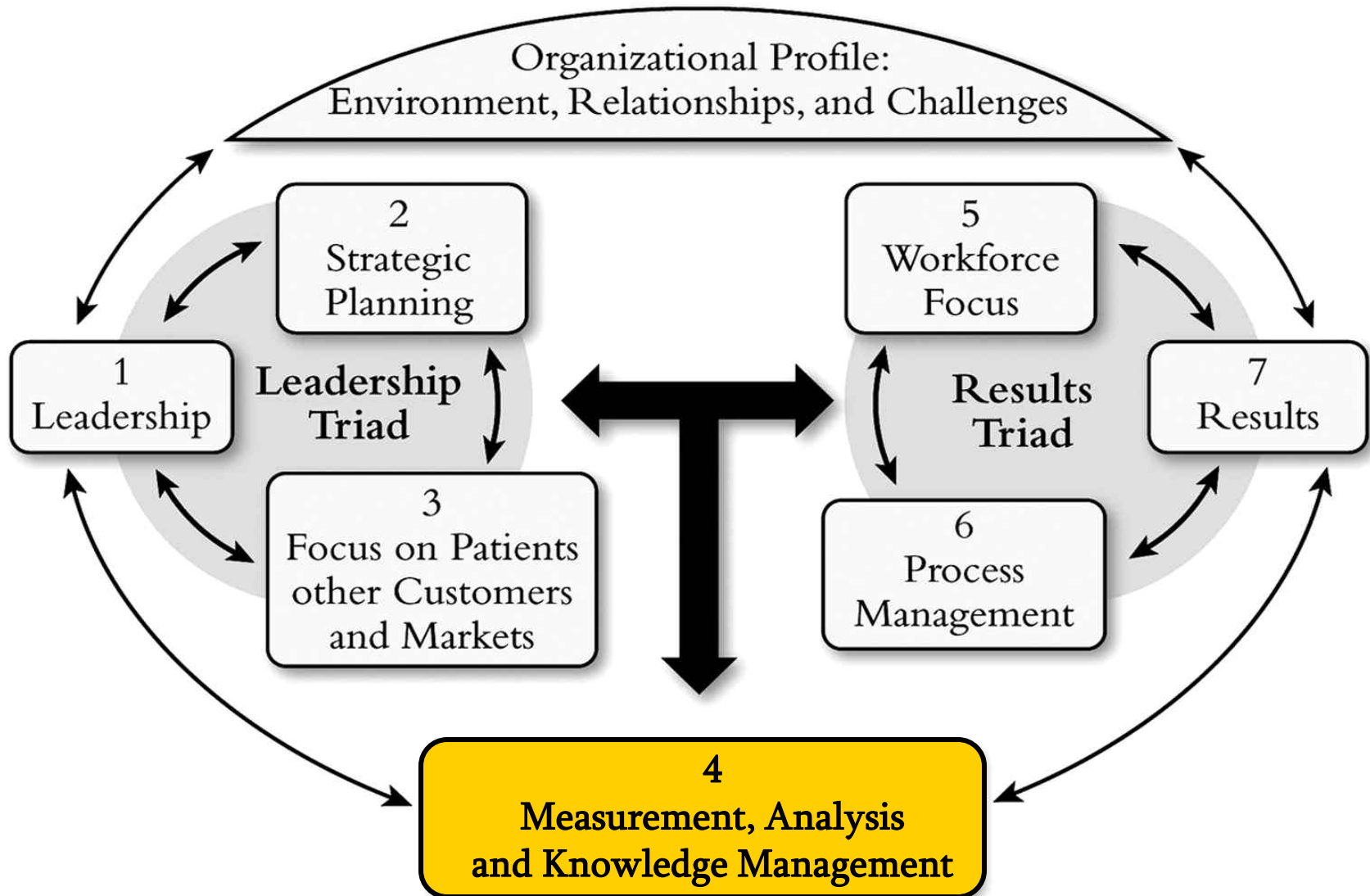


Category 3: Customer Focus

- Evaluation of “customer” relationship management (patients, families, physicians, medical physicists, dosimetrists, radiation therapists, nurses, administrators, clerical staff, other stakeholders)
 - Identification of customers and customer groups that directly and indirectly impact operations
 - Determination of differing requirements, needs and expectations of various customers
 - Mechanisms to ensure performance feedback from customers to enable process improvement
 - Efficacy of information exchange mechanisms to ensure key stakeholders are kept fully informed about operations and resource requirements

Medical Physics Excellence Criteria Framework

A Systems Perspective



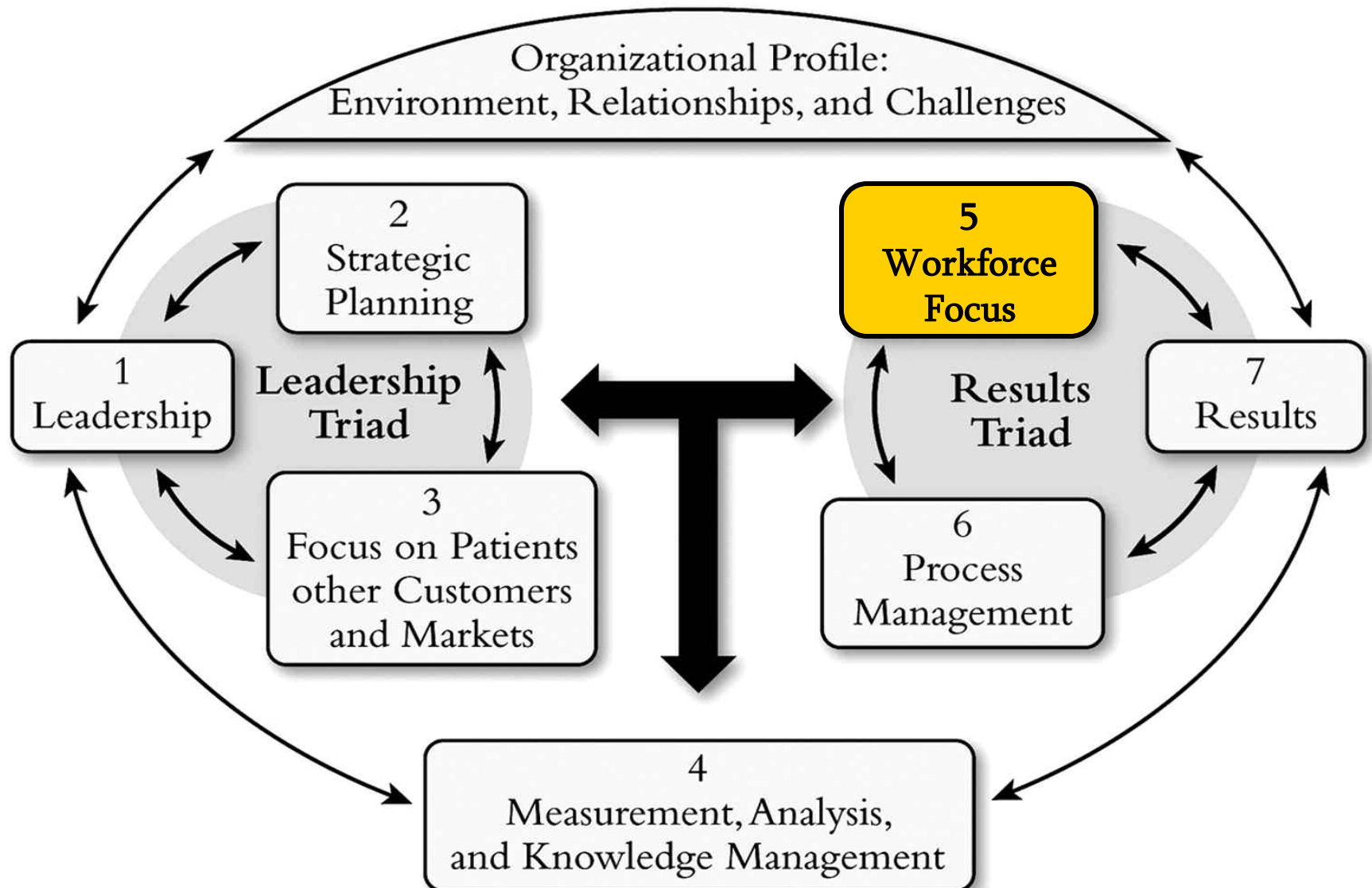


Category 4: Measurement, Analysis and Knowledge Management

- Documentation of policies and procedures that relate to the accuracy, integrity of and reliability of equipment performance and the confidentiality of patient-related data
- Documentation of policies and procedures to ensure that computer hardware and software systems are reliable, secure and current with Department requirements

Medical Physics Excellence Criteria Framework

A Systems Perspective





Category 5

Workforce Focus

- Goal: To encourage organizational commitment by enabling the Medical Physics Staff to develop and utilize its full potential





Workforce Focus

- How the Medical Physics program engages, manages and develops staff to utilize its full potential in alignment with the mission, vision, strategy and action plans
- Ability to assess the Medical Physics workforce capability and needs, and build an environment leading to high performance



**5
Workforce
Focus**

Key Factors

**Staff
Commitment**

Enrichment

Development

Assessment

Capability

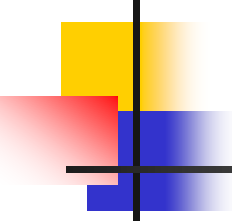
Environment



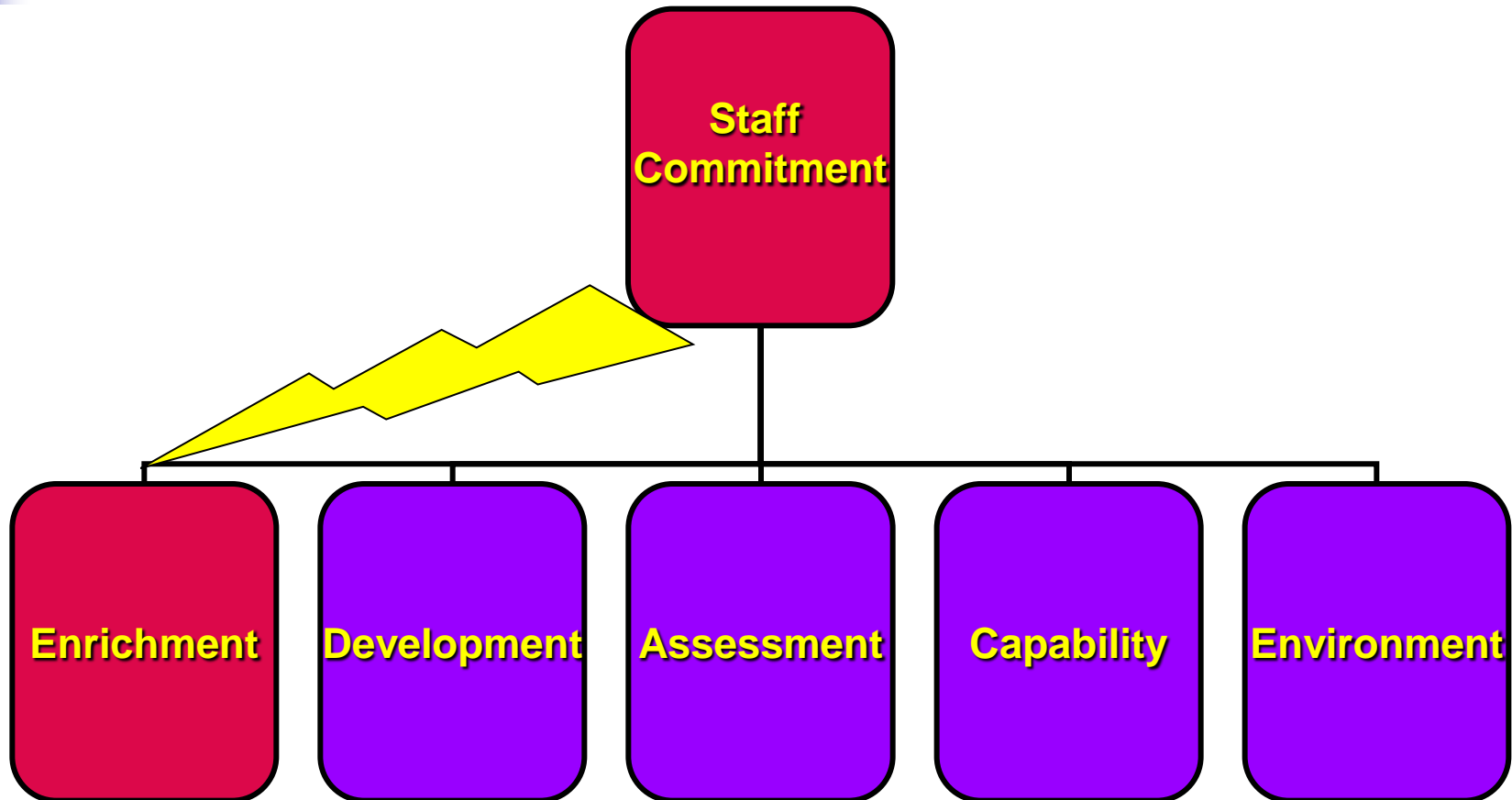
Staff Commitment

- How do you determine key factors that effect staff satisfaction?
- How do you foster:
 - Cooperation and skill sharing?
 - Effective information flow?
 - Individual goal setting and empowerment?
 - Innovation?

**Staff
Commitment**



Key Factor - Enrichment





Enrichment

- How do you promote an organizational culture to accomplish:
 - Cooperation, effective communication and skill sharing?
 - Effective information flow with co-workers and administrators?
 - Individual goal setting, empowerment and initiative?
 - Innovation?
 - Ability to benefit from diverse cultures and thinking?

**Staff
Commitment**



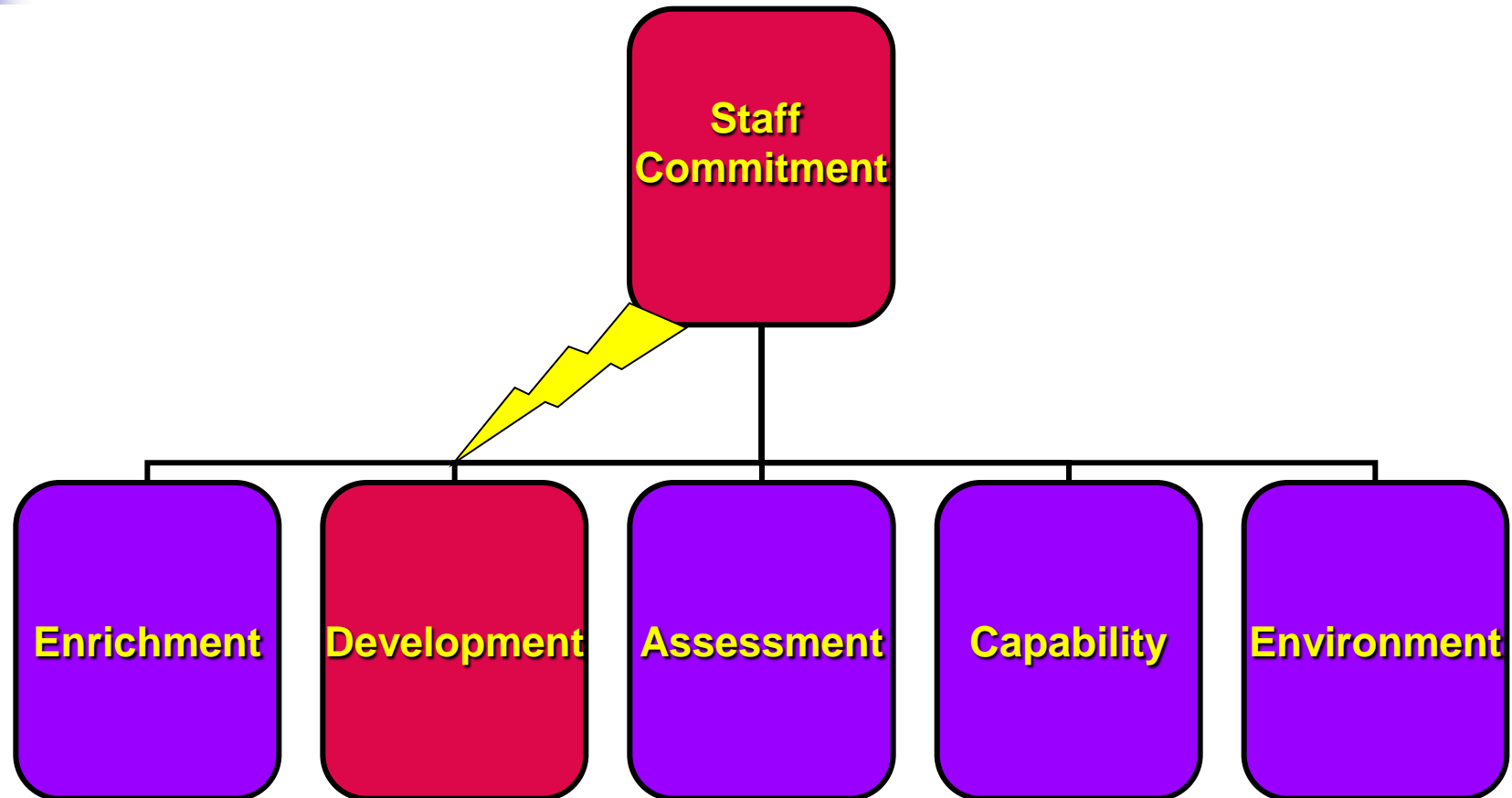
Enrichment (Cont.)

- How do you support and reward high performance work:
 - Compensation and other rewards, recognition and incentives?
 - A performance management system that focuses on achievement of individual and team-developed action plans?

**Staff
Commitment**



Key Factor - Development





Development

- How do you determine staff learning and development needs that address:
 - Certification and credentialing requirements?
 - Core competencies, strategic challenges and achievement of action plans both short and long term?
 - Technological change and innovation?
 - Transfer of knowledge from departing or retiring staff?
 - Reinforcement of new knowledge or skills on the job?

**Staff
Commitment**



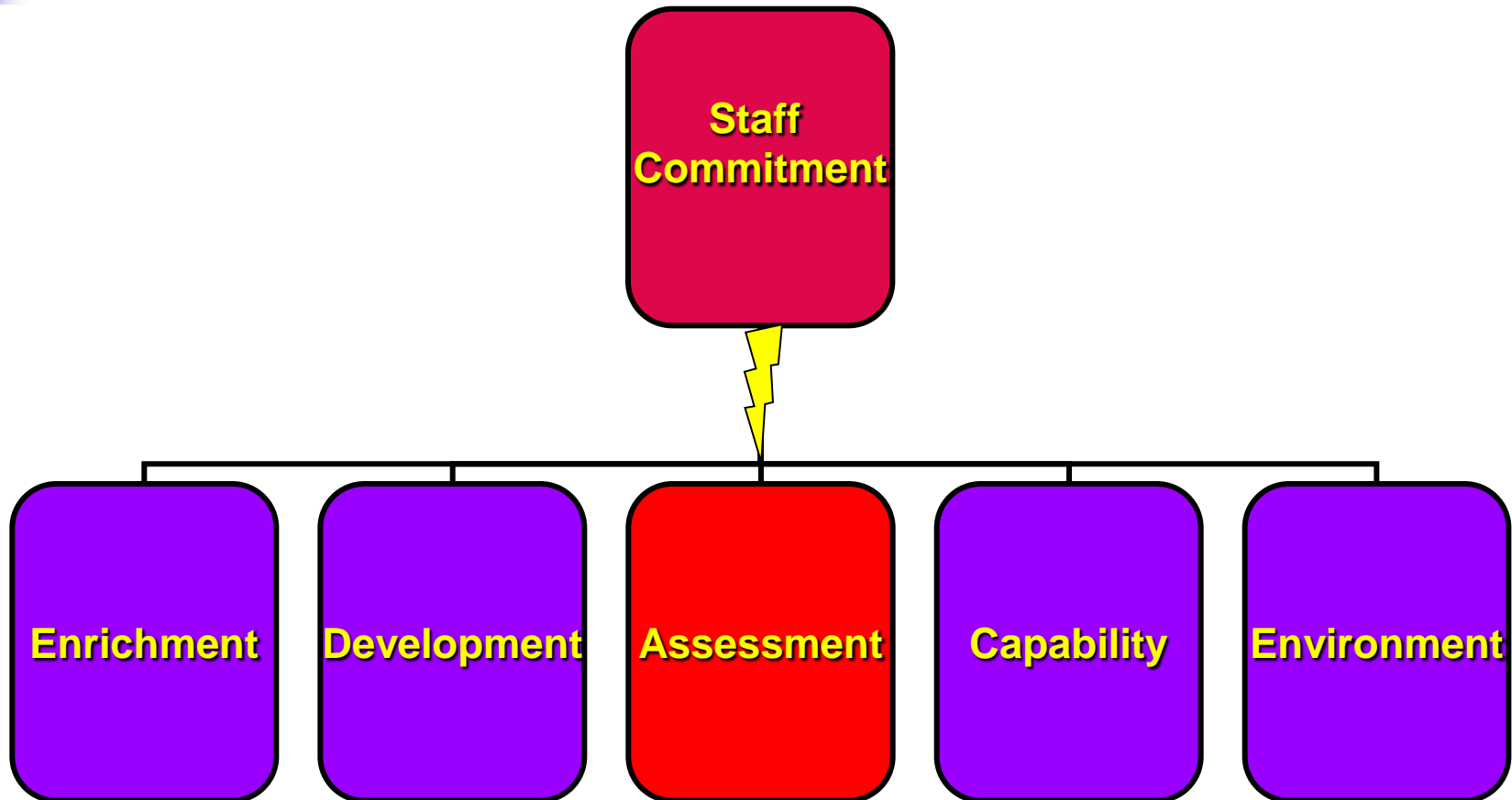
Development (Cont.)

- How do you determine individual staff learning and development needs that address:
 - Personal leadership and career progression opportunities by education, training, coaching, mentoring and work-related experience?
 - Improved knowledge of broader departmental and institutional goals?
 - Ethical professional practices?

**Staff
Commitment**



Key Factor - Assessment





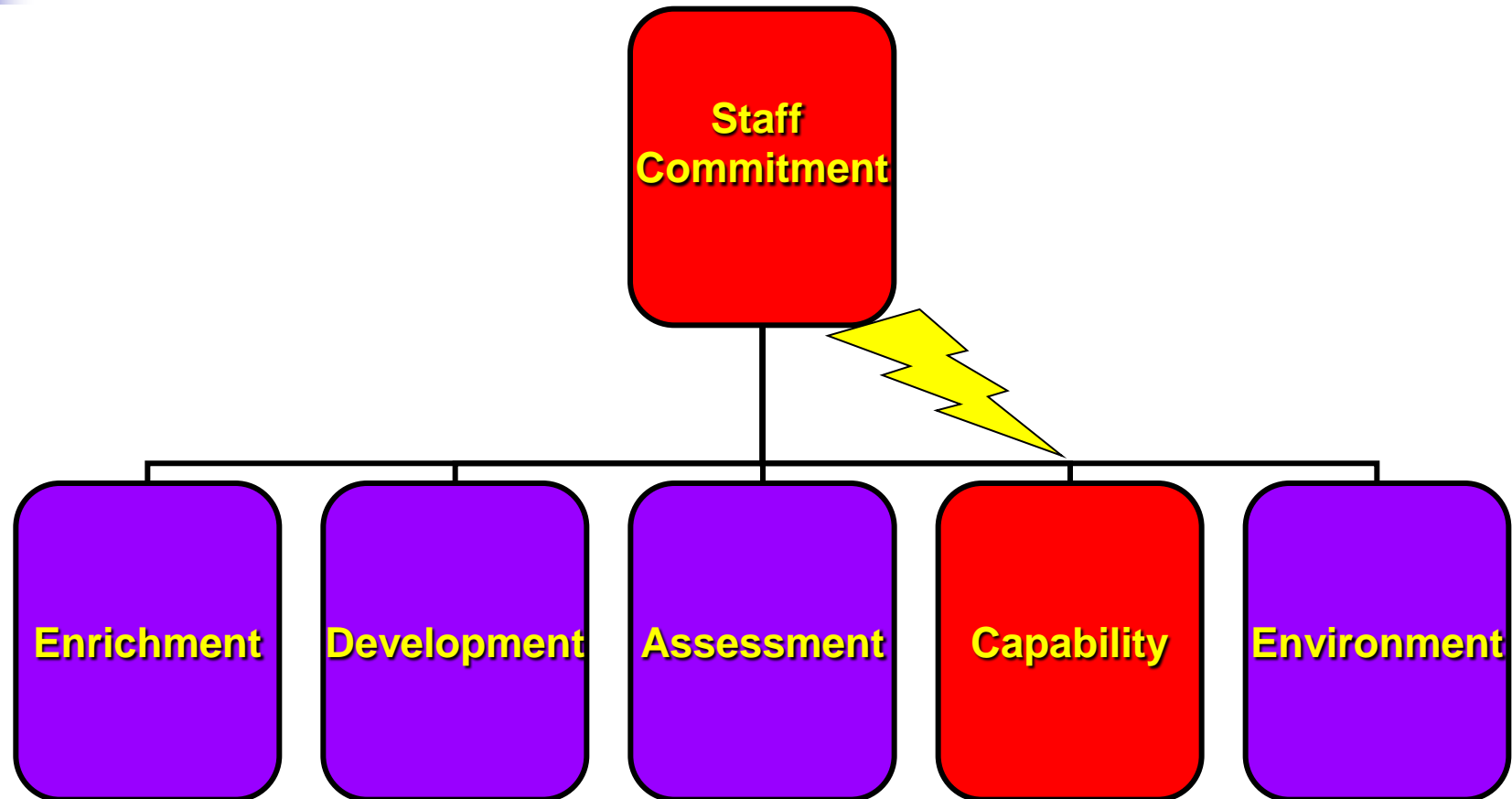
Assessment

- What are your formal and informal assessment methods and measures to determine staff satisfaction such as:
 - Staff retention?
 - Absenteeism?
 - Grievances?
 - Productivity?

**Staff
Commitment**



Key Factor - Capability





Capability

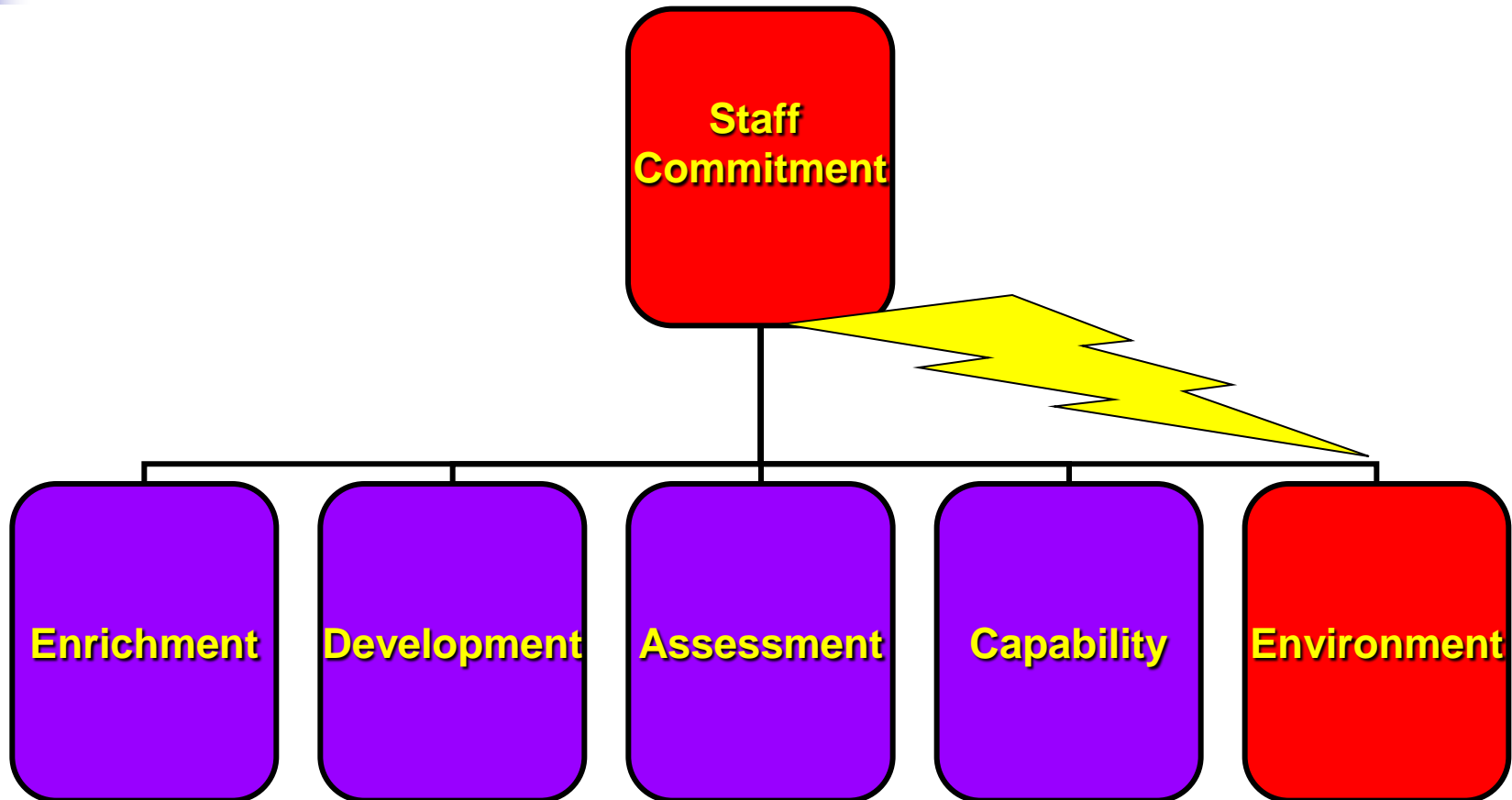
How do you:

- Assess staff skills, competencies and staffing levels?
- Develop strategies to recruit, hire, place and retain new staff?
- Manage and organize to:
 - Capitalize on core competencies?
 - Exceed performance expectations?
 - Address strategic challenges?
 - Modify operations in response?
to changing service needs?

**Staff
Commitment**



Key Factor - Environment





Environment

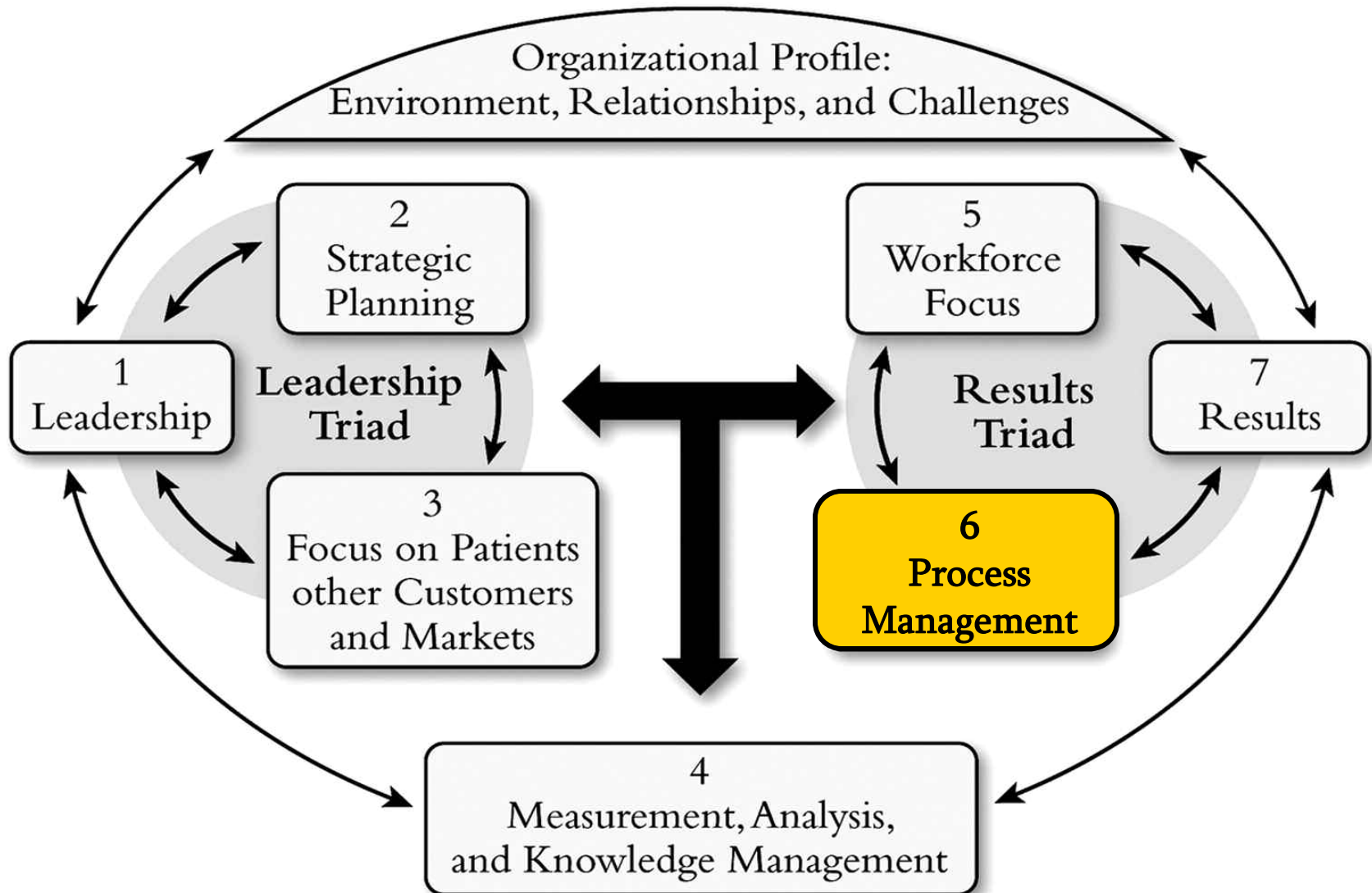
How do you:

- Assess and improve workplace facilities for productivity, comfort and safety?
- Plan for both space and support needs to address new strategic challenges?
- Ensure that space and support services are sufficient to accommodate staff at varying medical physics demand levels?

**Staff
Commitment**

Medical Physics Excellence Criteria Framework

A Systems Perspective



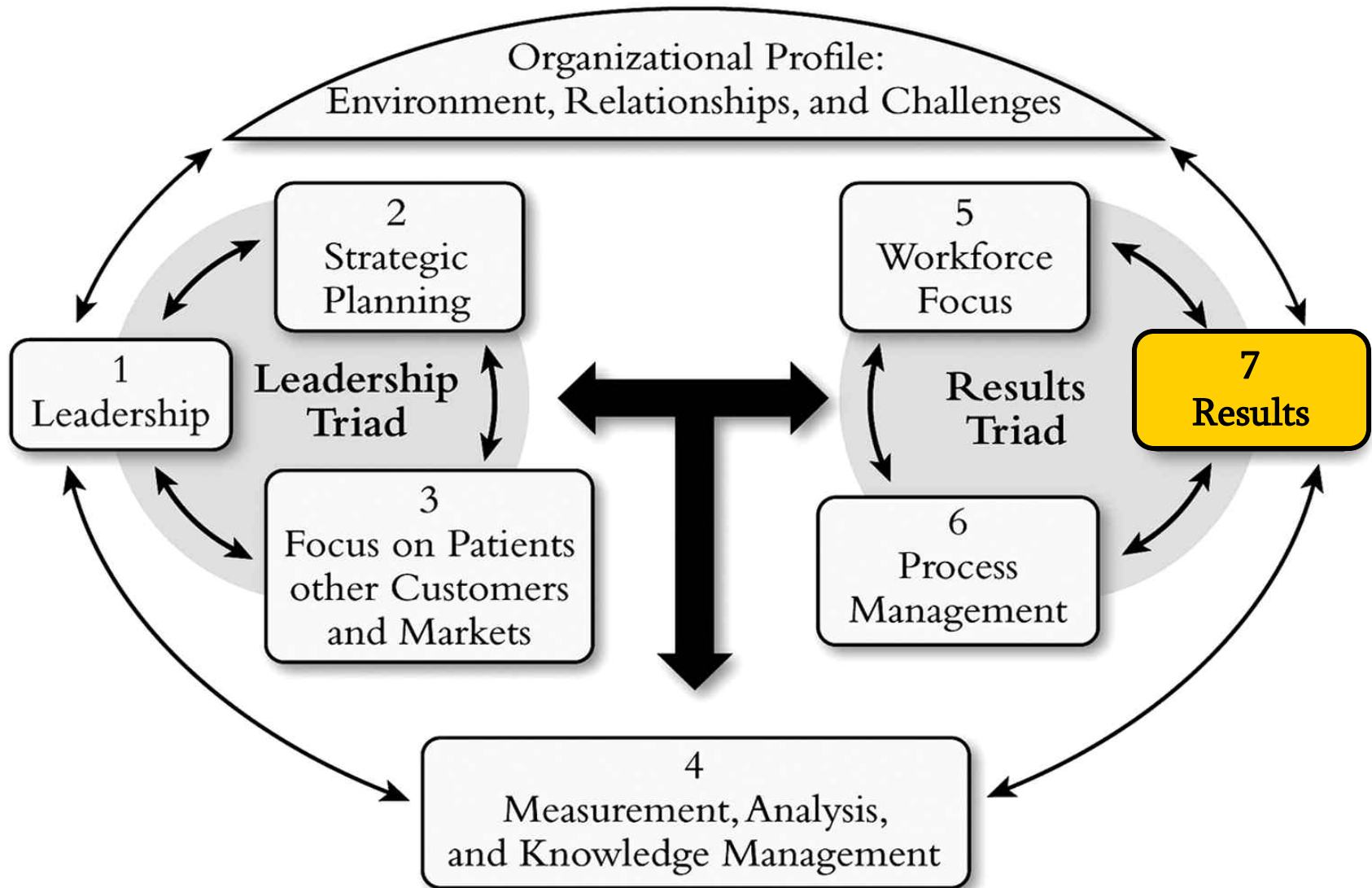


Category 6: Process Management

- Evaluation of the design and implementation of work systems that provide value to patients, colleagues, and other stakeholders
 - Quality Management Program
 - Key performance indicators
 - Work process system identification, design, implementation, management and improvement
 - Emergency workplace preparedness (e.g. radiological terrorism)

Medical Physics Excellence Criteria Framework

A Systems Perspective





Category 7: Results

- Evaluation of outcomes
 - Patient-focused results
 - Other stakeholder-focused results
 - Financial and marketplace performance results
 - Workforce-focused performance results
 - Process effectiveness results
 - Leadership results

Scoring

Process

Methodology

- **A** - Approach
- **D** - Deployment
- **L** - Learning
- **I** - Integration



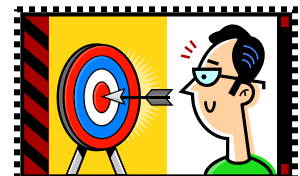
Results

Outputs & Outcomes

- **L** - Levels
- E**
- **T** - Trends
- **C** - Comparisons
- **I** - Integration

Process Score

- **A**pproach
 - Methods used, their appropriateness, effectiveness, repeatability and reliability
- **D**eployment
 - Extent to which approach is applied consistently for use for all work units
- **L**earning
 - Encouraging new breakthroughs and sharing refinements and innovations with other work groups
- **I**ntegration
 - Extent to which important requirements addressed, performance indicators included and results support organization-wide goals



A→D→L→I



Process Scoring: Categories 1-6

Score (%)	Process	
0 – 5	Anecdotal	Reacting to Problems
10 - 25	Beginnings	General Improvement
30 - 45	Effective	Systematic Improvement
50 - 65	More Effective	Learning and Strategic Improvement
70 - 85	Highly Effective	Organizational Analysis and Innovation
90 - 100	Fully Effective	



Results Score (Let's See)

- **LE**vels
 - Current level of performance
- **T**rends
 - Rate and breadth of improvement
- **C**omparisons
 - Performance relative to competitors, benchmarks or peers
- **I**ntegration
 - Extent to which important performance requirements are addressed and support organization-wide goals



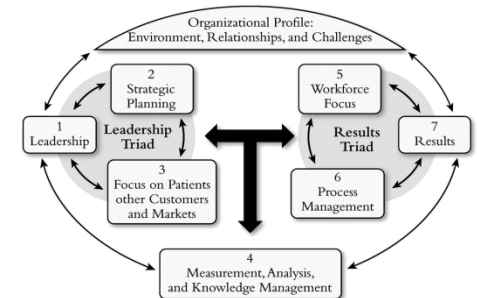


Results Scoring: Category 7

Score (%)	Results
0 – 5	Not Reported or Poor Results
10 - 25	Few Results Reported
30 - 45	Good Performance for Some Areas
50 - 65	Good Performance for Most Areas
70 - 85	Good to Excellent Performance for Most Areas
90 - 100	Excellent Performance for Most Areas

Total Possible Point Scores

1. Leadership (120 pts.)
2. Strategic Planning (85 pts.)
3. Customer Focus (85 pts.)
4. Measurement, Analysis and Knowledge Management (90 pts.)
5. Workforce Focus (85 pts.)
6. Process Management (85 pts.)
7. Results (450 pts.)



Journey & Reward

*"In the long run, men
hit only what they
aim at. Therefore,
they had better aim
at something high."*



*"What you get by
achieving your goals is
not as important as
what you become by
achieving your goals."*

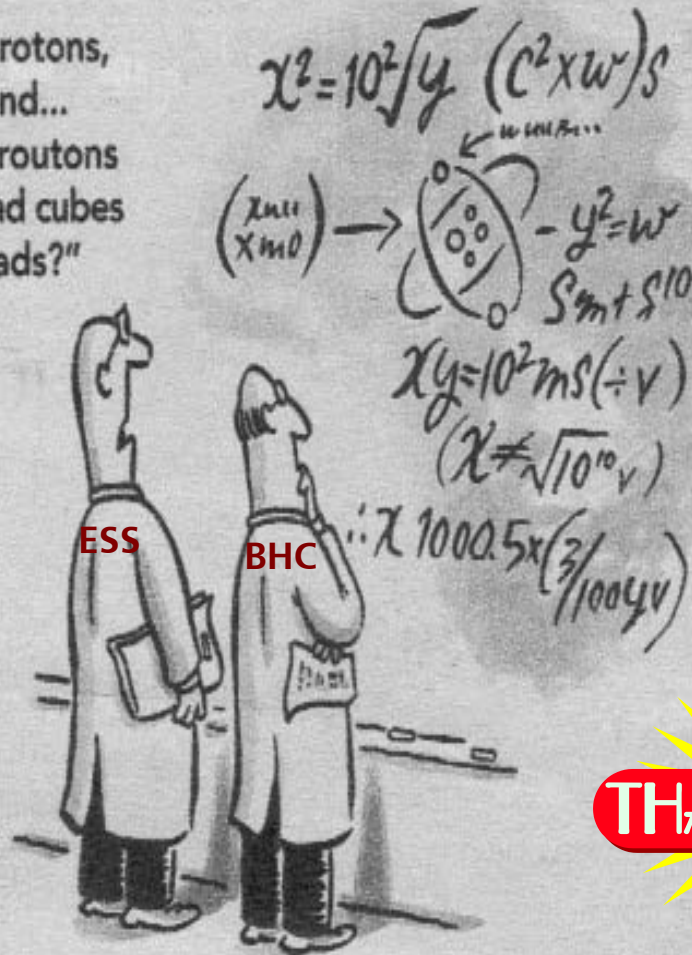


Henry David Thoreau
1817 –1862

Physics "Phood"

For Thought

"You've got protons,
neutrons, and...
Wait—aren't croutons
those little bread cubes
found in salads?"



THANK YOU

RINA PICCOLO