



Quality as a Business Strategy* Pre-Conference Workshop

Ian Bradbury & Dick Steele

peaker services, inc.

* Associates in Process Improvement (API - www.apiweb.org)

Aspirational Timetable

- ❖ 09:00-09:55a QBS Overview and Purpose Activity
- ❖ 09:55-10:20a Purpose Activity Exercise
- ❖ 10:20-10:30a Break
- ❖ 10:30-11:15a System Activity
- ❖ 11:15-12:00a System Activity Exercise
- ❖ 12:00-01:00p Lunch
- ❖ 01:00-01:30p Information Activity
- ❖ 01:30-02:00p Information Activity Exercise
- ❖ 02:00-02:30p Planning Activity
- ❖ 02:30-02:45p Break
- ❖ 02:45-03:15p Managing Improvement Activity
- ❖ 03:15-03:45p The Prediction Game
- ❖ 03:45-04:00p Wrap Up & Feedback



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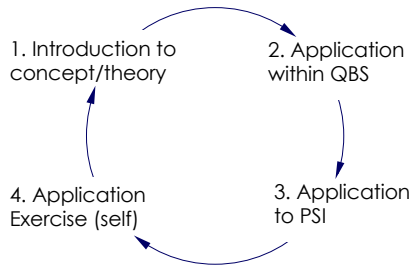
What are we trying to accomplish?

- ❖ Provide a basic understanding of the QBS framework to:
 - Prompt useful questions to struggle with for your own organization
 - Provide a framework of inter-related activities to aid in putting Deming's ideas into practice



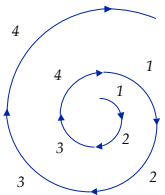
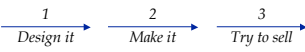
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Pedagogy

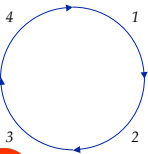


Deming in 1951

The Old Way



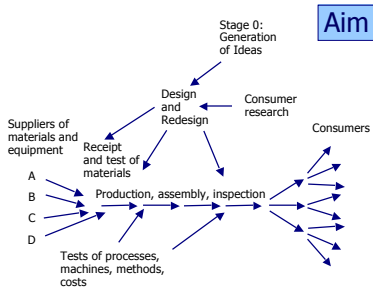
The New Way



1. Design the product (with appropriate tests)
 2. Make it, test it in the production line and in the laboratory
 3. Put it on the market
 4. Test it in service, through market research, find out what the user thinks of it, and why the non-user has not bought it
 5. *Re*-design the product, in the light of customer reactions to quality and price
- Continue around and around the cycle.



Appreciation for a System

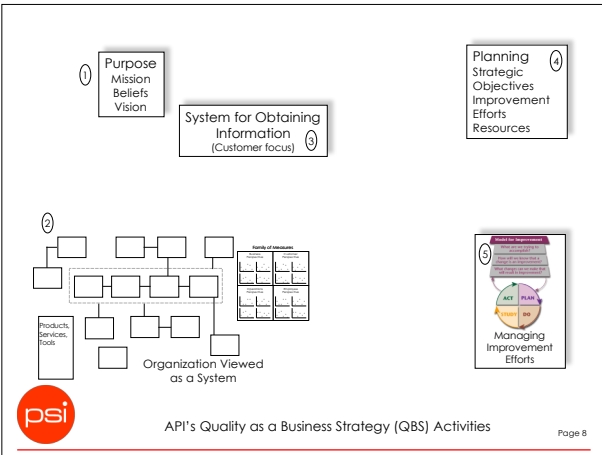


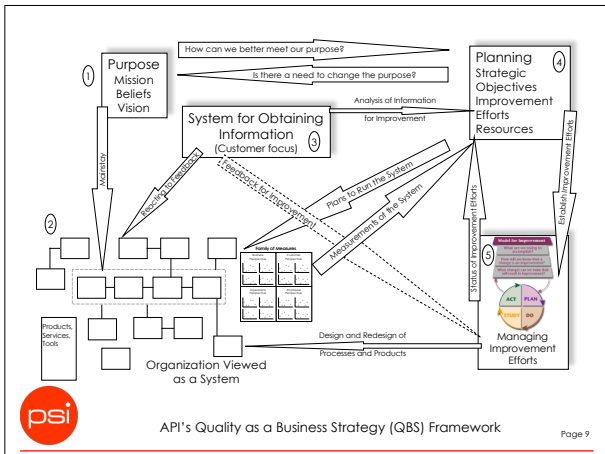
Production viewed as a System, The New Economics

QBS Seeks to Integrate

1. A foundation of continuous matching of products and services to a **need** through design and redesign of processes, products and services.
2. An organization that performs as a **system** to achieve this matching with the **need** as a target.
3. A set of **methods** whose application will ensure that changes result in real improvement of the organization.







1. Purpose Activity



❖ Identification of Need

- A general statement in terms of provision of customer value regarding what business we are in
- Customers = people with the identified need

❖ Quality Characteristics

- Relative to meeting identified customer needs
- ≠ Product specifications

❖ Tenets

❖ Vision



1a. Purpose Statement



- ❖ 1997: The Goal at Peaker Services, Inc. is to be recognized as having the best value in our business of remanufacturing and maintaining EMD engines and component parts; remanufacturing and maintaining equipment designed to use this engine; and designing and installing electrical control systems
- ❖ 1998: PSI's core business is the Remanufacture and Service of Large Motive and Electrical Power generation Equipment
- ❖ 2003: PSI's core business is to provide Unique Prime Mover and Control System Solutions to Industrial Customers through Remanufacture, Service, Distribution and Custom Application of Components
- ❖ 2005: PSI provides Industrial Customers with Unique Power Services and Solutions
- ❖ 2006: Our Industrial Customers Need to Simplify Operation and Maintenance of their Power Resources while Reducing Operating Costs and Emissions and Increasing Efficiency, Reliability and Safety. To meet these Needs, Peaker Services provides Unique Prime Mover and Control System Solutions through Remanufacture, Field Service, Distribution and Custom Application of Components
- ❖ 2008: Our Industrial Customers Need to Simplify Operation and Maintenance of their Power Resources while Reducing Operating Costs and Emissions and Increasing Efficiency, Reliability and Safety. To meet these Needs, Peaker Services provides Unique Prime Mover and Control System Solutions through Remanufacture, Field Service, Distribution and **System Integration**



1a. Purpose Activity



Tenets:

- We will act in what we believe to be the mutual best interests of PSI and our customers, suppliers, employees, community or anyone who is affected by the way in which we do business.
- We consider it our responsibility to be at the forefront of the field in knowledge of our products and service methods. We will use this knowledge to provide superior service to our customers.
- PSI intends for all its employees to have opportunity for pride of workmanship, interest and challenge in their work and for all to have opportunity for personal development.
- We will appropriately involve people in decisions that affect them.
- Employees are provided the freedom to be act with genuine responsibility.
- Failures and unexpected outcomes are embraced as opportunities for learning and improvement
- Use of Quality as a Business Strategy as a framework for management and use of the Plan-Do-Study-Act cycle as a thought process for systematic learning and improvement has become second nature
- Profitability is sufficient to meet the appropriate short and long term needs of PSI's stakeholders
- We will focus on employee development and process effectiveness to minimize the need for inspection in maintaining conformance levels of quality
- PSI is not dependent on any one contract – no customers exceed 30% of the business
- **PSI is owned by its employees**

Vision:

- PSI is broadly considered in the industry to be the company that best serves the power related needs of its customers over the long term
 - PSI is consistently releasing new products and services to the power market that possess unexpected, desirable attributes, meeting un-served and latent needs of its customers
- TBD: Relative scale of existing & future businesses; Focus/Emphasis



1. Purpose Activity Exercise



- ❖ Review your organization's
 - Need (Aim/Mission) statement
 - Tenets (Belief's & Values)
- ❖ Are the QBS criteria satisfied?
 - Underlying customer need explicit? Balanced?
 - QC's - what's important to the customer in how the need is served?
 - Means by which you serve the need?
 - Is your organization's behavior consistent with its tenets?



1. Purpose Activity Exercise - backup



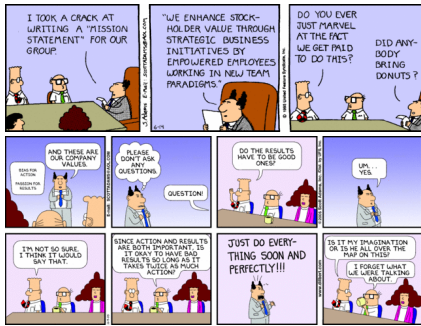
Organization	Excerpt from Mission Statement
Dayton Hudson	We are in business to please our customers
Ford Motor Co.	...is a worldwide leader in automotive and automotive-related products and services
Toyota	Toyota will lead the way to the future of mobility, enriching lives around the world with the safest and most responsible ways of moving people
Sony	To experience the joy of advancing and applying technology for the benefit of the public
Shell Refining Company, LTD	...is primarily concerned to maximize its contribution to the long-term profitability of the Shell Group...as this arises from the efficiency with which it uses the Group's resources of men, money and material.
UPS	UPS will achieve worldwide leadership in package distribution by developing and delivering solutions that best meet our customers' distribution needs at competitive rates. To do so, we will build upon our extensive and efficient distribution network...
Seven & I Holdings	Exists to maximize long-term value of shareholder equity. Our heritage is 7-Eleven.
Highlands Insurance Co.	Insurance plays an essential role in society by providing financial security, economic stability and growth capital. Insurance also enables business, industry and the public to honor their obligations to society. To fulfill this need, Highlands provides a broad range of insurance products and services...
Pratt & Whitney	...is a world leader in the design, manufacture and service of aircraft engines, auxiliary and ground power units, small turbojet propulsion products and industrial gas turbines.

Garvin - Dimensions of Quality *

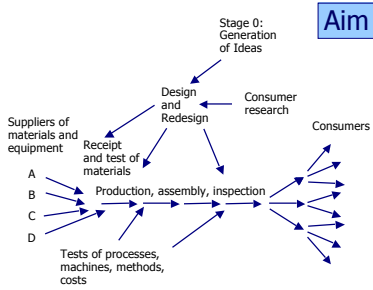
1. Performance	Primary operating characteristics
2. Features	Secondary operating characteristics, added touches (not included in other dimensions)
3. Time	Time waiting, cycle time, time to complete a service
4. Reliability	Extent of failure free operation over time
5. Durability	Amount of use before replacement is preferable to repair
6. Uniformity	Low variation among repeated outcomes of the process
7. Consistency	Match with documentation, forecasts, standards
8. Serviceability	Resolution of problems and complaints
9. Aesthetics	Relating to the senses such as color, fragrance, fit or finish
10. Personal Interface	Punctuality, courtesy and professionalism
11. Flexibility	Willingness to adapt, customize, or accommodate change
12. Harmlessness	Relating to safety, health, or the environment
13. Perceived quality	Inferences about other dimensions; reputation
14. Usability	Relating to logical and natural use; ergonomics



Dilbert



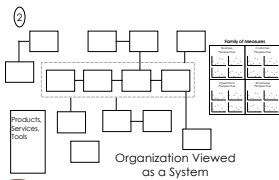
Appreciation for a System



Production viewed as a System, The New Economics

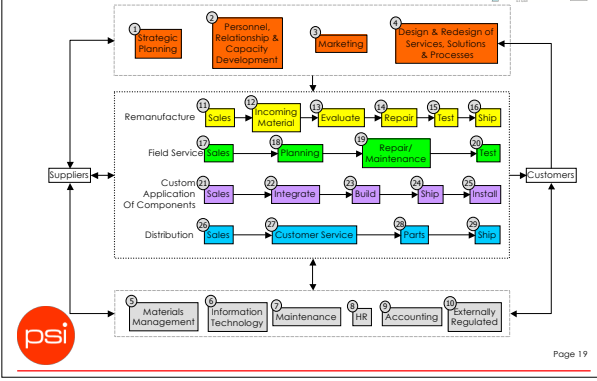
2. System Activity

- ❖ List the major products (services) & processes of the organization
- ❖ Document how the processes link together to form a system

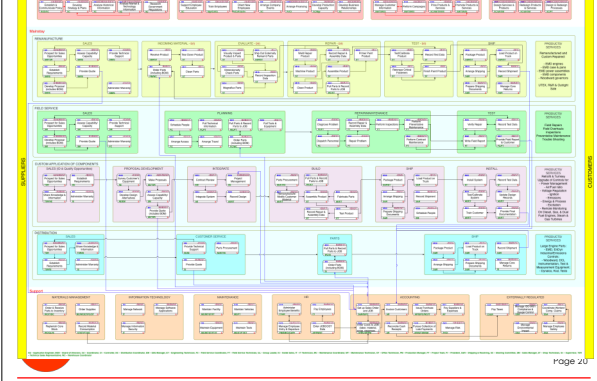


- ❖ Establish key measures of performance for the system
- ❖ Use to understand organization as a system - improvement focus

2. PSI Conceptual Linkage of Processes



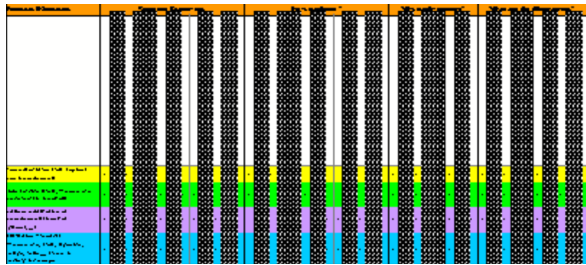
2. System Activity – PSI Detailed Linkage



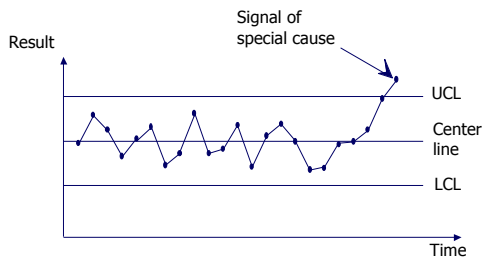
2. System Activity – Inventory VSM's



2. Products & Services Grid



Knowledge about Variation



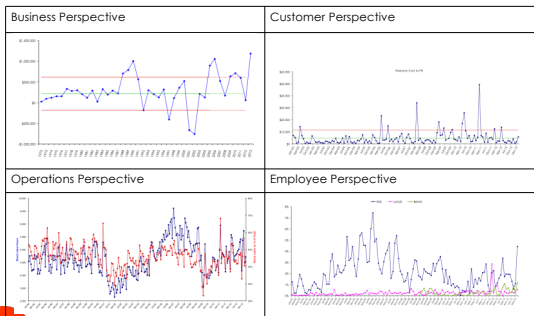
Mistakes 1 & 2; Tampering



- ❖ There are two mistakes frequently made in attempts to improve results, both costly (*Out of the Crisis*, p. 318)
 - Mistake 1. To react to an outcome as if it came from a special cause, when actually it came from common causes of variation
 - Mistake 2. To treat an outcome as if it came from common causes of variation, when actually it came from a special cause
- ❖ Shewhart Control Chart - Minimum Net Economic Loss
- ❖ Tampering



2. Family of Measures - examples



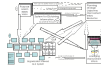
2. System Activity Exercise



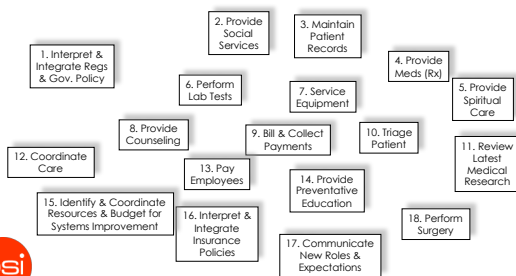
- ❖ Identify mainstay processes for your organization's linkage of processes, or;
- ❖ Categorize your organization's family of measures
 - Employee
 - Operations
 - Customer
 - Business



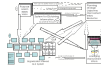
2. System Activity Exercise - backup



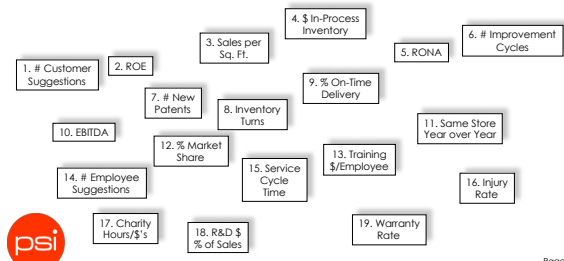
- ❖ Identify mainstay processes for a hospital;



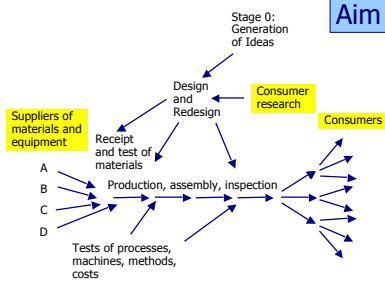
2. System Activity Exercise - backup



- ❖ Categorize this family of measures
 - Employee; Operations; Customer; Business



Production Viewed as a System



Production viewed as a System, *The New Economics*



3. Information Activity



- ❖ Develop a system to obtain information relevant to the Need the organization is fulfilling
 - Identify customers
 - System for collecting information from customers
 - Other information - suppliers, employees, marketplace, technology, regulations
- ❖ Provide information to organization in form fit for use
- ❖ Analyze & Synthesize to guide planning & improvement



3. Market Drivers

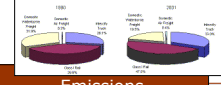
Infrastructure Growth

Global economic growth drives demand for electric power, transportation, and process equipment



Energy Independence

Increased use of local natural gas, renewable energy sources, rather than foreign oil



Emissions

Clean air regulations drive need for comprehensive control system solutions

2008 Elections

Government will play greater role in emissions, energy, transportation policy.

Obama: Clean carbon emissions standard set up to reduce global warming. Agrees to support energy system for trading carbon permits.
McCain: Clean carbon emissions standard set up to reduce global warming. Agrees to support energy system for trading carbon permits.
Clinton: Propose \$50 billion energy fund for development and use of alternative technologies.



3. Rail, PowerGen, Oil & C

Figure 9. Freight Transportation "Service Spectrum"



Skilled Labor Shortage

Baby Boomers retiring. Manufacturing moving to low labor cost countries. Driving need for more automation, optimizing of control systems and outsourcing



3. Information Activity Exercise



❖ Are there any changes in the following areas that will impact how your customer's needs are met in coming years?

- Technology
- Regulation
- Customers, Competitors, Suppliers, Environment

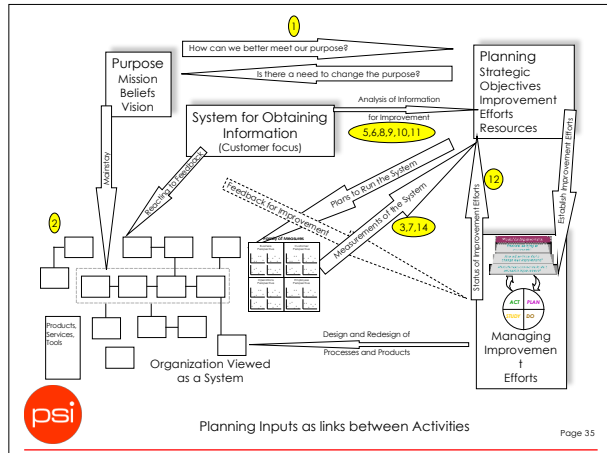


4. Planning Activity



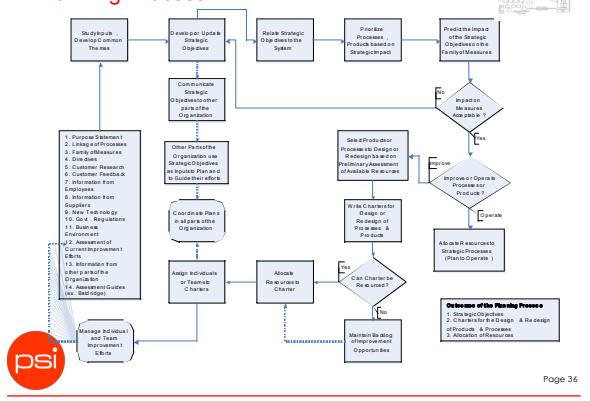
- ❖ Synthesize purpose, system and information activities
- ❖ Assess status of current improvement efforts on existing Plan
- ❖ Develop (or update) key initiatives that could best accelerate the performance of the organization.
- ❖ Tie back to System Activity; prioritize processes, products and services to improve.
- ❖ Establish individual and team efforts to accomplish the improvements that can be resourced and managed.
- ❖ Iterative activity - periodically update/revise as appropriate
- ❖ Focus = developing system level direction for change to leverage the use of resources most effectively.





Planning Inputs as links between Activities

4. Planning Process



4. PSI Strategy Elements



- A. Develop customer, supplier and peer distributor business relationships to gain the benefits that can result from all parties viewing themselves as part of the same system
- B. Develop, test and implement the Navision/IT/Paperless office to improve the efficiency and effectiveness of PSI business processes, allowing the business to be scaled with improved customer service but without proportionate increase in costs
- C. Develop products and services to support customers in ways that are not being addressed now to help balance or diversify our mix to sustain our growth and help us be more recession proof
- D. Develop the existing PSI system and integrate new capacity to meet near term requirements of customers while making improvements to serve the long term needs of customers and partners
- E. Perform an ESOP control transaction as soon as financially prudent to progress towards 100% employee ownership of PSI so all may share in the value they help to create



Dilbert



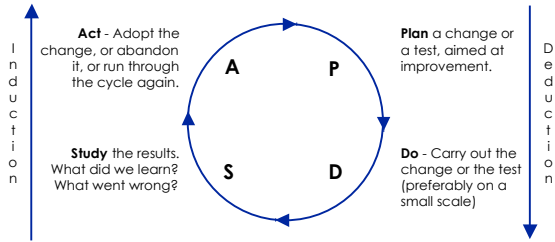
Deming's definition of knowledge



- ❖ The theory of knowledge teaches us that a statement, if it conveys knowledge
 - Fits without failure observations of the past
 - Predicts future outcomes, with risk of being wrong
- ❖ Information is not knowledge
- ❖ Experience without theory teaches nothing



The Plan-Do-Study-Act Cycle



Act - Adopt the change, or abandon it, or run through the cycle again.

Study the results. What did we learn? What went wrong?

Plan a change or a test, aimed at improvement.

Do - Carry out the change or the test (preferably on a small scale)



A flow diagram for learning and for improvement of a product or of a process. Page 132, *The New Economics*, 2ed.

5. Managing Improvement Activity

- ❖ Organize - consider support structure
- ❖ Training & other resources
- ❖ Standard methodology
- ❖ Guidance & sponsorship
- ❖ Remove obstacles; recognize
- ❖ Study - process/system insights?
- ❖ Redirect/redeploy resources
- ❖ Link to system - reduce suboptimization



5. PSI Improvement Form

Model for improvement

What are we trying to accomplish?

How will we know that a change is an improvement?

What changes can we make that will result in improvement?

What change do you have in mind?

What benefit do you believe will result from the proposed change? What do you expect the cost of the proposed change to be?

Why do you believe the proposed change will make an improvement (reasoning)?

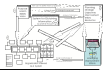
How will you know if the change was an improvement (measurement)?

Was the effect of the change what you expected?

What action should be taken next (adopt, re-test, abandon)?



5. PSI Improvement Form - Example



Person Initiating: Russ Fisher, Chris Westphal, James Murphy

What change do you have in mind?

Change tool for checking accessory drive gear spring tension. Current method of qualifying springs is not accurate because of need to adjust spring tension testing tool when checking exhaust valves vs. accessory drive gear springs. Variation between tool set-ups is causing springs to be improperly qualified good or bad

What benefit do you believe will result from the proposed change?

What do you expect the cost of the proposed change to be?

Uniform testing of accessory drive gear springs by employees. Accurate testing of springs as a result of consistent method of testing. Preset height gauge removes manual adjusting of test tool. Better productivity. Approx \$400; \$300 labor + \$100 material

Why do you believe the proposed change will make an improvement (reasoning)?

The current tool has to be adjusted for checking valve springs and accessory drive springs. The springs are supposed to be tested for spring tension at a predetermined height. The new method uses an indicator light so the employee knows when that predetermined height is reached and if the spring tension is in spec. The improvement will eliminate the constant adjusting of the testing tool and give the employee a known, solid test parameter.

How will you know if the change was an improvement (measurement)?

Test 25 springs using old method vs. new method. Compare fail out. Check production time of old method vs. new method.

Was the effect of the change what you expected?

Better than expected. Production time was cut by 1/3. Accuracy of spring tension allows us to match parts into sets.

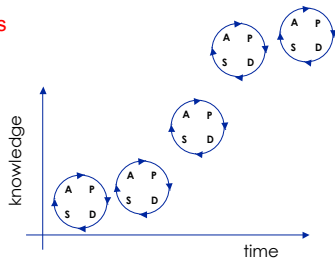


5. The Prediction Game

1	3	6	10	12
15	37	39	42	118
120	123	361	363	366
1090	1092	1095	3277	3279

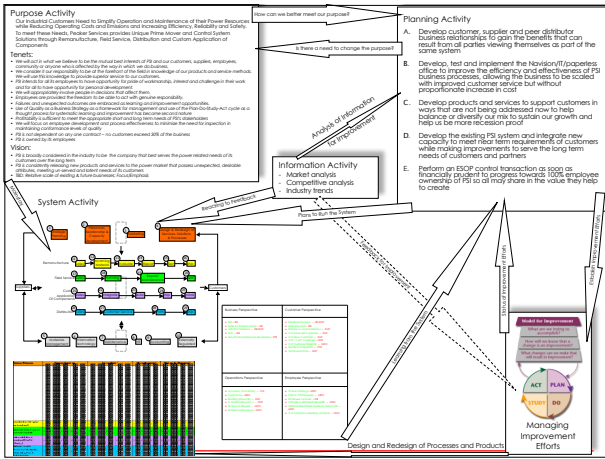


Questions



- ❖ Did predictions improve with repeated cycles?
- ❖ Was the theory confirmed when it predicted correctly?
- ❖ What happened when the predictions were incorrect?
- ❖ Is the theory that we ended up with true?





QBS Evaluation Grid

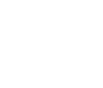
Area	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7
Purpose	to write statements	Statement exists	Mission and Tenets listed and clear	Statement of a not in conflict with business	Lead to align and shape the business	Fully integrated to the structure	
System	to talk and work and not to be documented	High processes and products have been documented	Informational systems in place	Systems thinking and language the common	Systems diagrams are used in business	Management systems have to align with the systems view	
Whole System Measures	to track all data in a view of your daily	Financial and other general central measures are used	Balance of measures is achieved	Balance of set of measures reported frequently	Set of measures is aligned and variation understood	Measures are integrated to the management systems	
Information	Information is shared on a regular basis	System is based on system information	System view all information and includes active source	Information is to current and communicated	Informational systems with highly visible for decision making	Highly visible and integrated to the information system	
Planning for Improvement	to formal planning, active culture	Planning for improvement is done on an informal basis	Formal, documented process and/or planning meeting	Major decisions are based on reports	Other planning because an defined and limited	Planning system integrated and all areas	
Highly Improvement Efforts	to system wide to change improvements	Improvements are integrated on an on-going basis	Leaders provide formal guidance for activities and teams	Improvements are based on planning, leaders are learning	The impact of improvement is understood and integrated	Improvement system and regular business and regular improvement	
Model for Improvement	to shared approach to improvement efforts	Various approaches are used for improvement	Planning on the model and expectations of its use	Theory behind the model is understood	Improvement is a range of PSI practice	Model is routinely used by all	
Management System	to have clear focus and responsibility assigned	Improvement is integrated and responsibility assigned	Formal system for improvement is in place	Improvement is based on planning and reporting to improvement	Improvement is linked to planning and other key business activities	Improvement is integrated into a part of our daily developing the business	



Dilbert



5. Closing the loop



→What were we trying to accomplish?

Provide a basic understanding of the Q&S framework to:
- Prompt useful questions to struggle with for your own organization
- Provide a framework of inter-related activities to aid in putting Deming's ideas into practice

→What changes can we make that will result in improvement?

Offer this workshop

→How will we know that the change is an improvement?

Your feedback ...