



# Continuous Improvement

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Are you using Continuous Improvement  
are could it more appropriately be called  
Continuous Catch-up?

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- What we will discuss today.....
  - The various things which are called Continuous Improvement
  - How to recognize real Continuous Improvement
  - The Continuous Improvement Continuum
  - How to determine where your firm is on this Continuum
  - How to climb the Continuum

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- A quick story about value and my 1999 Honda Accord
  - A 1999 well equipped Honda Accord (mine) cost \$22,500 in 1999
  - A 2010 well equipped Honda Accord (one I looked at recently) costs \$29,400, but it had a lot of extra “stuff”
  - However, a 2010 Honda Accord equipped like my 1999 Accord has a sticker price of \$23,200
  - What does this say about continuous improvement??



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- Some math and some economics
  - The basis
    - \$22,500 in 1999 inflates to \$29,300 in 2010, (using the CPI)
    - The 2010 equivalent of my Honda Accord now costs \$23,200
  - The question
    - So how was this \$6100 difference achieved??
  - Possible answers
    - Honda may have cut into their profit margin...this could account for some of it...but I doubt that explains for very much..the business was pretty competitive and sedans usually do not have large profit margins
    - Or it could have been continuous improvements built into the product which yielded a lower cost to produce and these gains were reflected in the price....and the desire to sell cars...I believe that is the majority of the explanation....Continuous Improvement

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- This is value.....it comes in two types
  1. Achieving more functionality at the same price or
  2. The same functionality at a lower price
- In this presentation we will focus on type 2 improvements as they are the typical gains we try to achieve as we work to reduce our production costs in most manufacturing facilities
- Here Honda has supplied even better quality with additional features and done so at nearly a 30% reduction in price....
- **Now that's pretty impressive, just how well does your firm do on Continuous Improvement??**

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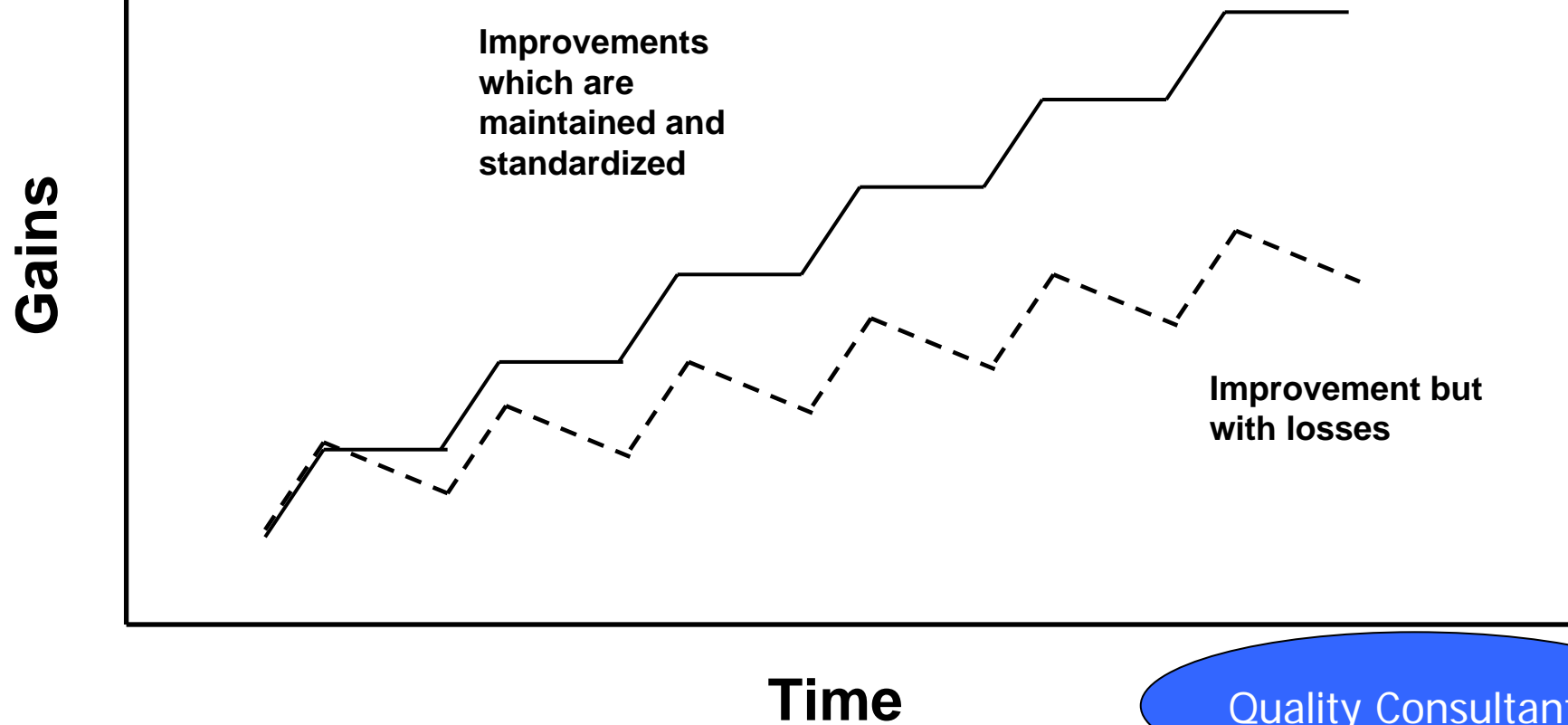
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- Four different, but related, concepts...just to keep in mind so we are all together.....
  - Improve.....to increase the productivity or value of
  - Enhance.....adding to something already attractive or worthy, thus increasing its value
  - Maintain.....to restore something to its original condition
  - Standardization.....the process of making tasks (e.g.) specific, documented and measurable so they will be repeated with minimum variation. “No process can be improved until it has first been standardized...” (Imai, 1986)

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## Kaizen and Sustaining the Gains



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- All Continuous Improvement activities fall along a continuum which I divide into three segments
  - At the least effective end of the continuum is Continuous Catch-Up (CCU)...which is not really improvement at all
  - In the middle of the continuum is Reactionary Continuous Improvements (RCI)
  - At the most productive end of the Continuum we have Proactive Continuous Improvement (PCI)

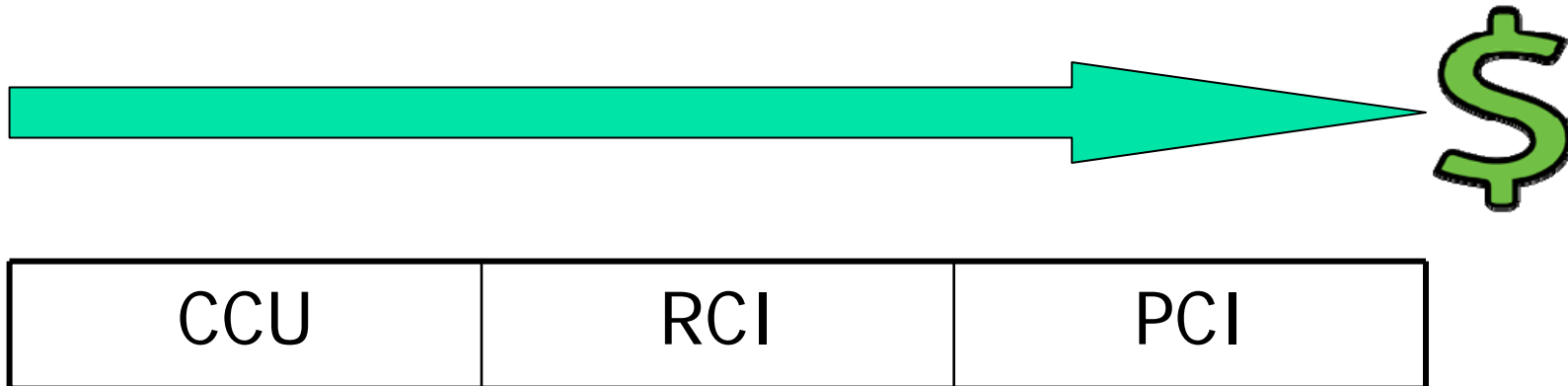
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- The Continuous Improvement Continuum



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- **Continuous Catch-Up (CCU)...which is not really improvement at all**
  - It is found most often when a process has very low levels of, or no standardization...hence it is not really improvement
  - Done while processes are still chaotic, (not statistically stable) processes which are not standardized
  - This level of CI is totally reactive
  - CCU has little staying power and frequently gets done again later
  - When completed you often ask yourself, "Why did we not do this in the process design (e.g.) phase?"



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- **Reactionary Continuous Improvements (RCI)**
  - To really have Continuous Improvement, processes must be statistically stable....predictable, they must be standardized
  - But the system still dictates when we respond
  - First we respond to the complaints of the customer and legal issues and lastly we respond to the process itself
  - Done well, this type of CI can achieve huge gains....if the process “talks to us” and we listen
  - Jidoka is a lean tool to allow the process to “talk to us”
  - Even with a weak Jidoka system we make some progress.
  - With a strong Jidoka system, I call this Lean Continuous Improvement (LCI), we will make substantial progress

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- **Jidoka**....or automation... is a system of quality and quantity control whose purpose is to prevent defects from advancing in the system. It has four basic characteristics...
  - Detect the abnormality.
  - Stop the process or segregate the abnormality
  - Fix or correct the immediate condition.
  - Investigate the root cause and install a countermeasure.

Jidoka often uses Lean tools such as poka-yokes and andons with a problem escalation process.

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- **Proactive Continuous Improvement (PCI)**
  - The defining feature of PCI is that the motivation to make the improvements is internally driven. It is proactive change versus reactive change
  - It is characterized by intentionally stressing the system in an effort to find the weaknesses.
  - Sometimes your systems of goals and objectives may create the proactive behavior or it might be inherent in your management philosophy, for example...

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- **PCI (cont'd)**

- In my book , *How To Implement Lean Manufacturing*, I give an 8 Step Prescription on becoming lean...it is:

- Steps 1-3, System wide evaluations and action items:**

- 1-Assess the 3 Fundamental Issues to Cultural Change

- 2-Complete a System wide evaluation of the present manufacturing system outlined in Chapter 19.

- 3-Third we will perform an educational evaluation of the workforce

- Steps 4-8, Specific Value Stream evaluations and action items:**

- 4-Document the current condition of the value stream

- 5-Redesign to reduce waste (This is simply a summary of Chapter 7.)

- 6-Evaluate and determine the goals for this line:

- 7-Implement the Kaizen activities

- 8-Following the changes, evaluate the new present state, *stress the system*, then return to step 4**



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- **PCI (cont'd)**
  - It can not be done in a vacuum, you must have:
    - Stable processes with a deep and abiding understanding of process management and control
    - Mature Standard Work
    - Mature TPM system
    - A Good Jidoka system
    - Good transparency...visual management
    - Responsive and talented problem solvers
    - An enlightened management which not only supports this but promotes it as well

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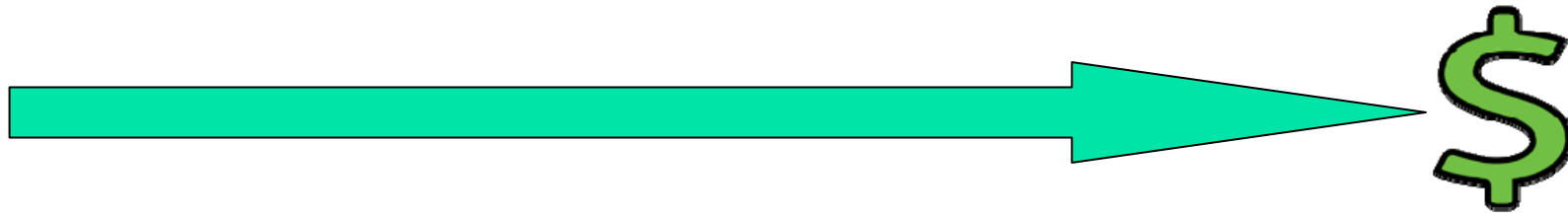
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- **PCI (cont'd)**
  - PCI is an “always” thing.... You always want to improve and in so doing you not only stress your system when you want to achieve one of your annual goals ....you are always striving to improve, you are always stressing your system....it is continuous
- **Why is not all Continuous Improvement an “always” thing??? Well ... it is how we are motivated.....**



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- The Continuous Improvement Continuum



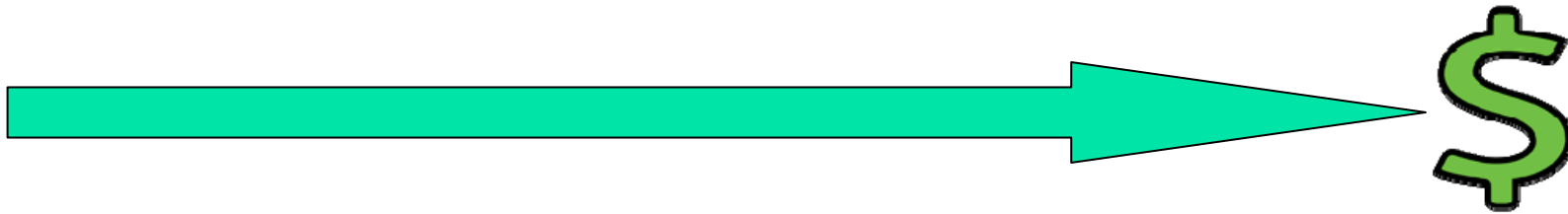
	CCU	RCI	LCI	PCI
Motivation				
Drivers				

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- The Continuous Improvement Continuum

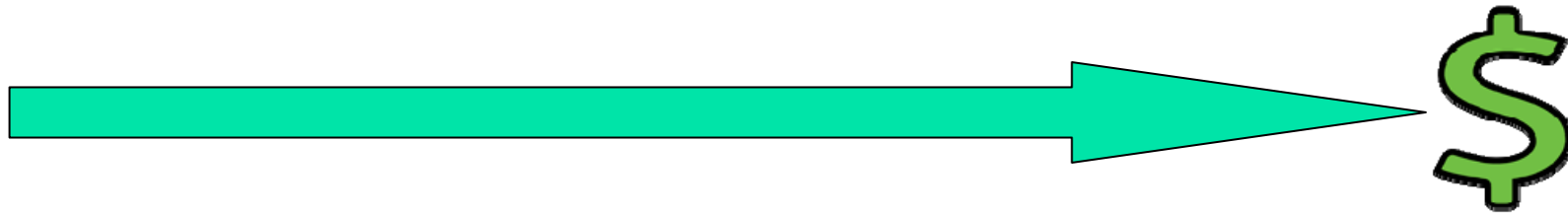


	CCU	RCI	LCI	PCI
Motivation	<b>Survival</b>			
Drivers	<b>Cust/Legal</b>			

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- The Continuous Improvement Continuum

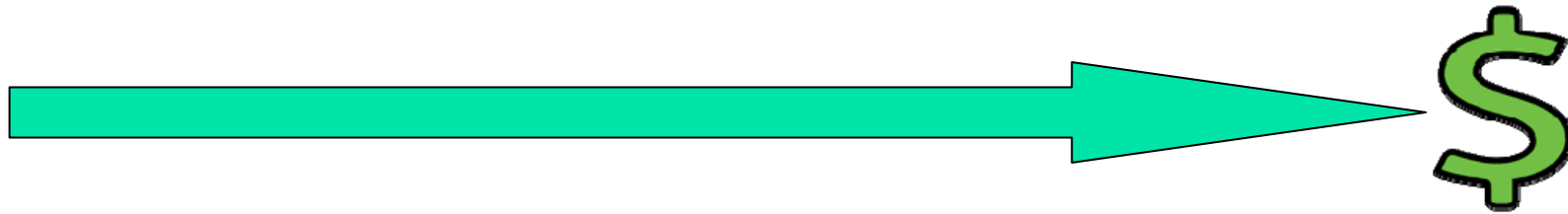


	CCU	RCI	LCI	PCI
Motivation	Survival	<b>Survival/ Profits</b>		
Drivers	Cust/Legal	<b>Cust/Legal / Goals</b>		

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- The Continuous Improvement Continuum

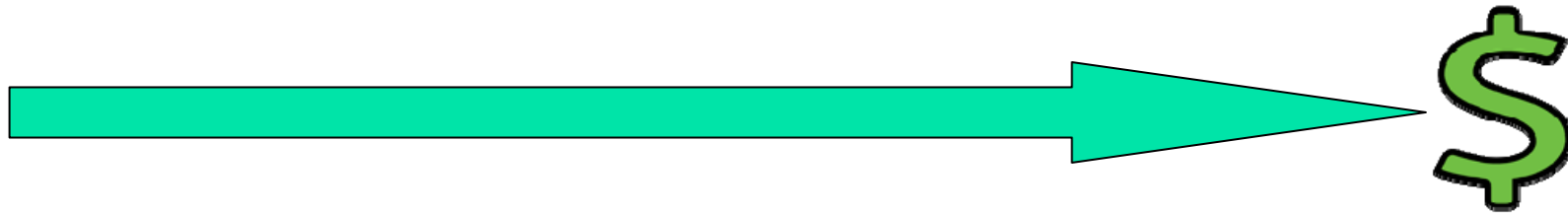


	CCU	RCI	LCI	PCI
Motivation	Survival	Survival/ Profits	<b>Profits/ Quality</b>	
Drivers	Cust/Legal	Cust/Legal/ Goals	<b>Goals</b>	

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- The Continuous Improvement Continuum



	CCU	RCI	LCI	PCI
Motivation	Survival	Survival/ Profits	Profits/ Quality	<b>Value</b>
Drivers	Cust/Legal	Cust/Legal/ Goals	Goals	<b>Vision</b>

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- **We should now be able to see where we are on the continuum...but how do we climb this continuum from CCU all the way to PCI?**
  - CCU is a state typified by chaotic, unpredictable processes
  - The key countermeasures to climb from CCU to RCI are;
    - Advanced Product Quality Planning, APQP...a sample is attached for your reference
    - Deep and abiding commitment to process management (see Chapter 19, *How To Implement Lean Manufacturing*, (McGraw Hill, 2009) for a specific audit tool to measure process maturity).. Problem solving is still a lagging tool....
    - The key quality characteristic is that we must achieve statistically stability in our processes

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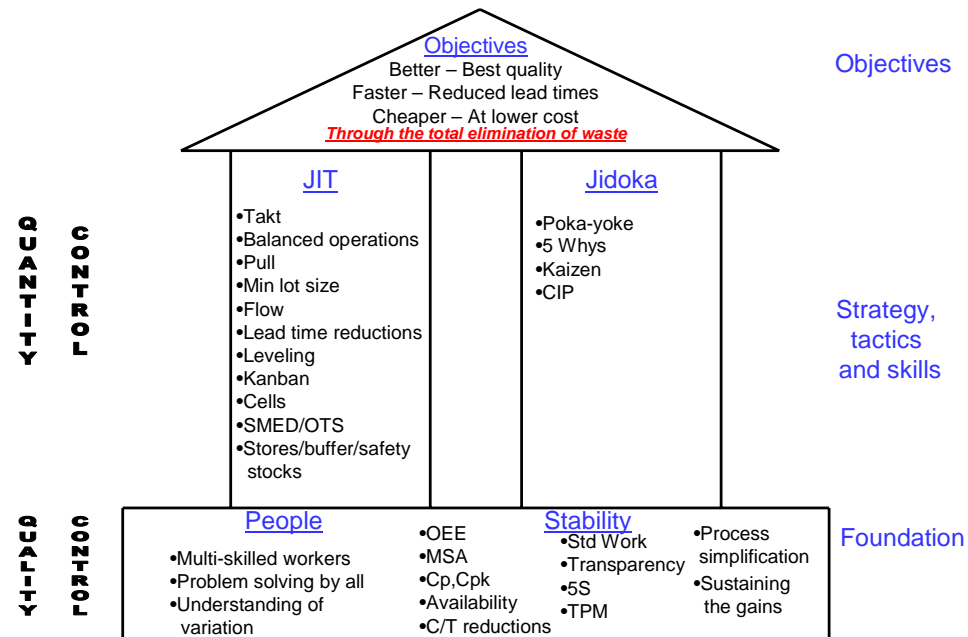
- **How do we climb this continuum (cont'd)?**
  - The **key to climbing from RCI to LCI is to have a mature Jidoka system** including “pulling the cord” which is shutting down the process for particular failures
  - The key countermeasures to climb from RCI to LCI are;
    - Once the processes are stable, Greater emphasis is placed on all the Lean Tools (see House of Lean from my book, *How to Implement Lean Manufacturing*, (McGraw Hill, 2009) with serious work on standard work, transparency and Total Productive Maintenance and problem solving by all...
  - Now problem solving can be moved from lagging to real time using Rapid Response PDCA.

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- The House of Lean, from How To Implement Lean Manufacturing, (McGraw Hill, 2000)

## The Lean Production System



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- **How do we climb this continuum (cont'd)?**
  - The critical operational characteristic to climb from LCI to PCI is a desire **to continually stress the system** to find the weaknesses and then improve them
  - The key tools to climb from LCI to PCI are;
    - Commitment to all the lean tools with special emphasis on
      - Standard work
      - Total Productive Maintenance
      - Transparency
      - Jidoka
      - Problem solving by all
    - Deep and abiding commitment to the a Company Vision which has a clearly stated objective of creating a culture of continuous improvement
  - **And even more important than any of these is.....**

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- **How do we climb this continuum (cont'd)?**
  - **Management must exhibit the commitment and leadership** to create and sustain a culture of continuous improvement.
    - This must be manifest in their thoughts, beliefs and actions.
    - Management must exhibit the courage and character to lead adequately. Dr. Deming says, "...Western Management must awaken to the challenge, must learn their responsibilities and take on leadership for change", (The Deming Route to Productivity and Quality by Scherkenbach, CeePress, 1986)
  - **This is more important than any of the tools...than all of the tools combined!!!**

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- **How do we climb this continuum (cont'd)?**
  - **And even that is not enough!!!**
  - **We must recall the wise words from those of the past, who said,**

*Men stumble over the truth from time to time,  
but most pick themselves up and hurry off as if  
nothing happened ... Sir Winston Churchill*

*Opportunity is missed by most people because it is  
dressed in overalls and looks like hard work  
Thomas Edison*

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- **So just how do you climb this continuum and reach the pinnacle of Proactive Continuous Improvement?**
  - Pay attention to what is really happening and be open and honest about the reality of your plant
  - Put on some coveralls and go to work
  - Analyze and develop the lean tools you will need to ascend the continuum
  - And then Just Do It.....

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