



After 13 years I have learned...Tools do not solve your problems

9th Annual CMMI® Technology Conference
and User Group

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Topics

- Concurrent Technologies Corporation Overview
- Our Experience with Tools – check this
- Things that happened to us
- What the experts would have told us
- Lessons Learned

CTC Summary

- 501(c)(3) nonprofit established in 1987
- Staff of 1,400+ professionals
- More than 50 locations
- 900,000 sq. ft., including labs & demonstration space
- Top 100 Government Contractor
- Quality/EH&S Management System comprised of industry-best models: ISO 9001 (Quality) and 14001 (Environmental), AS9100 (Aerospace), and CMMI-DEV V1.2
- Award-winning industrial security program, with 800+ cleared employees, over 20,000 sq. ft. of accredited work space and secure communications at eight locations nation-wide for Secret, Top Secret, Sensitive Compartmented Information and Special Access Programs.

Ready to serve you

CTC Locations



Small red dots indicate major cities.

● CTC location

Albany, GA* • Annapolis Junction, MD • Bremerton, WA • Charleston, SC • Columbia, SC • Crane, IN • Crystal City, VA* • Dayton, OH • Detroit, MI • East Hartford, CT • Fairfax, VA • Fayetteville, NC • Fort Leonard Wood, MO* • Harrisburg, PA • Huntsville, AL • Jacksonville, FL • Johnstown, PA* • Largo, FL • Ottawa, ON, Canada • Pittsburgh, PA • Stafford, VA*

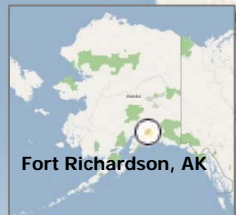
* CTC location and CTC on-site location

○ CTC on-site location

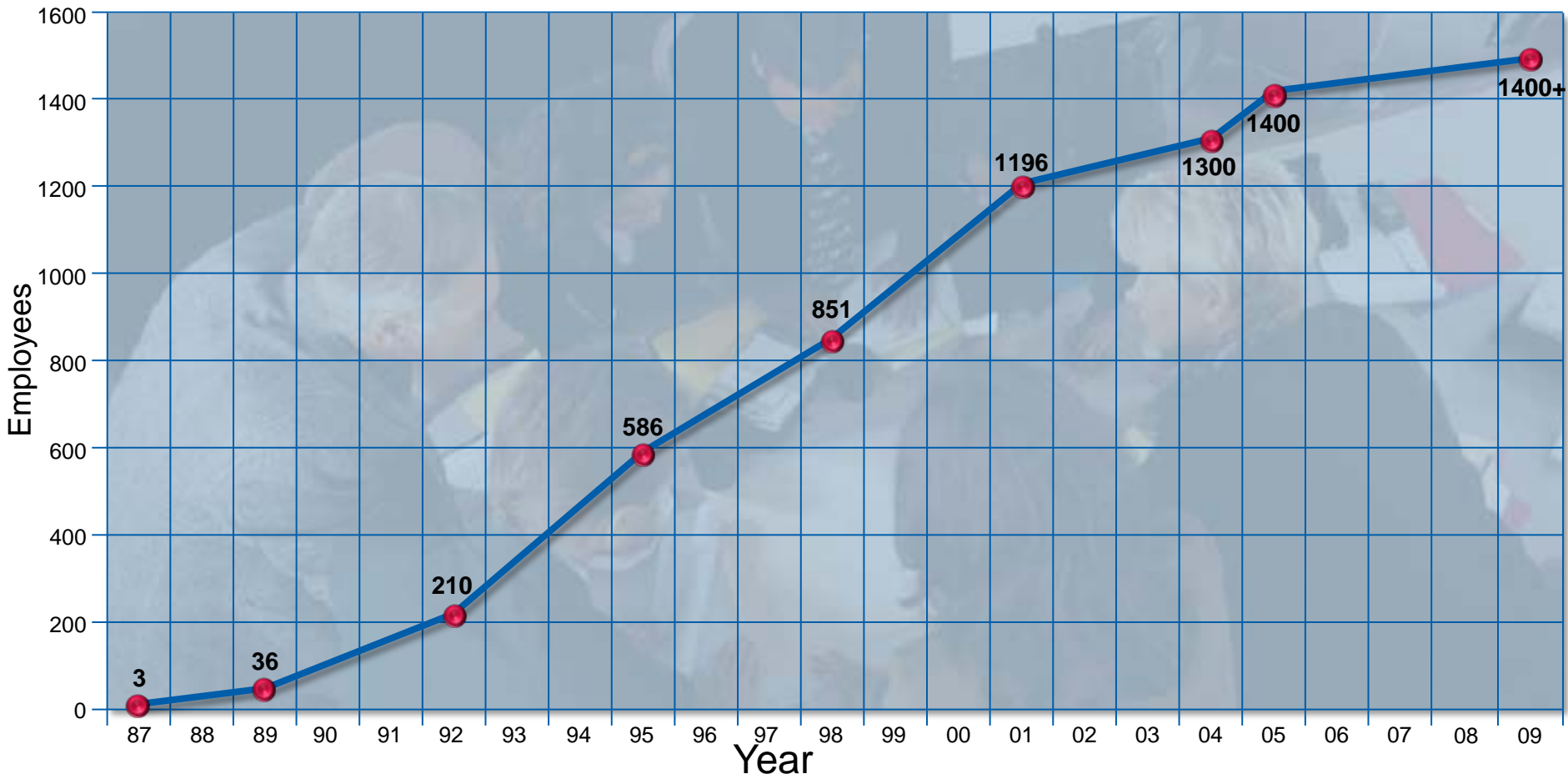
Albany, GA • Alexandria, VA • Bethesda, MD • Bloomfield, IN • Boles Acres, NM • Brussels, Belgium • Camp LeJeune, NC • Camp Pendleton, CA • Cannon AFB, NM • Eglin AFB, FL • Fort Benning, GA • Fort Bragg, NC • Fort Campbell, KY • Fort Carson, CO • Fort Dix, NJ • Fort Irwin, CA • Fort Leonard Wood, MO • Fort Lewis, WA • Fort Meade, MD • Fort Richardson, AK • Fort Warren AFB, WY • Glenwood, MD • Greenville, NC • Herndon, VA • Hurlburt Field, FL • Independence, MO • Kandahar Airfield (KAF), Afghanistan • Kaneohe Bay, HI • Lackland AFB, TX • Milan, TN • Moody AFB, GA • Nellis AFB, NV • Panama City, FL • Patrick AFB, FL • Patuxent River, MD • Peterson AFB, CO • St. Louis, MO • Suffolk, VA • Tampa, FL • Tobyhanna, PA • Virginia Beach, VA • Warren, MI • Washington, DC • Wharton, NJ • Whiteman AFB, MO • Wright Patterson AFB, OH

● CTC off-site location

To access the map's functionality, you must have an internet connection and be connected to the CTC network. If those conditions apply, when in Slide Show view, click on the hyperlink. When in Normal view, right click on the hyperlink and select "open hyperlink." <http://finsys.ctc.com/LocationMap/>



A Growing Organization



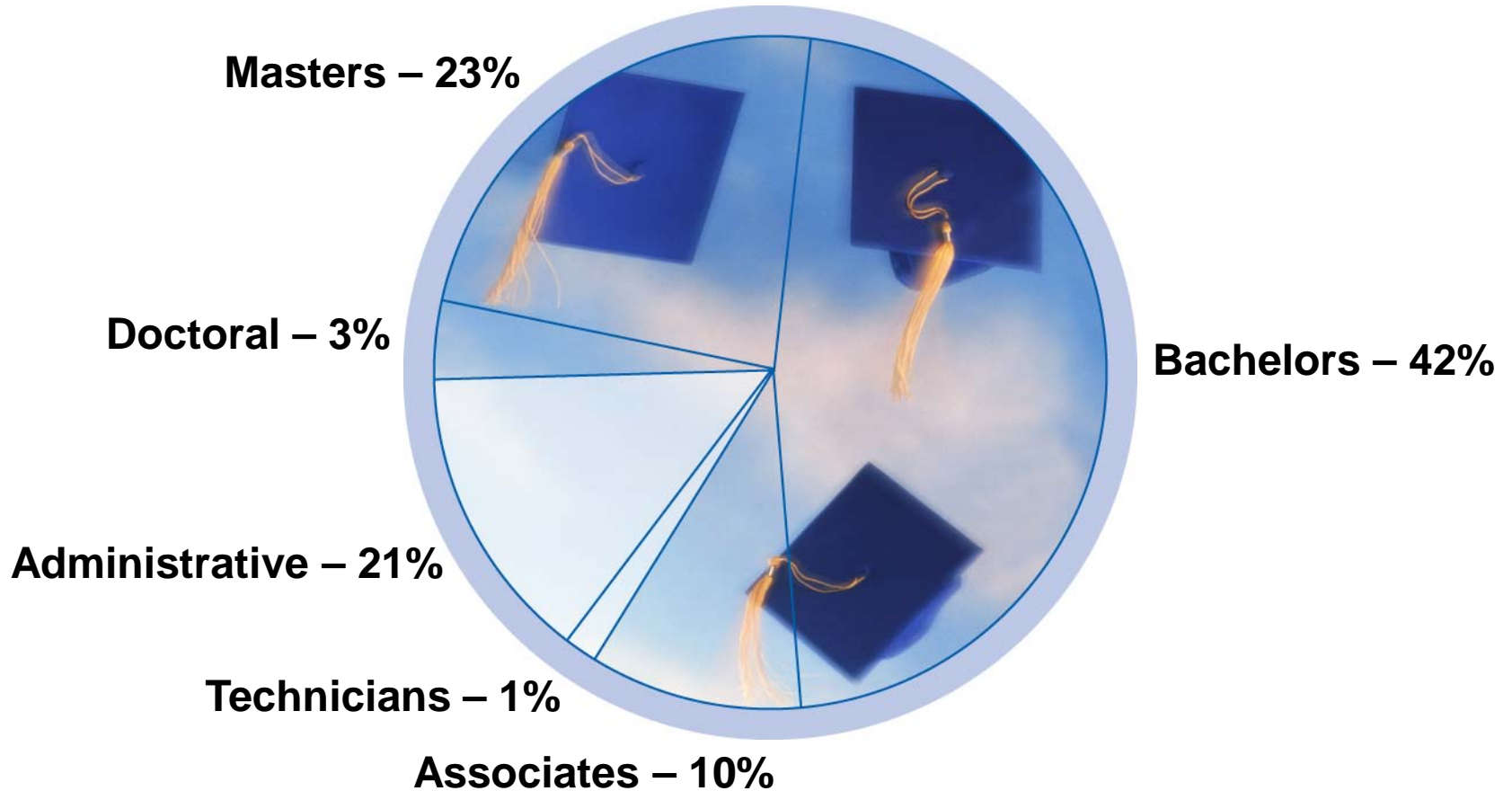
Concurrent
Technologies
Corporation

CTC Employees

The Right People Delivering the Best Results

Staff Disciplines	
Electrical & Mechanical Engineering	13%
Computer Science & Mathematics	21%
Communications Technology	24%
Environmental & Chemical Engineering	10%
Metallurgical & Materials Engineering	3%
Engineering & Science	10%
Business & Other	19%

CTC Employees
Educated. Experienced.

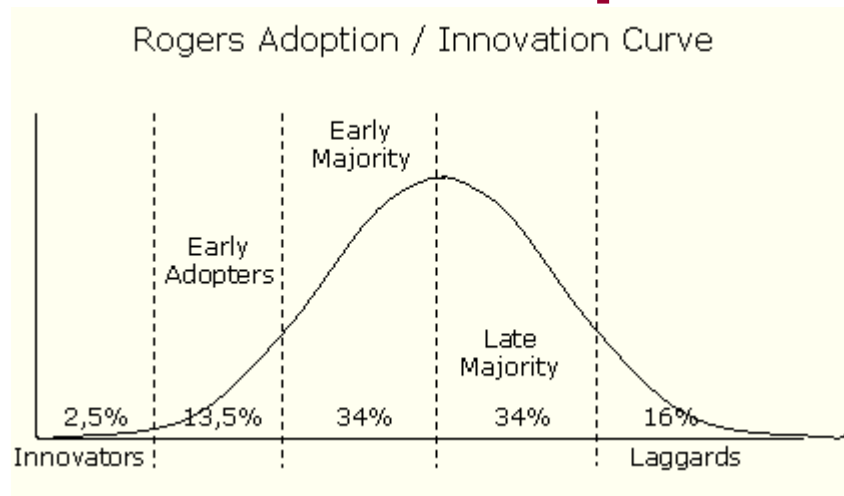


Quality Commitment



- ISO 9001:2000 (Quality)
- ISO 14001:2004 (Environmental)
- AS9100 (Aerospace)
- CMMI[®] for Development, Version 1.2

Company's de Facto Adoption Model



- Model applies to adoption at various levels
 - Adopting a Standard
 - Adopting the Process
 - Adopting the Culture
 - Adopting the Tool
- Complexity is then introduced by changes in any one of these

Tools from 13 Years Ago

- Microsoft Office
 - Word
 - Excel
 - PowerPoint

- DaVinci Email

- Paper

- Whiteboards

- IWEB

But we had a group of solid engineers that wanted to do things right.

Current Tools (1)

- Version Control

- IBM Rational ClearCase
- CollabNet Subversion
- CollabNet TeamForge
- Microsoft SharePoint
- Microsoft Visual SourceSafe
- IBM Rational FileNet – in the process of end of life

- Configuration Management

- IBM Rational ClearCase
- CollabNet Subversion
- CollabNet TeamForge
- Microsoft Team Foundation Server

- Requirements

- IBM Rational RequisitePro
- Microsoft Word
- Microsoft Excel
- Microsoft SharePoint

- Modeling

- IBM Rational Rose/Software Architect
- Microsoft Visio

- Tasking

- CollabNet TeamForge
- Microsoft SharePoint

- Client Specific Tools

Current Tools (2)

- Quality Assurance
 - QA Tracking System
(Developed by CTC)
 - PIMS (Developed by CTC)
- Knowledge Management
 - SharePoint
 - Deltek Wiki
- Office Automation
 - MS Office
 - MS Project
 - Outlook
- Defect/Issues
 - Trac
 - ClearQuest
 - Visual Intercept
 - TeamForge
 - SharePoint
 - Bugzilla
 - Windchill

So, why aren't we happy?

- No central understanding of scope of tool use
- **Increased costs**
 - **Start-up**
 - **Maintenance**
- Lack of standard method of use
- Independence in implementation
- **We can't keep up with the Training**
 - Poor training
- New tools continue to proliferate
- **Tools overshadow process**
- Programs already using something else
- Loss of standardization
- **Automated metrics hard to collect with multiple tools that are not standardized**
- Since all tools integrate well, choosing all or none Doesn't work well



Lessons Learned

What the experts would have said

The Change Phases Model

- Establish a sense of urgency
- Create a coalition
- Develop a clear vision
- Share vision
- Empower people to clear obstacles
- Secure short-term wins
- Consolidate and keep moving
- Anchor the change

John Kotter – A force for Change

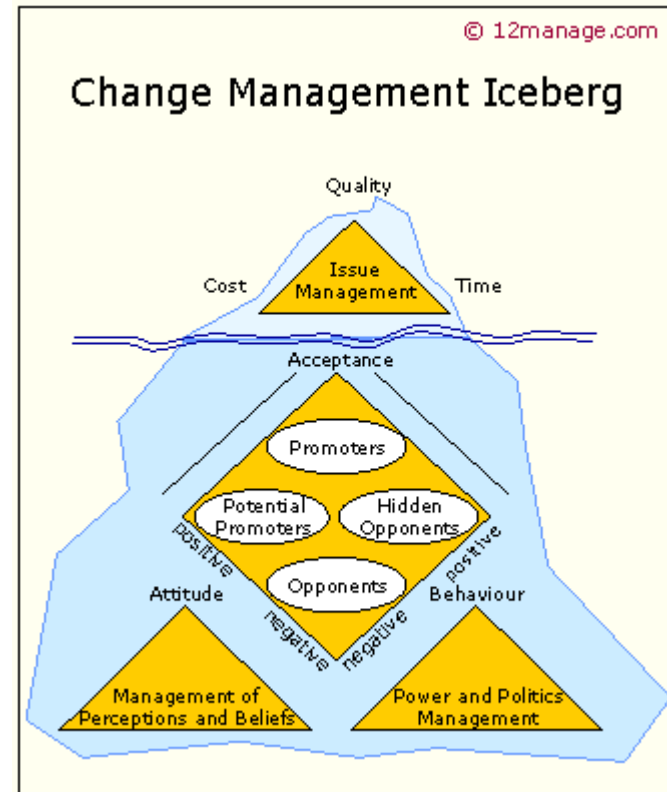
Eight Reasons Many Change Processes Won't Work

- Allowing too much complacency
- Failing to build a substantial coalition
- Not understanding the need for a clear vision
- Failing to clearly communicate the vision
- Permitting roadblocks against the vision
- Not planning for short-term results and not realizing them
- Declaring victory too soon
- Fail to anchor changes in corporate culture

John Kotter – A force for Change

Change Management Iceberg – W.Krüger

- **Opponents** have both a negative general attitude towards change AND a negative behavior towards this particular personal change. They need to be controlled by Management of Perceptions and Beliefs to change their minds as far as possible.
- **Promoters** on the other hand have both a positive generic attitude towards change AND are positive about this particular change for them personally. They take advantage of the change and will therefore support it.
- **Hidden Opponents** have a negative generic attitude towards change although they seem to be supporting the change on a superficial level ("Opportunists"). Here Management of Perceptions and Beliefs supported by information (Issue management) is needed to change their attitude.
- **Potential Promoters** have a generic positive attitude towards change, however for certain reasons they are not convinced (yet) about this particular change. Power and Politics management seems to be appropriate in this case.



Change Management Iceberg - Krüger

- What kind of barriers arise, and what kind of Implementation Management is consequently needed, depends on
 - the **kind of Change**
 - hard things "only" (information systems, processes) just scratches the surface,
 - soft things also (values, mindsets and capabilities) is much more profound
 - the **applied Change strategy**
 - revolutionary, dramatic change
 - evolutionary, incremental change

6 Approaches to Change Resistance - Kotter and Schlesinger (1)

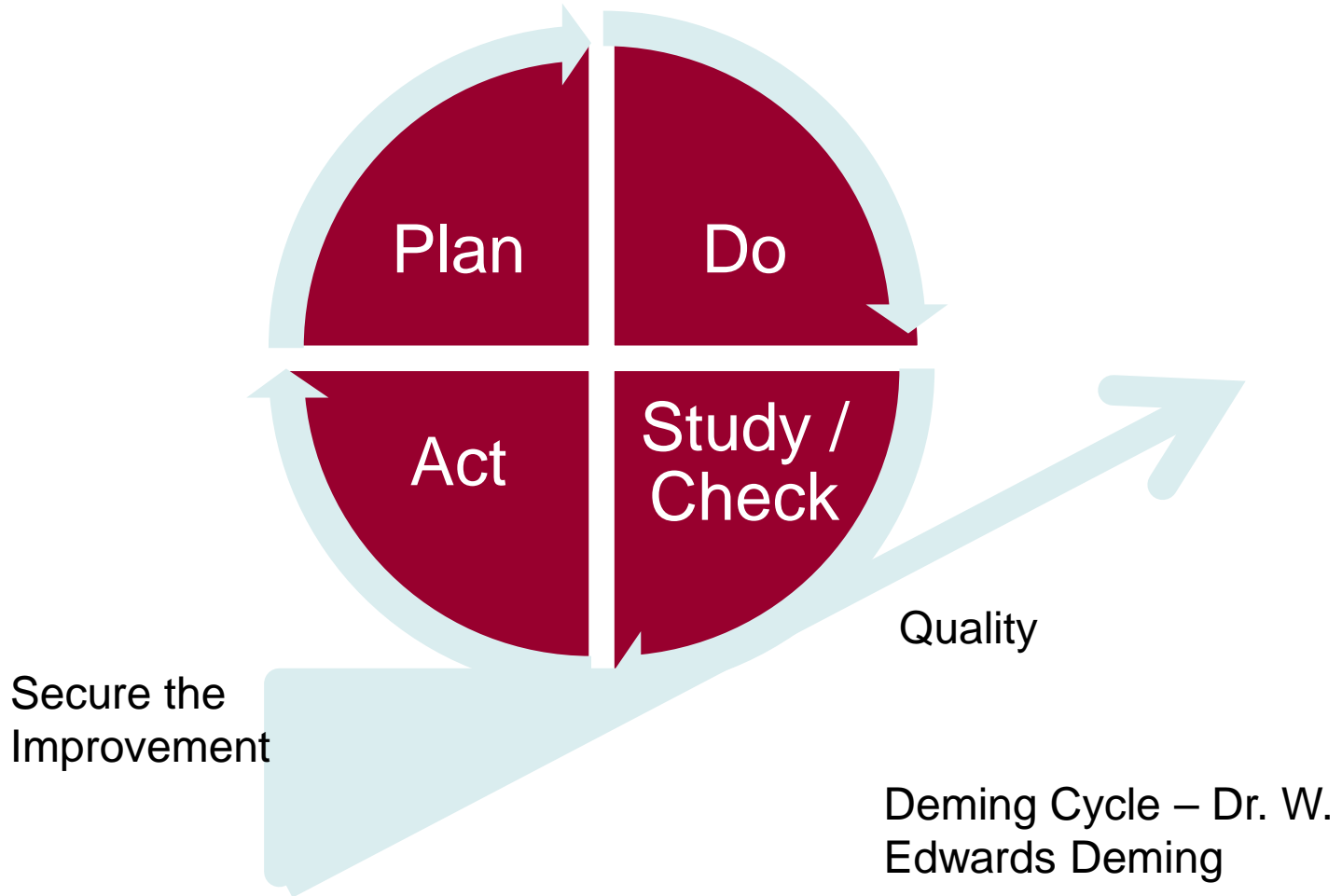
- **Education and Communication**
- **Participation and Involvement**
- **Facilitation and Support**
- **Negotiation and Agreement**
- **Manipulation and Co-optation**
- **Explicit and Implicit Coercion**



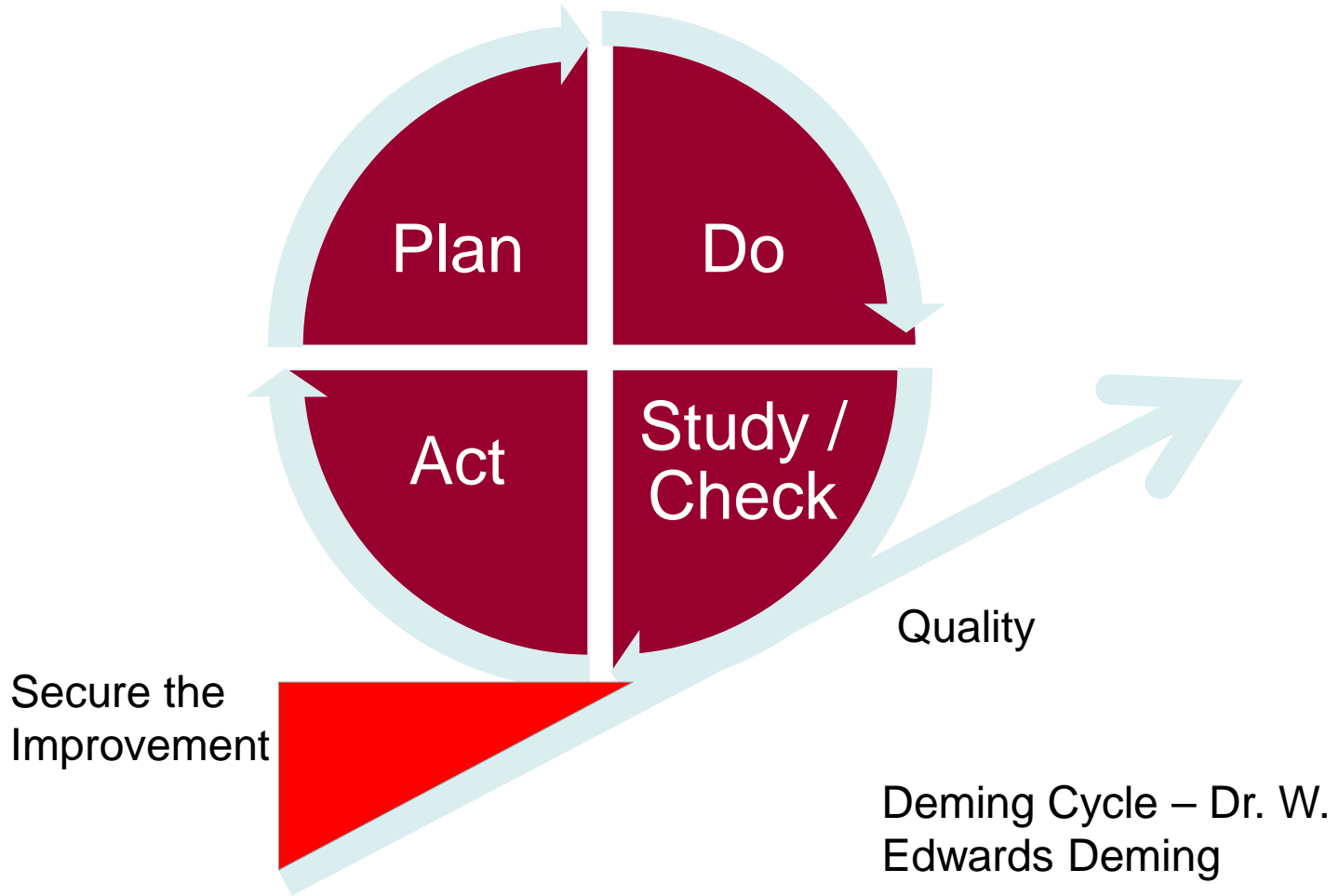
Lessons Learned

What we would say

Promote your Failures



Promote your Failures



Use paper or a whiteboard

- Don't download a tool
 - Limits your possibilities
- Don't make a database
 - Forces you to think about the implementation first
- Don't implement a SharePoint workflow
 - Names change, focus on the functions

The first thing to do is understand what you want to accomplish and what level of risk you are willing to take

Be Persistent and know your limits

- Focus on important areas – Think returns
- Develop a plan – may take years to implement
- Get a good TEAM – fill in your weaknesses
- Think sustainment – how will you support and finance this in the long term
- Check-in periodically – just because you had a plan doesn't mean everyone will follow it
- Get management buy-in

Now Pick the tool

- Use your process to define the requirements
- Understand the start-up maintenance costs
 - Software
 - Hardware
 - Training
- Integrate the tool with your process
- Train people before they use it
- Follow-up with users
- End of life tools that are not as valuable

Credit and Thanks to the Team

- Bryan Heilmann
- Tom Hopkins
- Stefanie Murphy
- Corey Norris
- Lori Yost





Questions?

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