

# CMMI Process Improvement – Effective Process Improvement Infrastructure

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Improving Software Economics

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# Agenda

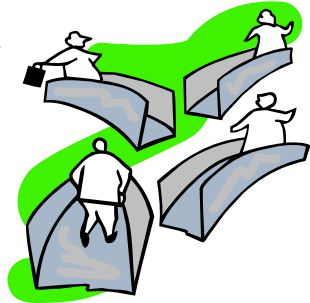
- Successful Business
- Current Situation
- Process Improvement Objectives
- PI Focus
- Because, It's Not a Process Problem
- The Infrastructure
- The EPG
  - Skills
  - Roles
- Lessons Learned & Key Concepts
- Summary

# Successful Businesses...

- Run operations as if they were a franchise
  - Every business process is standardized
  - Employees can easily be successful by following the processes as outlined
  - Everyone knows how to perform their job
  - Tasks are performed similarly on a repeatable basis and improved based on experience
- The quality of a system is highly influenced by the quality of the process used to acquire, develop, and maintain it

# Current Situation

Proliferation of  
"quality"  
groups



Focus on their own  
model, standard,  
regulatory mandate



Compete for limited  
corporate resources  
& budgets

Lacking communication  
& coordination with  
others



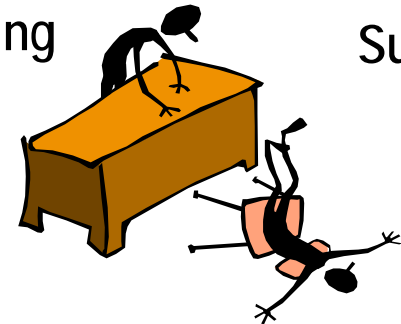
Ignoring linkage  
to business goals



Creating unique process  
repositories,  
architectures, data stores

Training

Surveys



Assessment

Metrics  
Collection

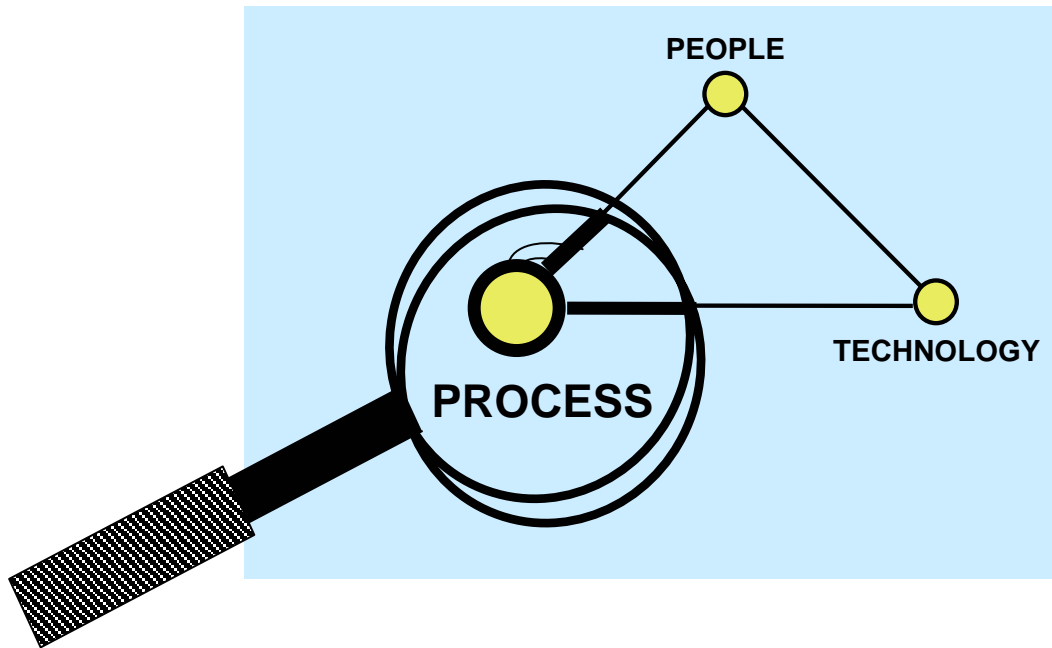
# Process Improvement Objectives

- Standardize the approach to process definition and implementation in a variety of environments – Create a system of franchisable systems for product and service development
  - Alignment to business needs
  - Integration with “others”
  - Proven best practices that deliver measurable results
  - Organizational structure for development of processes and procedures
  - Common language both internally and externally
  - Franchise processes take care of all external factors (e.g., multi-model consolidation, regulatory constraints)



# "Leverage Points"

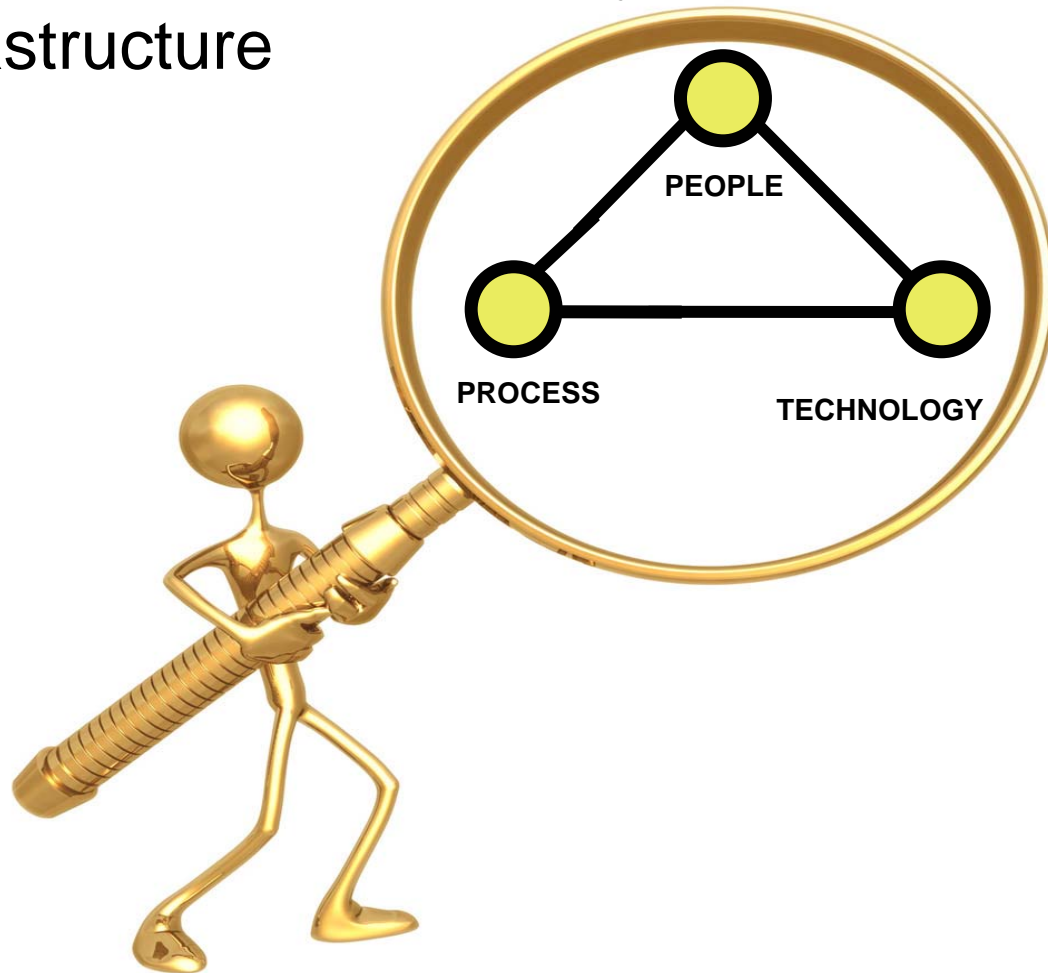
CMMI - The notion of People, Process, and Technology with focus is on the Process.



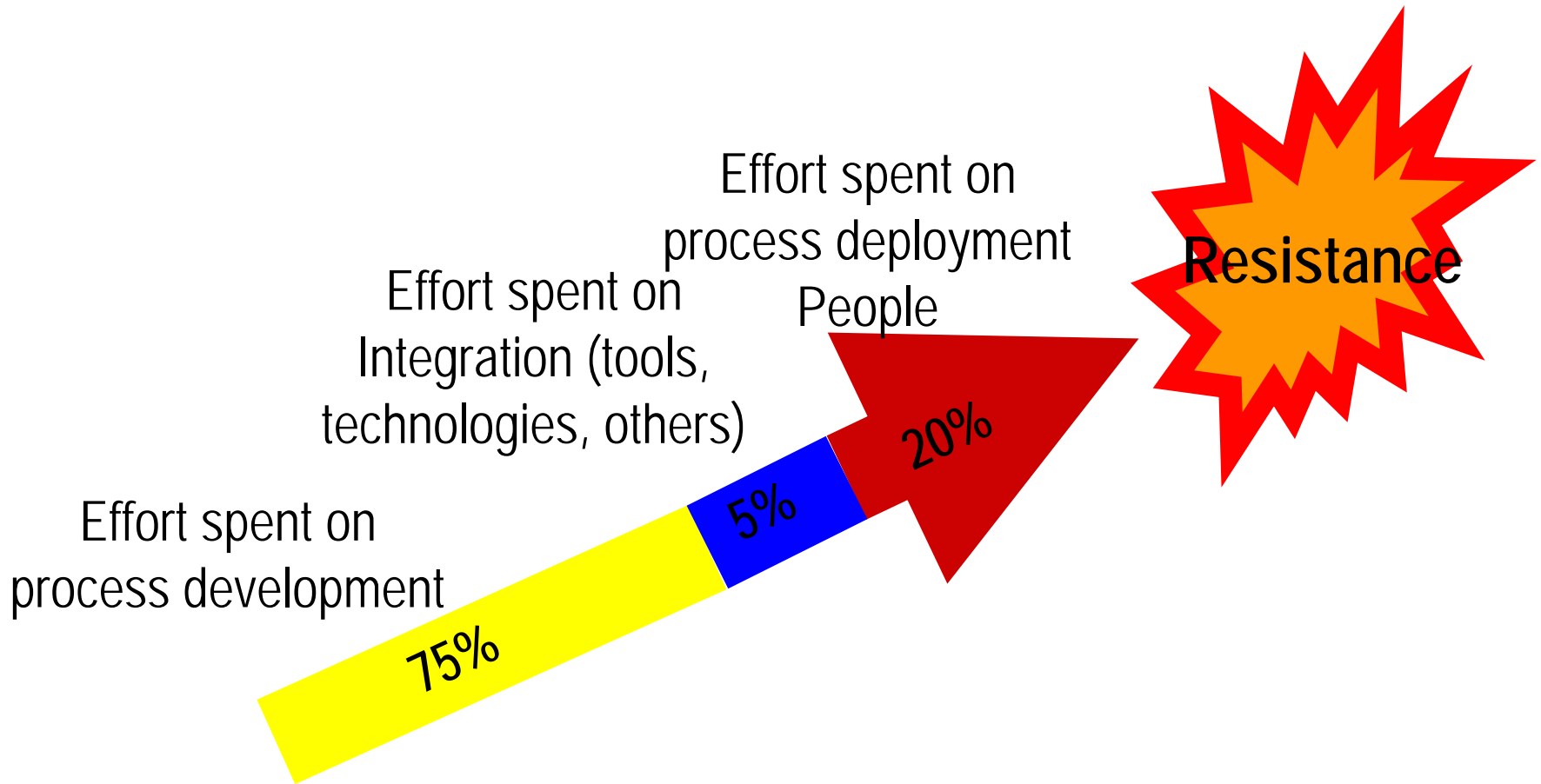
Adopted from the Introduction to CMMI® Training

# Process Infrastructure Concerns

People, Technology and Process - All elements must be the focus of an effectively run process Improvement Infrastructure

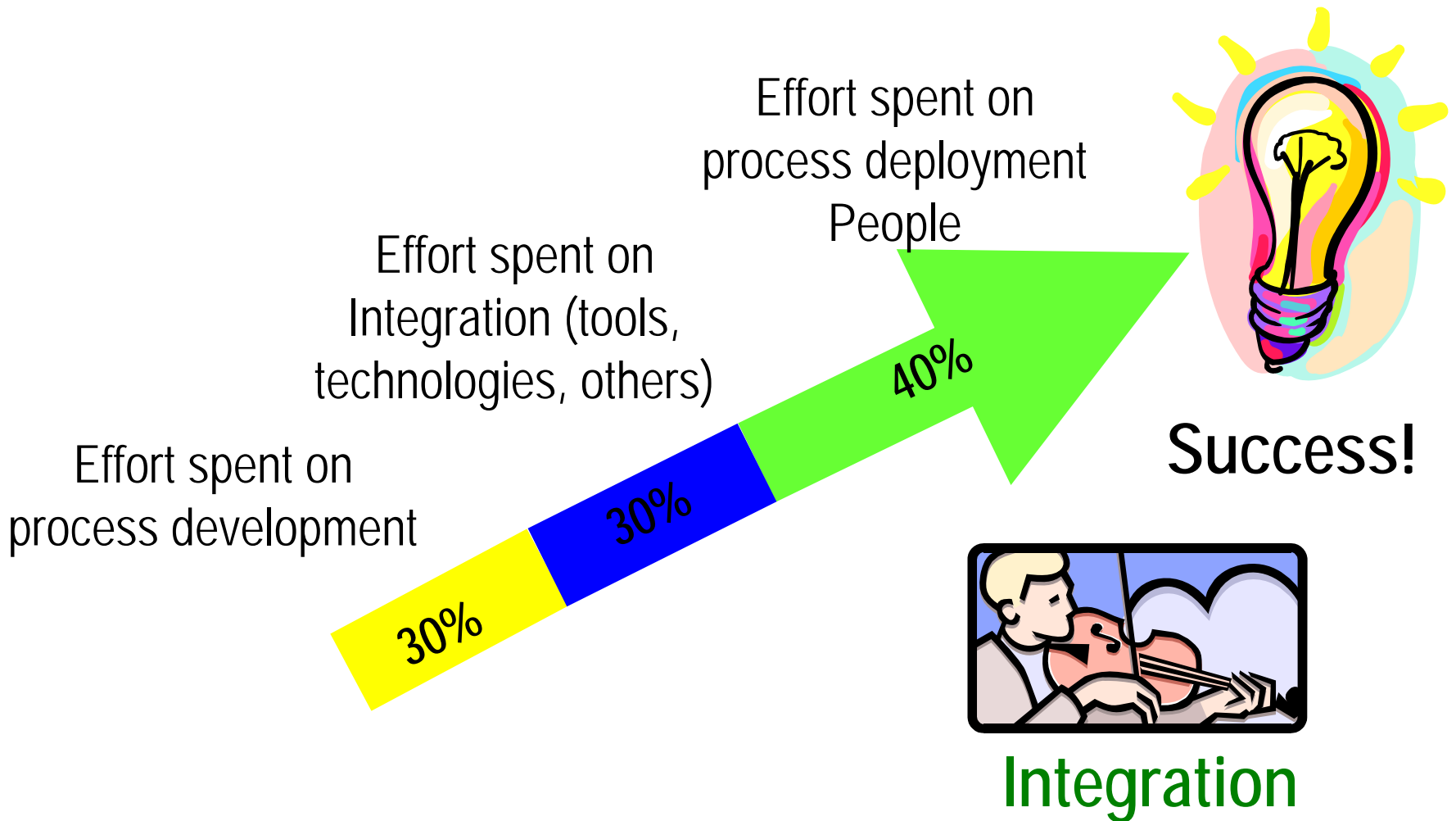


# Be Careful of This Approach...





# The Right Approach...



Don't try to develop the perfect process, start with something simple, then improve it through use!

# Because It's Not Just a Process Problem...

1. Establish a sense of urgency
2. Create the guiding coalition
3. Develop a vision and strategy
4. Communicate the change vision
5. Empower employees for broad-based action
6. Generate short-term wins
7. Consolidate gains and produce more change
8. Anchor new approaches in the culture

Improvement models like CMMI can build on organizational transformation theory to drive effectiveness

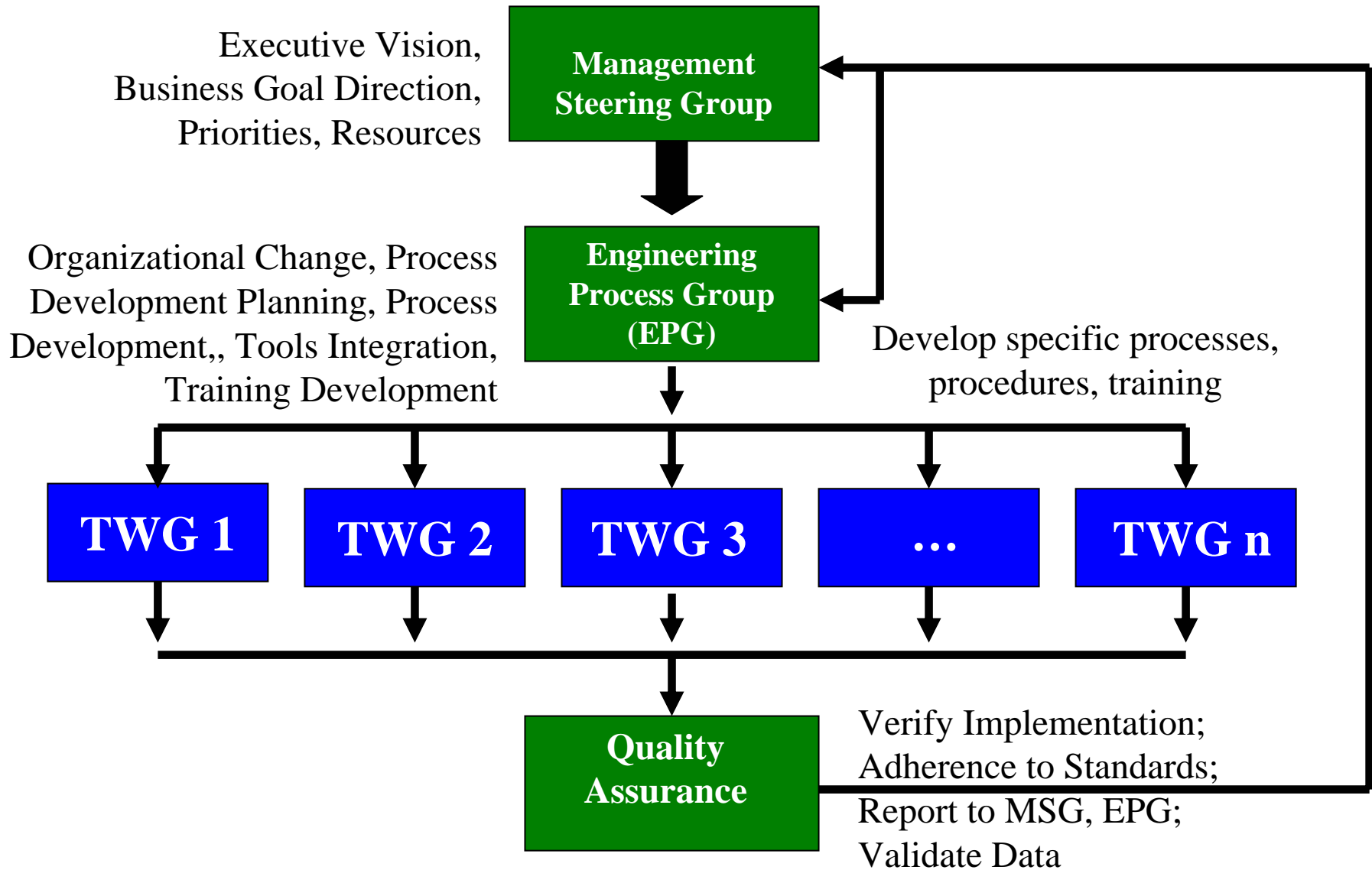
Setting up an effective infrastructure is key to the implementation of a franchisable engineering system

Source: John P. Kotter, *Leading Change*, Harvard Business School Press, 1996

# The EPG Approach

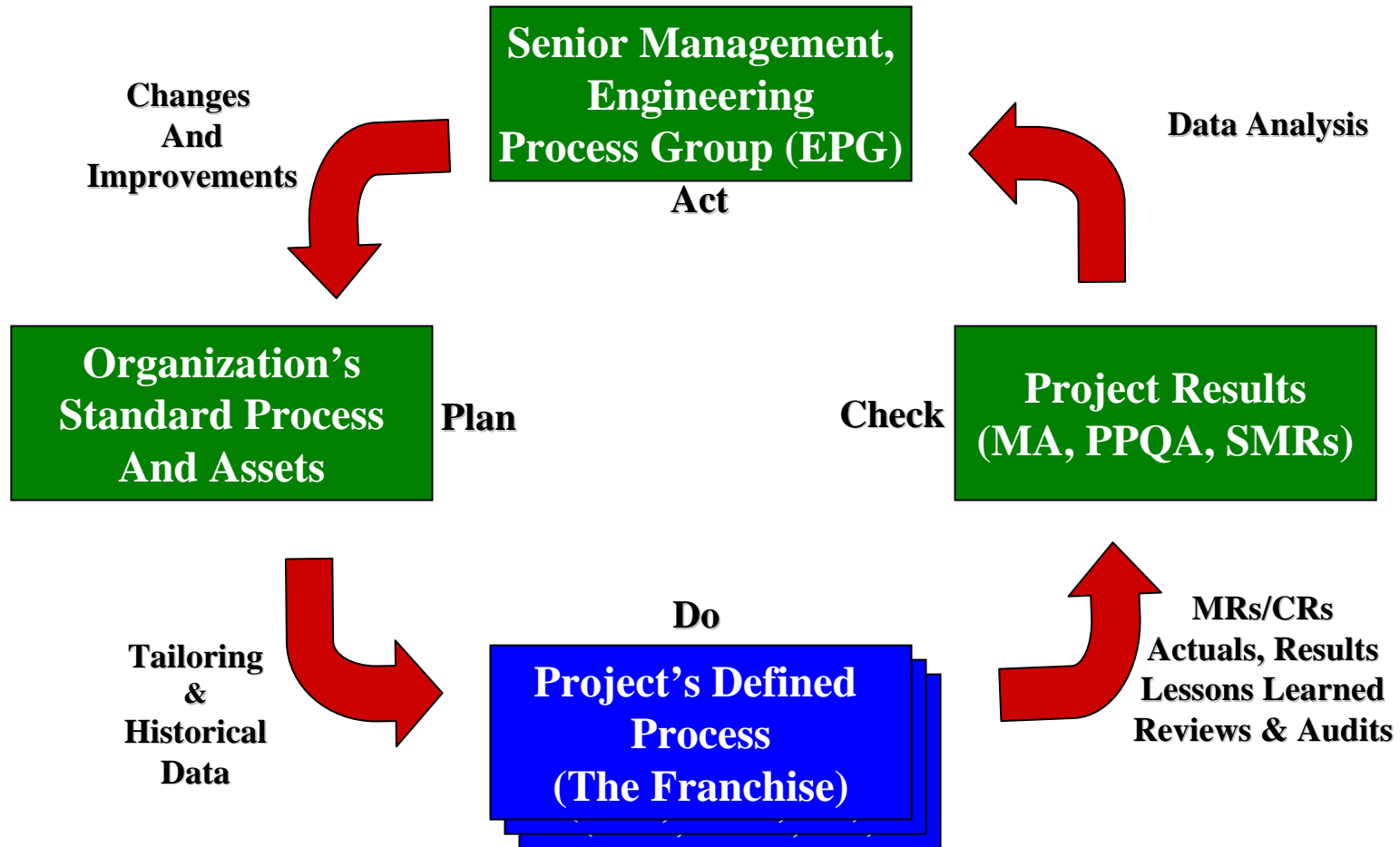
- EPGs are standard practice for PI infrastructure
- An EPG is a necessary element of process improvement but...they must operate effectively
  - Management support and guidance - not management abdication
  - An appropriate membership, both management & technical
  - A breadth & depth of skills represented by the membership
  - An ability to communicate and celebrate their efforts

# The Infrastructure



# System Behavior...and

## ...What Happens at CMMI Level 3, 4, 5



# Some EPG Skills

## Left Brain

- Ability to Coordinate
- Process improvement
- Knowledge of current models, standards & technical approaches
- Knowledge of the Organization & Organizational Structure
- Engineering & Project Management Experience
- Presentation & Communication
- Ability to prove value added /
- Statistics

## Right Brain

- Ability to Collaborate
- Team Oriented
- Customer Focused
- Facilitation
- Coaching & Mentoring
- Consensus Building
- Change Management
- Presentation & Communication
- Humility
- Patience & Long Term Focus

# Other Key EPG Qualities

- Know when to be a generalist vs. a specialist
- Terrier Award – Ability to work under frustrating and demoralizing conditions when the management team and organization minimizes the EPG contribution
- Ability to recognize and break down barriers within and across the organization
- Ability to work with early adopters as well as resisters
- Focus on business issues and eye on the prize – business objectives
- Ability to manage the “easy button” syndrome
- Ability to be non-threatening
- Ability to sell, market, mentor, consult and coach

# EPG Authority Considerations

What authority will your EPG need to be successful?

- Where in the organization is the EPG positioned?
- Are there decisions that cannot be made by the EPG?
- How do they obtain budget and resources?



# The EPG Role

1. Establish Executive Sponsorship with the expectation it is active, not passive
2. Clearly tie the effort to business goals. E.g.,
  - Customer Satisfaction
  - Cost Reduction
  - Time to Market / Cycle Time
  - Employee Satisfaction
3. Establish a guiding coalition (MSG/EPG) of movers and shakers from across the organization to drive the strategy, approach, and plan
4. Projectize and productize the effort, assign a cost center, and treat it like a project with clear milestones and reviews
5. Conduct a comprehensive process, project, personnel, and financial appraisals to establish an organizational baseline
6. Tie implementation & adoption objectives to each individual's performance review
7. Establish a measurement capability early, but don't overwhelm projects with data gathering requirements

# Don't Forget To.....

- Communicate, Communicate, Communicate:
  - Progress of Working Groups (TWGs)
  - Current State (Plan vs Progress)
  - Process deployment and rollouts
  - Testimonials and measured improvements
  - Successes in the organization
  - Current Customer (Process User) Satisfaction
  - Issues, Barriers and Resolutions
  - Attainment of objectives
- Use multiple communication channels and methods
- Involve everyone in the organization

# Other EPG Behaviors

## Treat Users like Customers

- *Listen*

- Practitioners have good ideas and valuable feedback

- *Be patient*

- Your skill set is different from theirs....and they don't need to know models, standards and approaches

- *Keep an open mind*

- Yours might be the best idea....or not; Usually there is more than one solution to any problem

- *Know what the current set of barriers are*

- Those risks exist at all levels of the organization

# EPG vs. Practitioner Role

- It's management's job to develop systems and tools and teach people how to use them
- Management makes sure employees understand the idea behind the work they are being asked to do
  - The “what's in it for me”
- Its the people's job to use the tools and to recommend improvements based on their experience with them
- There is no such thing as undesirable work, only people who view certain kinds of work as undesirable – create an environment in which doing certain things is more important than not doing them

Source: *The e-Myth Revisited*, Michael E. Gerber, HarperCollins Publishers, 1995

# EPG Lessons Learned

- Not keeping to a “KISS” principle
- Delaying actions / being reactive
- Taking on too much too soon
- Expecting too much too soon
- Not expecting enough
- Not recognizing there will always be resistance to change
- Using the EPG for too many other assignments – attempting to do work in the margins
- Not taking risk / not documenting them
- Failure to recognize failure
- Insufficient membership and skills
- Failure to keep improvement activities and program visible
- Adopting a do what we say and not what we do attitude

# Other Key Concepts

1. To improve the software process, someone must work on it
2. Unplanned process improvement is wishful thinking
3. Automation of a poorly defined process will produce poorly defined results
4. Improvements should be made in small, tested steps
5. Train, train, train!

Source: Humphrey, W.S. *Managing the Software Process*. Addison-Wesley, 1989

# Summary

- An effective PI infrastructure:
  - Leverages organizational transformation principles
  - Allows for senior management prioritization of engineering system implementation
  - Facilitates organizational buy-in and cooperation
  - Encourages cross-organizational communication
  - Reduces resistance of engineering system adoption through rewards based on independently verifiable achievement of management's expectations
  - Allows management visibility into the use of the franchisable engineering system

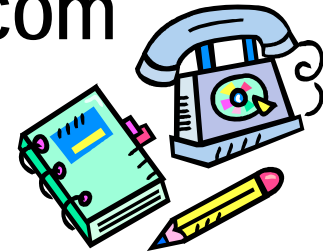
# Thank You

# Questions?

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