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DEFINING THE FUTURE

Making OID Effective

CMMI Technology Conference and User Group
November 13 - 16, 2006
Abstract #3825

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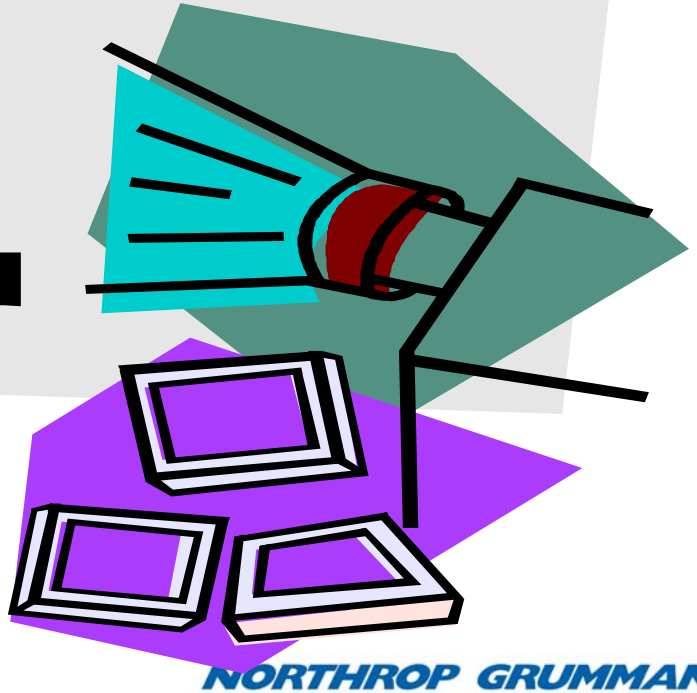
Agenda

- What is “Effective”
- Where We Struggled
- What Had to Change
- Measures of Change



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Northrop Grumman Mission Systems

- **Mission Systems Sector has 23,000 employees in 9 divisions**
- **Received first CMMI Level 5 SCAMPI A rating in April 2003**
- **By the end of 2006:**
  - **25 externally-led CMMI Level 5 SCAMPI As**
  - **99 projects through CMMI Level 5 SCAMPI As**
  - **Hundreds of CMMI Level 5 SCAMPI Bs and Cs**

Joint National Integration Center

Intercontinental Ballistic Missile Program

Satellite Command & Control

Level 5 is great, but… now the real journey begins!

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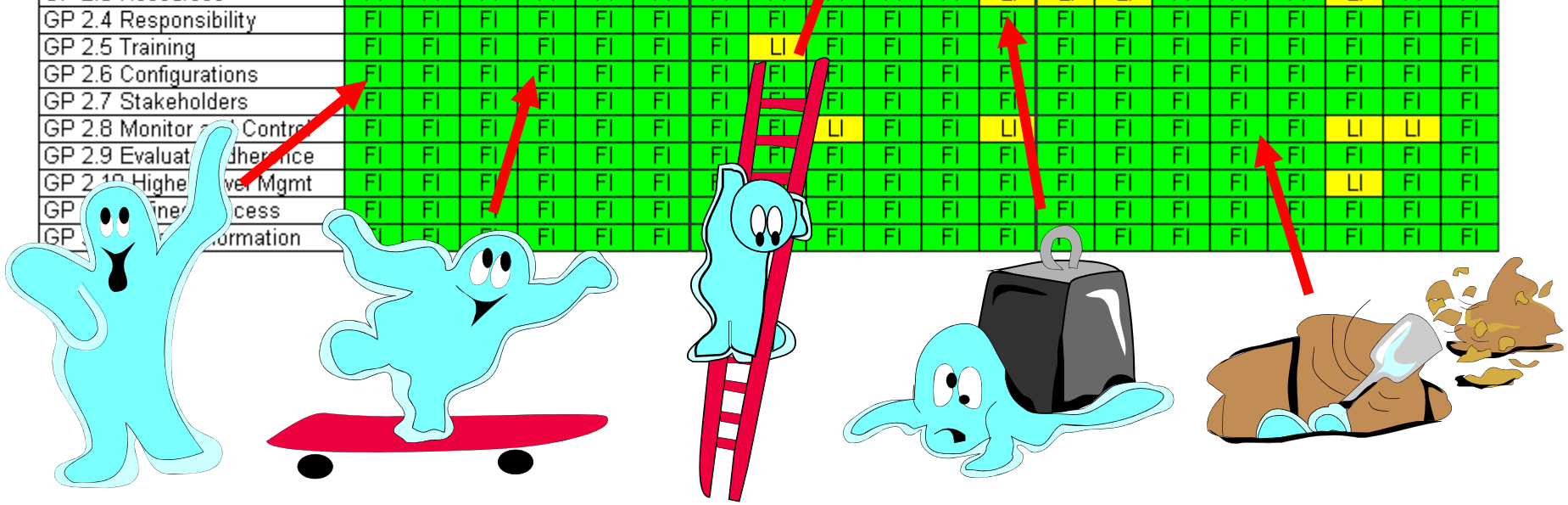
How Can We Better Institutionalize OID Behavior?

SCAMPI As

OID Practice	2003						2004						2005							
	04/17/03	05/01/03	10/02/03	10/29/03	11/14/03	12/11/03	10/08/04	11/11/04	11/12/04	12/03/04	12/10/04	12/10/04	02/24/05	05/20/05	06/09/05	10/13/05	11/04/05	11/09/05	11/14/05	12/14/05
SP 1.1 Collect Proposals	FI	FI	FI	FI	FI	FI	FI	LI	FI	FI	FI	LI	FI	FI	FI	FI	FI	LI	FI	FI
SP 1.2 Identify Innovation	FI	FI	FI	FI	FI	LI	FI	LI	FI	FI	FI	LI	FI	FI	FI	FI	FI	FI	FI	FI
SP 1.3 Pilot	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI
SP 1.4 Select for Deployment	FI	FI	FI	FI	FI	FI	FI	FI	FI	LI	LI	LI	FI	FI	FI	FI	FI	FI	FI	FI
SP 2.1 Plan Deployment	FI	FI	FI	FI	FI	FI	FI	FI	LI	LI	LI	LI	FI	FI	FI	FI	FI	LI	FI	FI
SP 2.2 Manage Deployment	FI	FI	FI	FI	FI	FI	FI	FI	LI	FI	FI	LI	FI	FI	FI	FI	FI	LI	FI	FI
SP 2.3 Measure Effects	FI	FI	FI	FI	FI	FI	FI	FI	LI	LI	LI	LI	FI	LI	FI	FI	FI	LI	FI	FI
GP 2.1 Policy	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI
GP 2.2 Planning	FI	FI	FI	FI	FI	FI	FI	LI	FI	FI	FI	LI	FI	LI	FI	FI	FI	LI	FI	FI
GP 2.3 Resources	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	LI	LI	LI	FI	FI	FI	LI	FI	FI
GP 2.4 Responsibility	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI
GP 2.5 Training	FI	FI	FI	FI	FI	FI	FI	LI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI
GP 2.6 Configurations	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI
GP 2.7 Stakeholders	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI
GP 2.8 Monitor and Control	FI	FI	FI	FI	FI	FI	FI	FI	LI	FI	FI	LI	FI	FI	FI	FI	FI	LI	LI	FI
GP 2.9 Evaluate Adherence	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI
GP 2.10 Higher Level Mgmt	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	LI	FI	FI
GP [illegible] Process	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI
GP [illegible] Information	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI	FI



Elation **Skating** **Backsliding** **BOOM** **Recovery**

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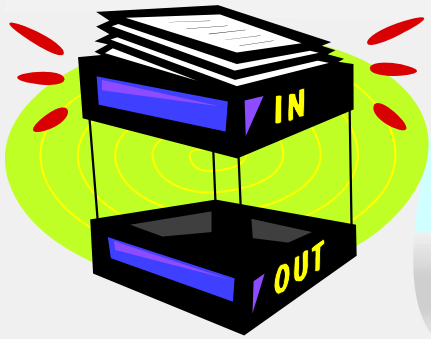
How Do We Know OID Isn't Institutionalized? It Doesn't Feel Right

1. SCAMPI A means it's time to worry, and it shouldn't

2. Not many improvements are submitted each year, which is only "ok"



3. Not many projects are finished each year, which is again, only "ok"

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What Did We Do?

- Overhauled the OID process
- In February 2006, completed an OID project called: "OID Revamp, i.e., **OID of OID**"

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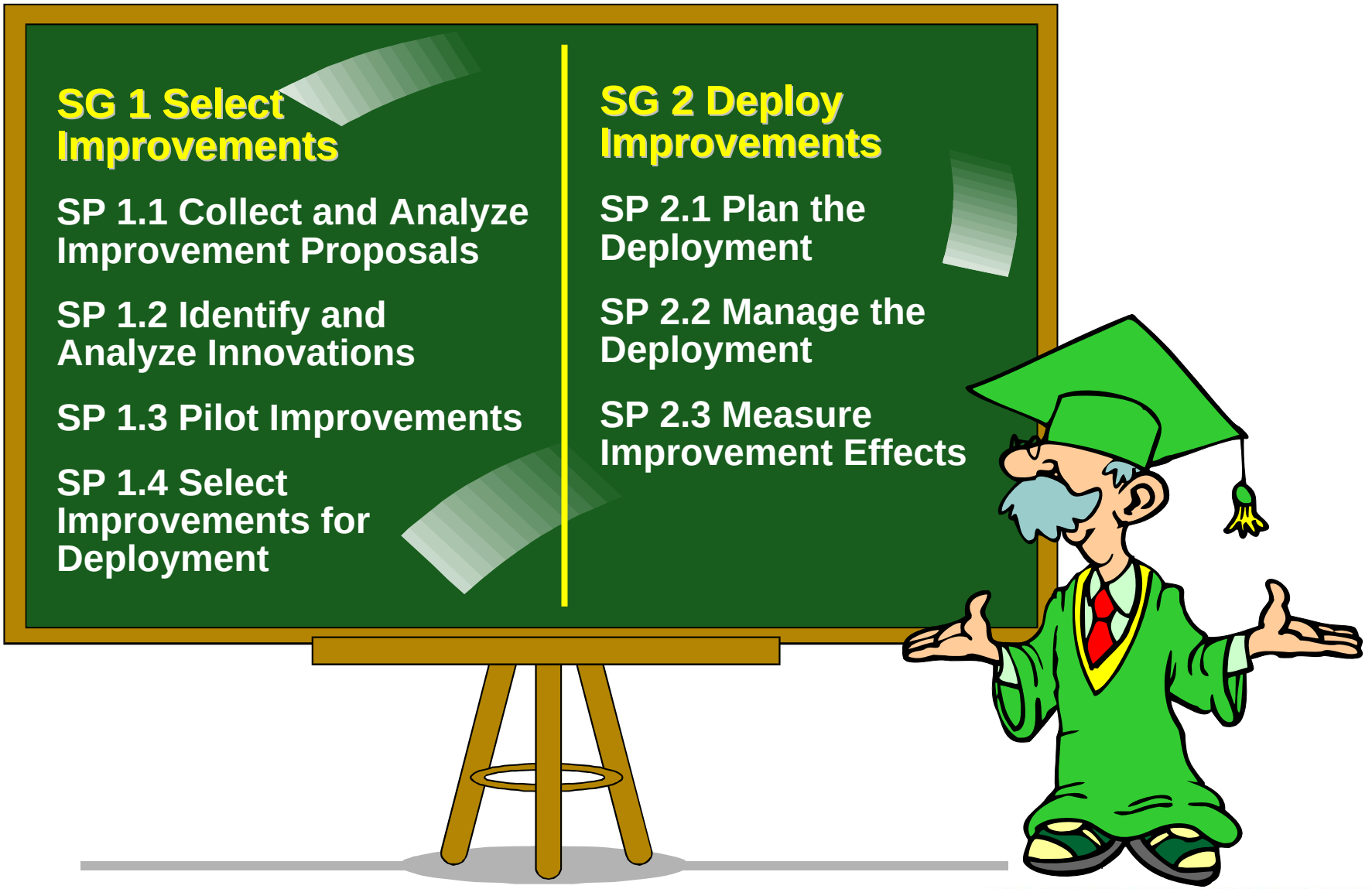
OID Refresher



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Level 3 OPF versus Level 5 OID

OPF

- Goals are qualitative (e.g., get better)
- Effects of improvements are not estimated or measured

OID

- Goals are quantitative (e.g., reduce variation by X% and/or mean by Y%)
- Improvements cause a shift in process capability, i.e., performance and/or quality
- Potential improvements are analyzed to estimate costs and benefits
- Improvements are piloted to ensure success
- Improvements are measured in terms of variation and/or mean

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Number of OID Projects is Only “Ok”

IN = 5

OUT = 4

2003

M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

e.g., Project Plan Templates

IN = 3

OUT = 2

2004

M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

e.g., Tests for Training Courses

IN = 6

OUT = 3

2005

M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

e.g., Electronic Evidence Tool

The number of OID projects submitted (IN) and completed (OUT) pass CMMI Level 5, but we weren’t satisfied.

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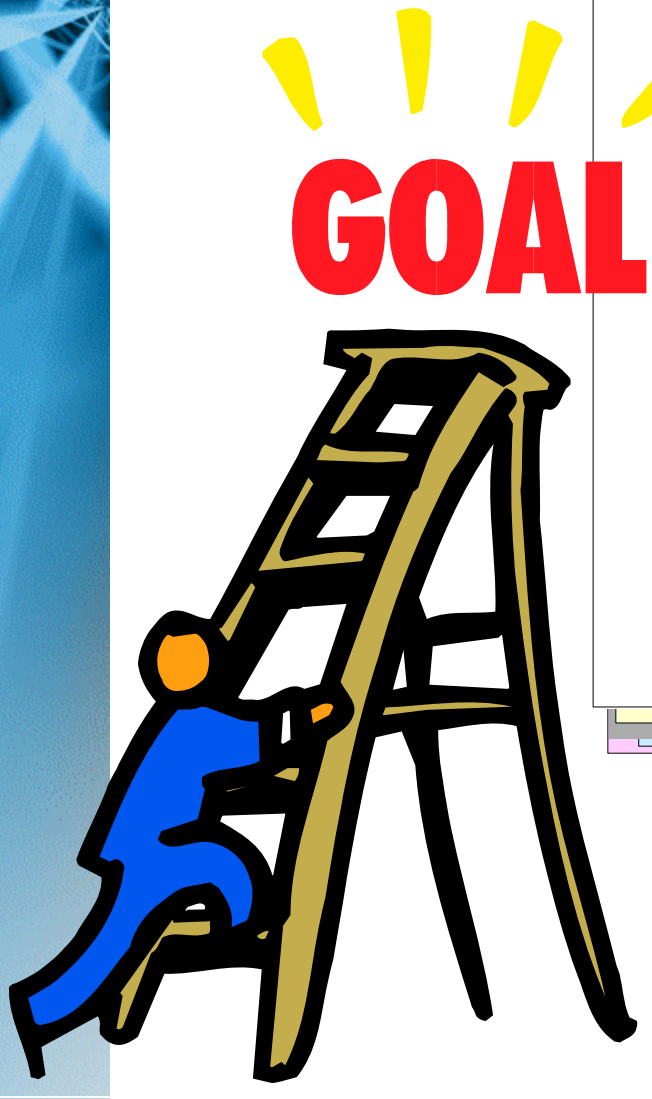
Actual Goal of the "OID of OID" Project



The previous OID process was not effective and resulted in very few completed improvements per year. To be effective, approximately **5 to 10 improvements should be completed per year**. The measure of improvement will be the number of suggestions provided per year and the number of improvements completed per year.

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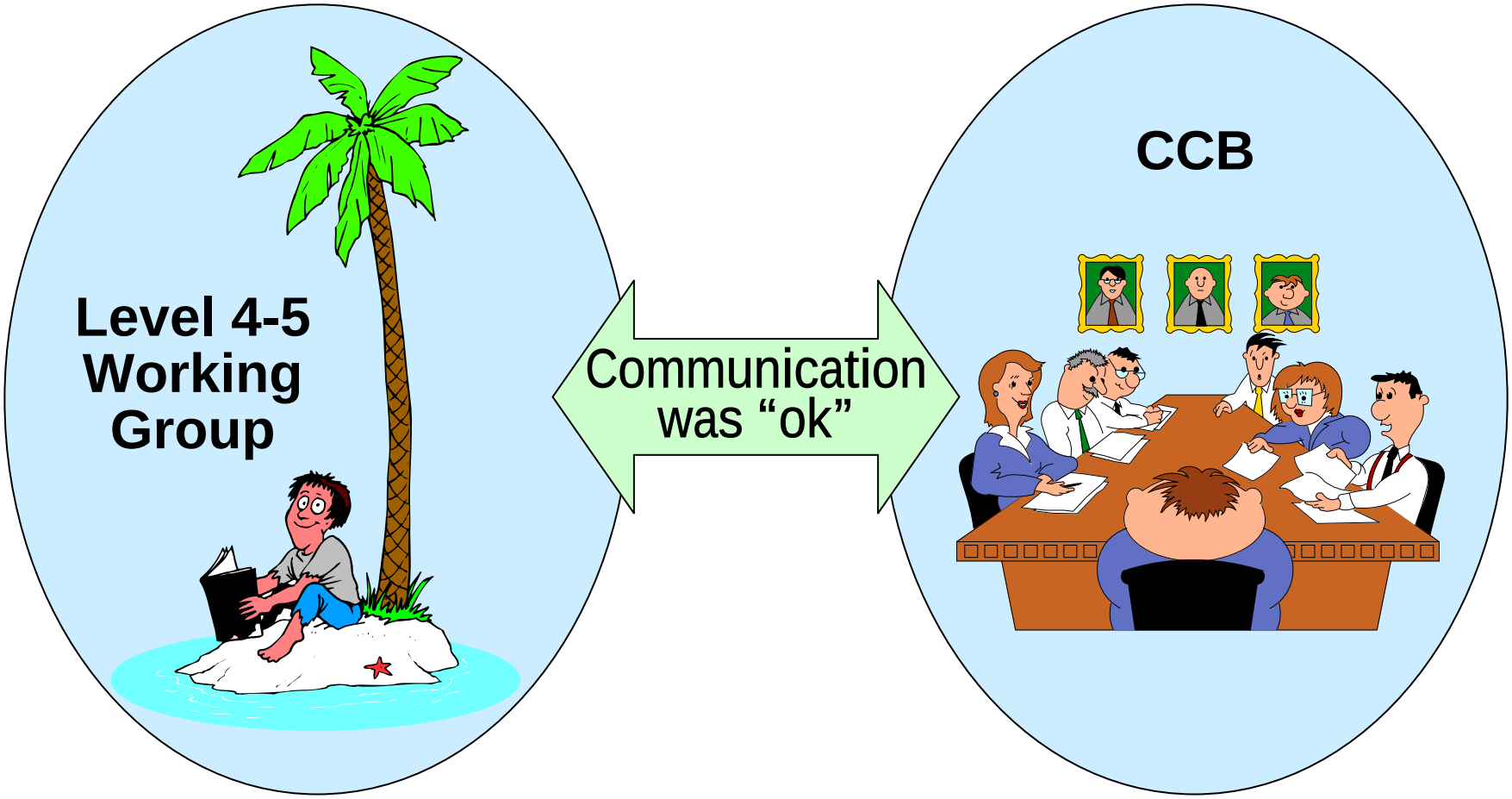
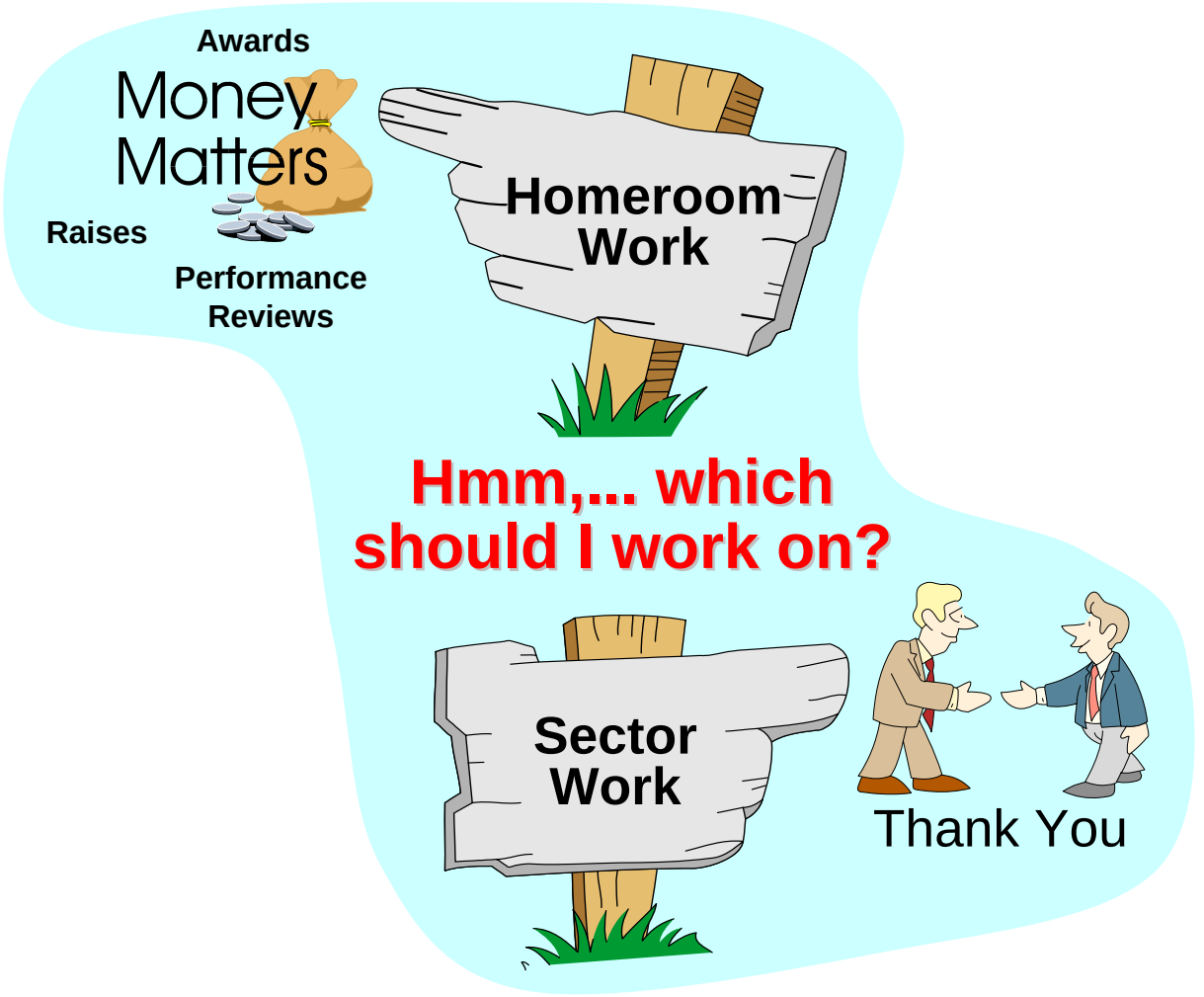
Change 1:
Changed the Organizational Structure



Ensure OID is managed at the right level of visibility and authority. It’s easy to have too many working groups.

Change 2:
Assigned Clear Responsibility

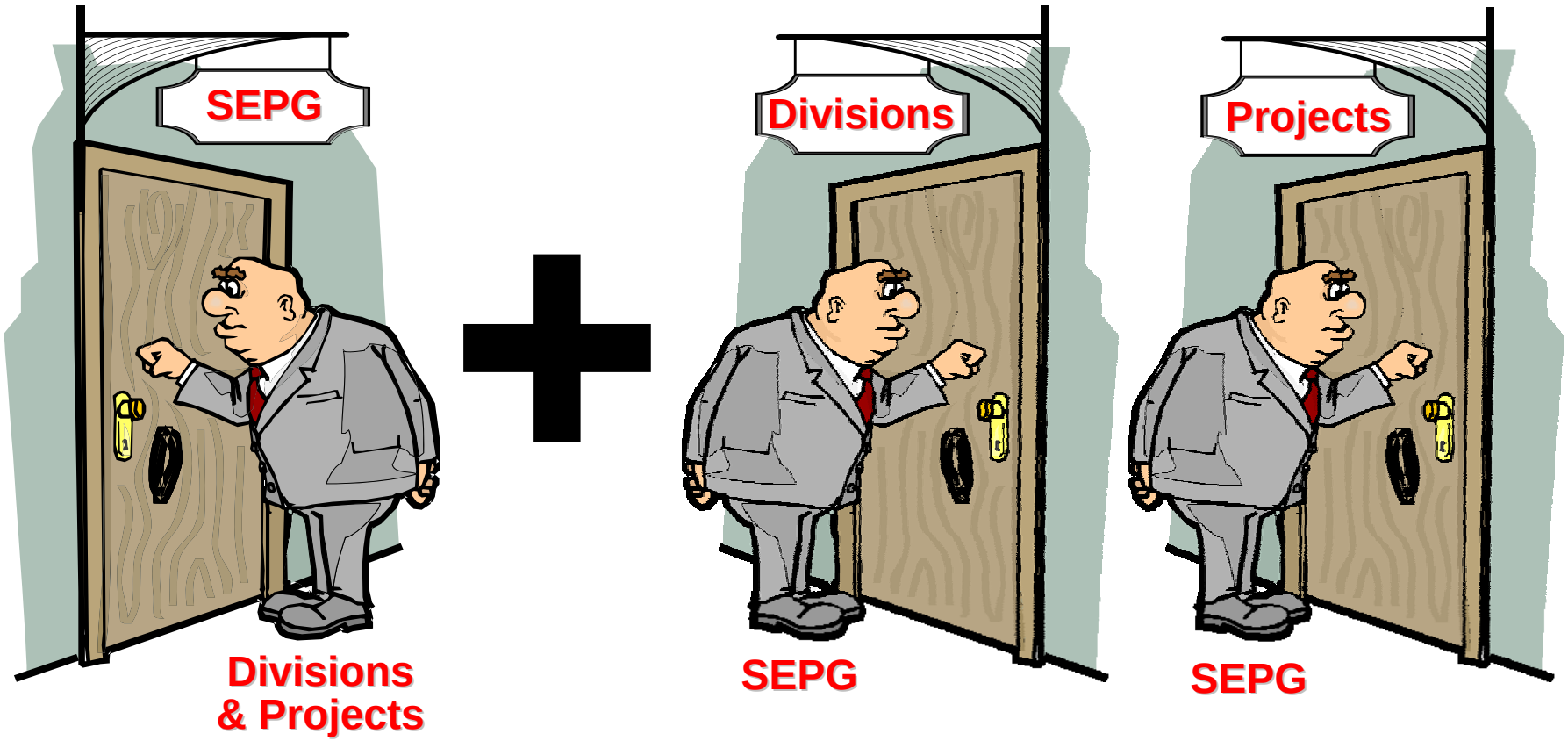


Ensure the OID Lead does not have competing priorities, where the homeroom organization frequently wins.

Change 3:
Became More Proactive

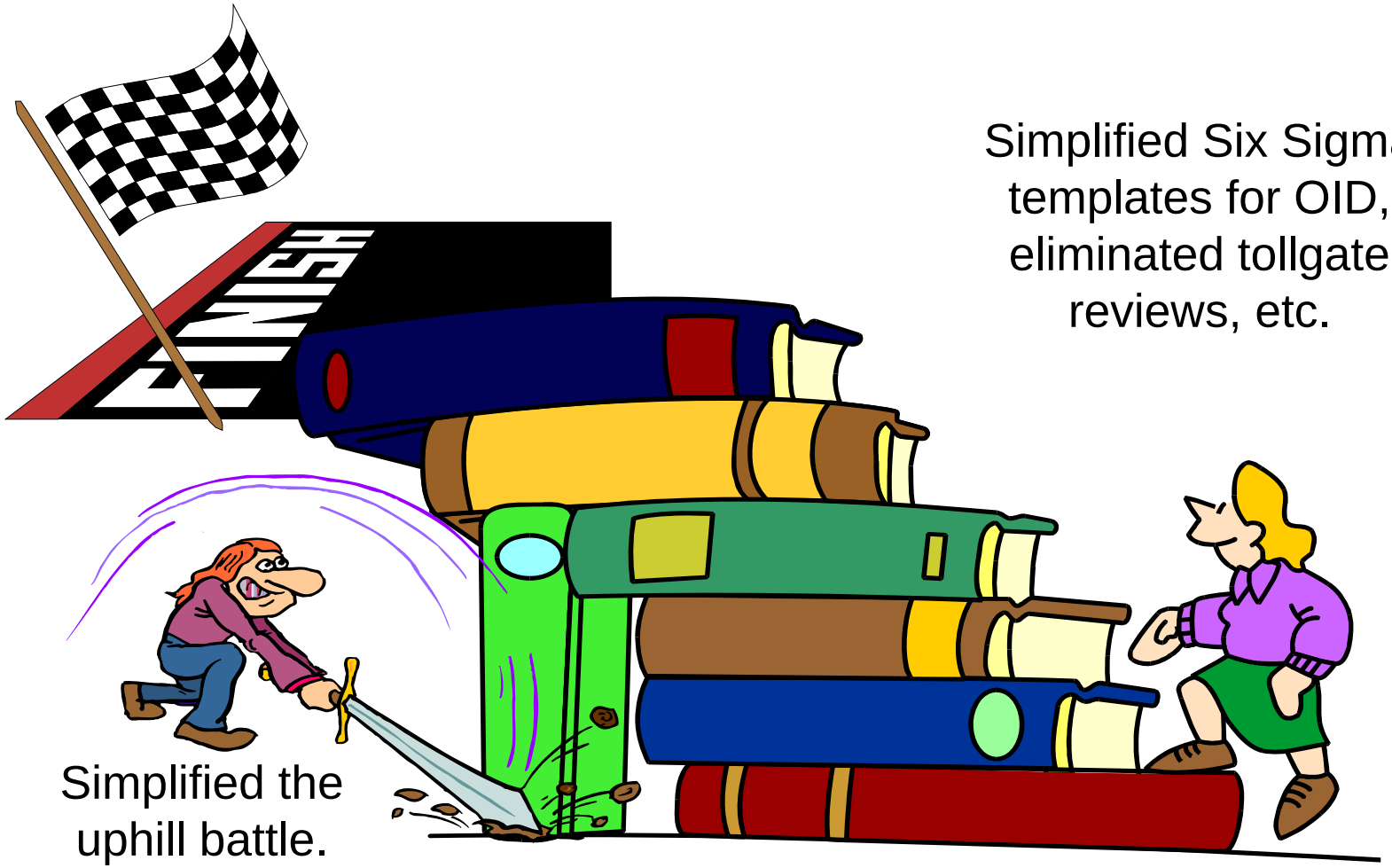
Reactive
(Wait for Suggestions)

Proactive
(Search for Suggestions)



Conduct a Voice of the Customer at least annually.
Don't wait for people to submit proposals.

Change 4:
Eliminated the Bureaucracy



Simplified Six Sigma templates for OID, eliminated tollgate reviews, etc.

Simplified the uphill battle.

Keep it simple.

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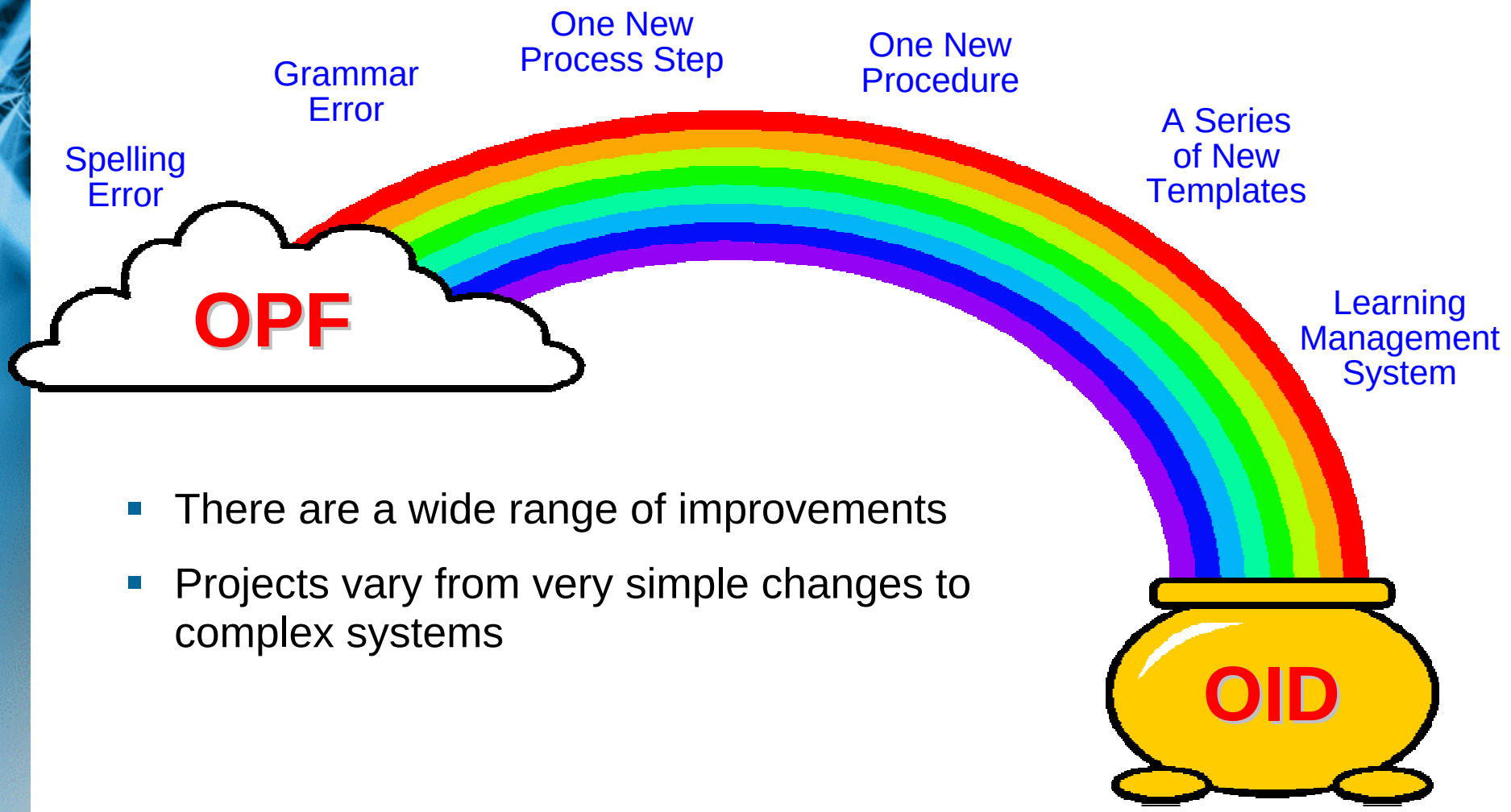
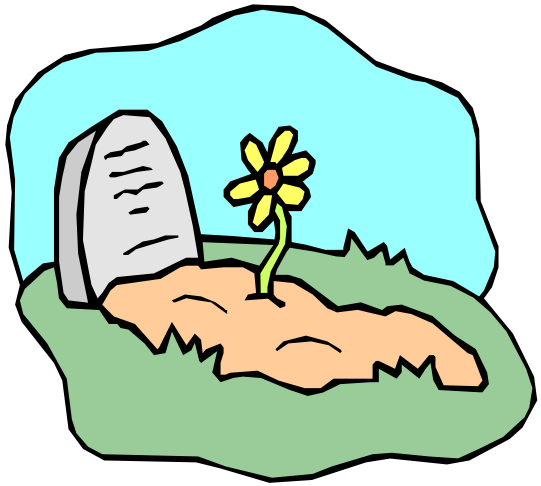
Change 5:
Avoided the Term "Innovative"



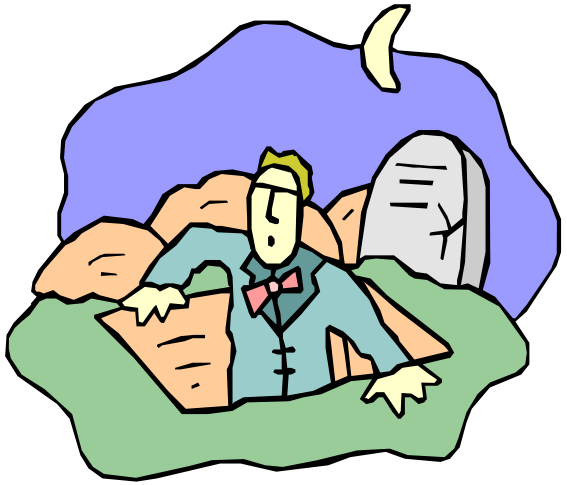
- There are a wide range of improvements
- Projects vary from very simple changes to complex systems

Pondering whether something is "innovative" scares people away. Focus on measuring and piloting improvements, as appropriate.

Change 6:
Resurrected the Watch List (1 of 2)



Watch List was not used frequently



Resurrected the Watch List

Let the Watch List loose for visibility

The Watch List is needed for both planning and monitoring and control.

Change 6:
Resurrected the Watch List (2 of 2)

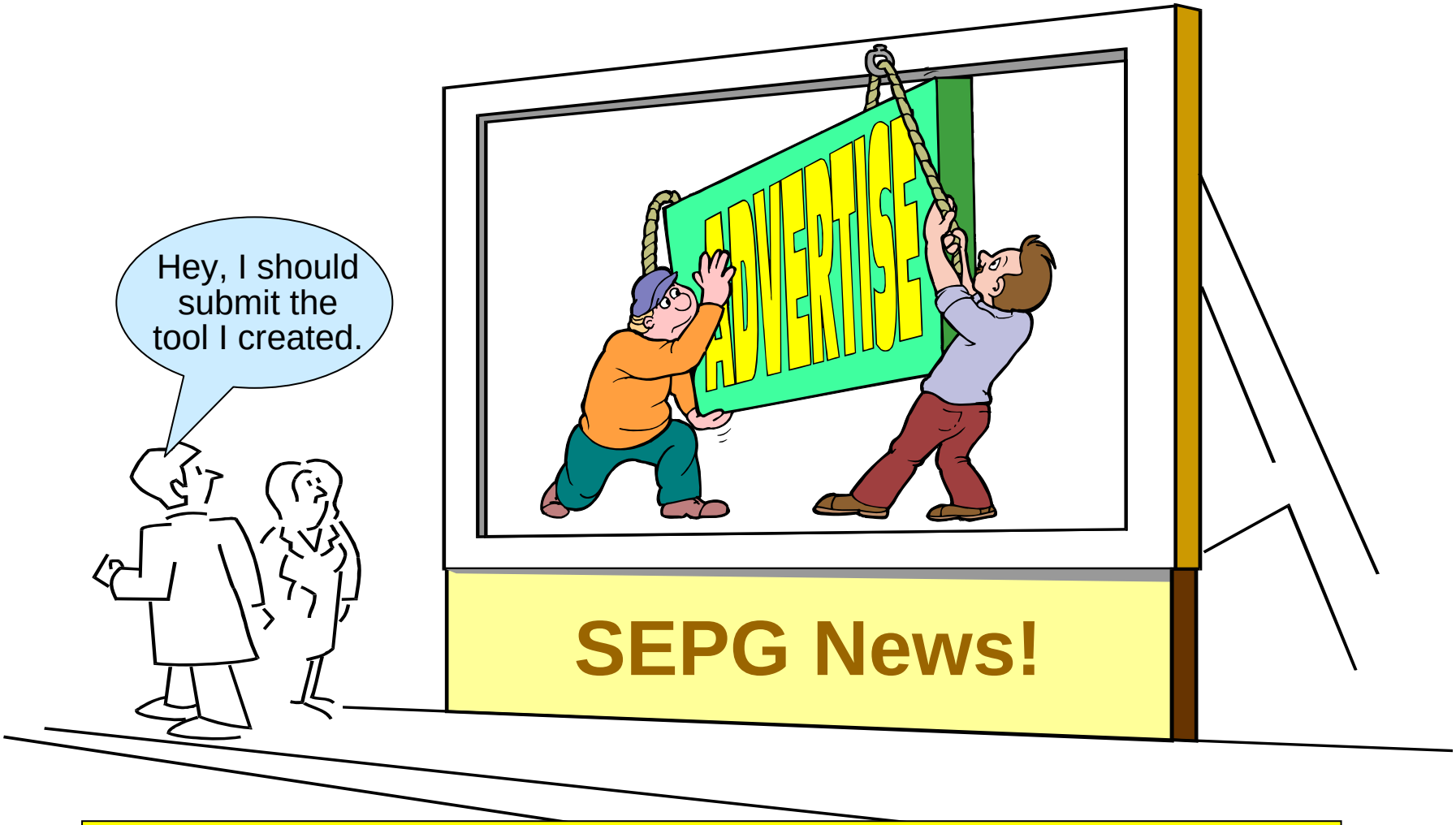
Watch List Fields

- Id
- Title
- Date submitted
- Requester
- Source, e.g., project, CCB
- Describe the improvement and why it is needed
- Will quality be improved?
- Will performance be improved?
- Cost analysis
- CCB disposition
- CCB comments
- CCB date
- Status
- Measure?
- Pilot?
- Assignee
- Priority
- Start quarter
- Post quarter
- Hours
- Date closed

The Watch List is statused monthly at the CCB and to higher-level management.

Status high priority improvements regularly, which helps push people to complete their projects.

Change 7:
Made Successes More Visible



If people think their improvement suggestions end up in a "black hole", they will never submit anymore suggestions.

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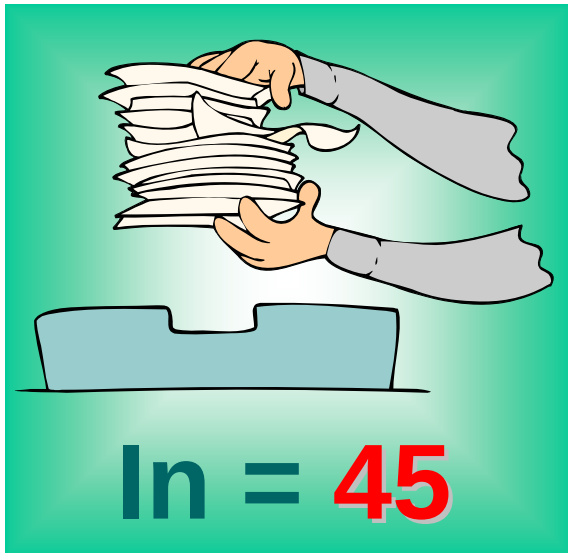
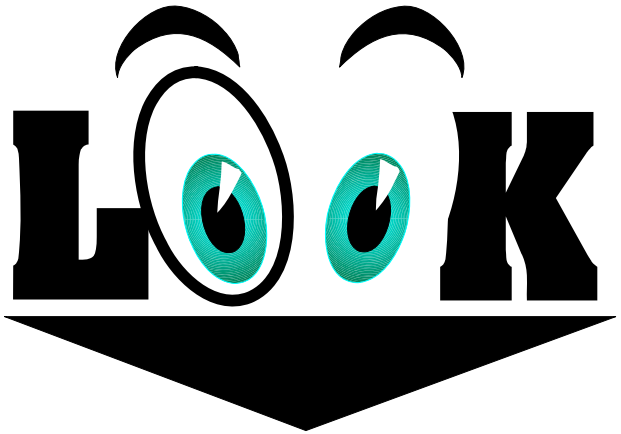
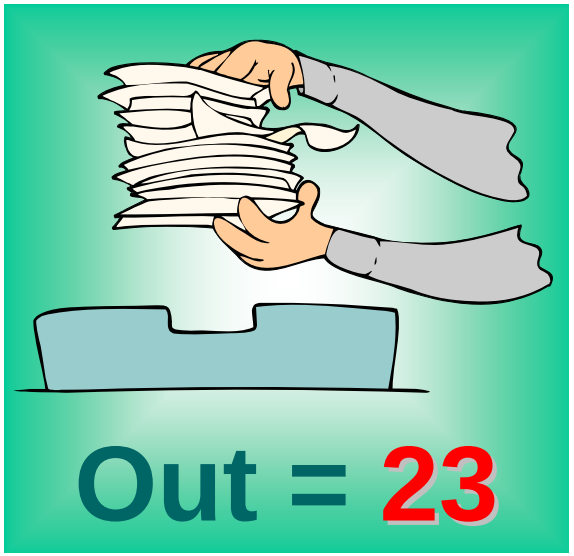
Look at Measures NOW



2003 In = 5
2004 In = 3
2005 In = 6



at the measures for 2006



2003 Out = 4
2004 Out = 2
2005 Out = 3

e.g., Software Product Lines

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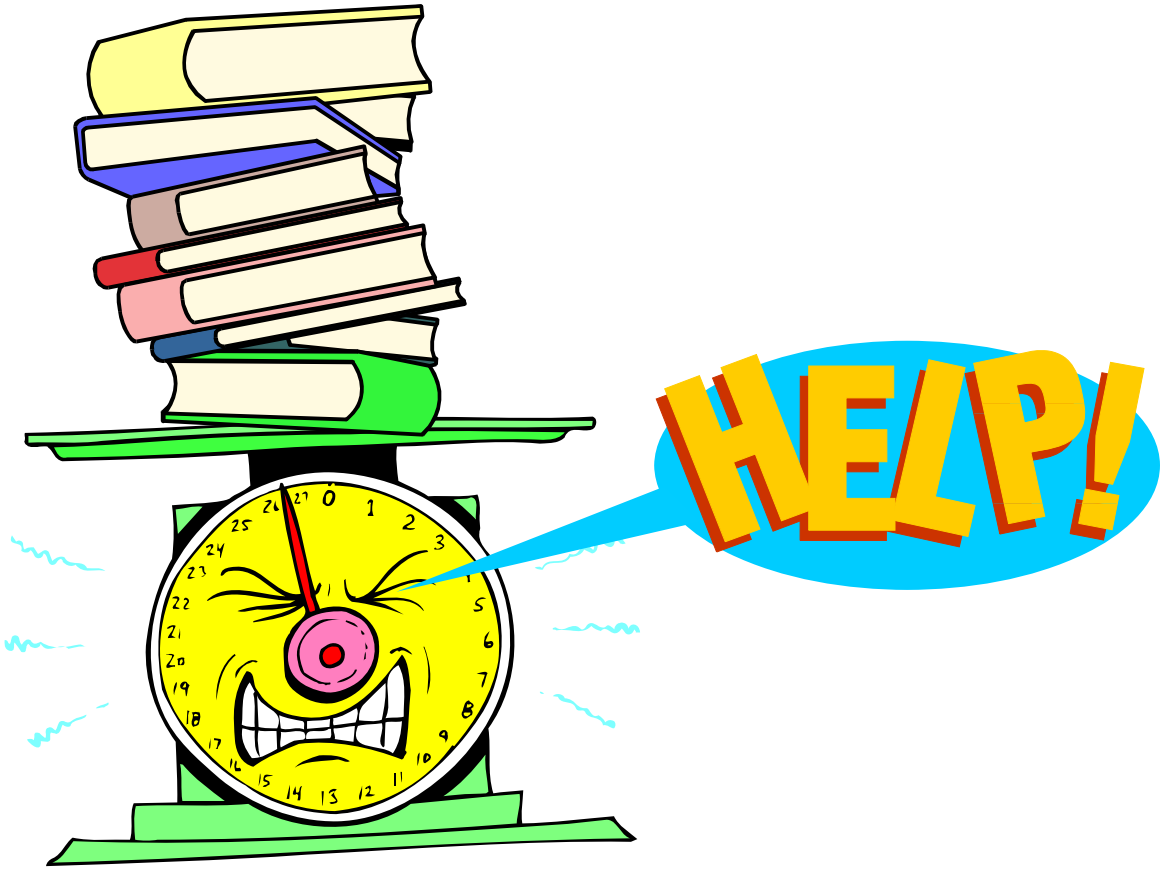
What Still Needs to be Fixed



The one remaining project to do is "OID of OID Lead". There's a LOT more planning and managing involved with the substantial increase in OID projects.

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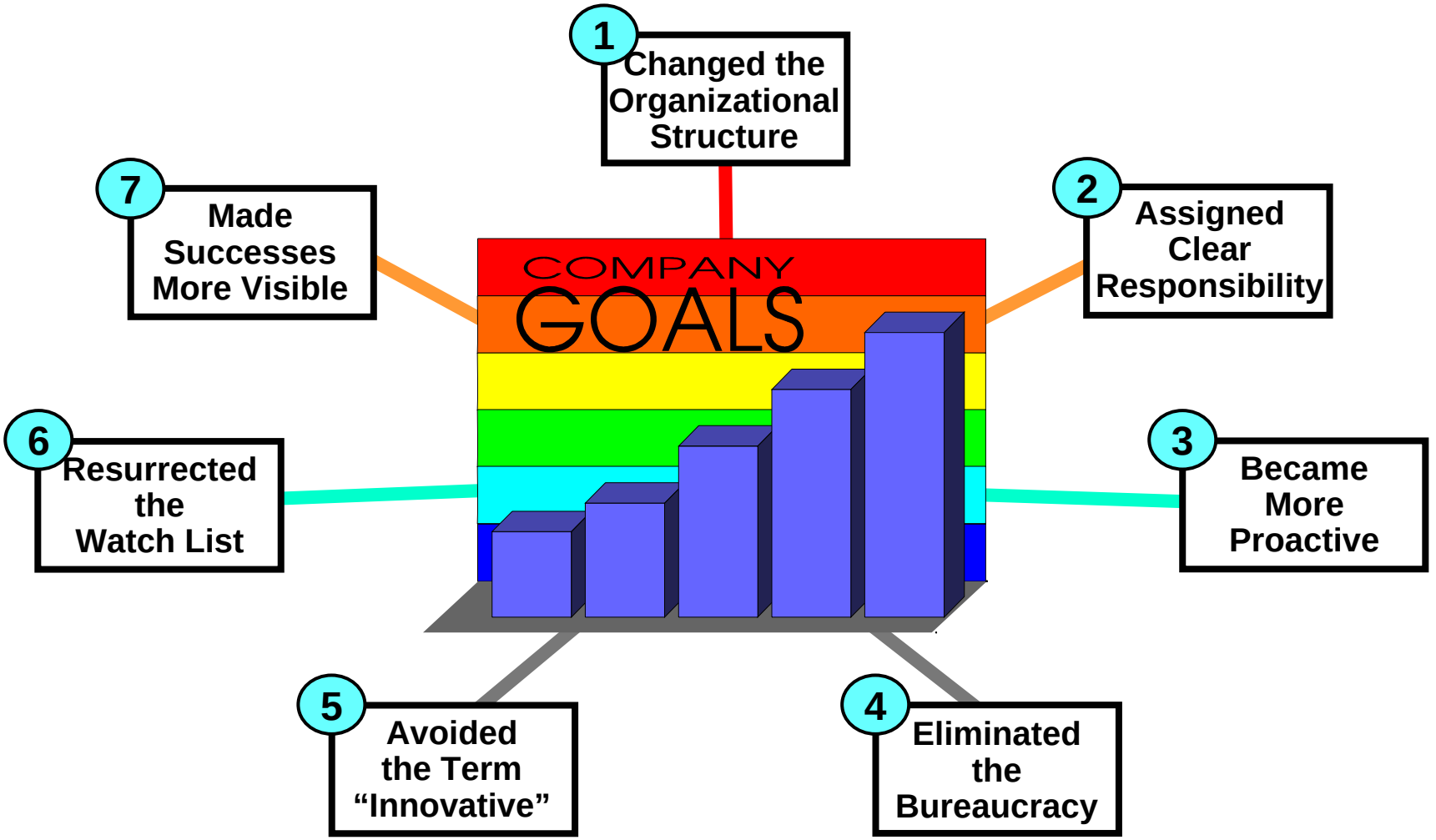
Summary



Through "**OID of OID**", we went from **4.7** to **45** improvements submitted and **3.0** to **23** projects completed.

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