

25<sup>th</sup> anniversary  
annual INCOSE  
international symposium  
Seattle, WA  
July 13 - 16, 2015



# Change Agency for Systems Engineers

Dorothy McKinney

Eileen Arnold

Sarah Sheard



# SE Skills Supporting Change Agency



- Understanding of the “big picture”
  - “why” “what” and “how”
- Knowledge of many different aspects
  - technology and business
- Keen insights into stakeholders and into potential consequences of changes
- Understanding of the need to communicate and collaborate better as the technical system comes together
- Ability to do root cause analysis
- Insight into costs, failures, rework, and customer satisfaction or dissatisfaction



# Windows of Opportunity



Windows of opportunity for change occur:

1. When a new start is being made, such as:
  - Opening a new line of business
  - Beginning development of a new product
  - In preparation for a new competition
  
2. When a dire problem is encountered:
  - If the problem has potentially serious business consequences AND
  - If the change will reduce the negative consequences



# Avoid Likely Failure: Face Reality

- Don't pressure the team to get only the results you want, sacrificing other business goals
- Don't deny problems because you think admitting them will taint the image of your change effort
- Don't try to rewrite history by updating the past plan to equal actuals
- Remember peoples' different roles and responsibilities



# Good Change Agents...

- Use multiple communication modes
  - Rather than “Death by PowerPoint”
- Work with and through others, rather than being “the hero”
- Embrace lifelong learning
- Look for ways to leverage unexpected changes to improve chances of success



# Seeing the Broader View

- Understand that the context is crucial: culture, economics, social issues
- Examine consequences of various alternatives
- See politics as the way people try to influence outcomes



# When Pushing Change...

- Use systems thinking
  - Identify root causes underlying symptoms
  - Base decisions on data, not opinion
- Help targets resolve:
  - Conflicting priorities
  - Cost and schedule pressures
- Don't expect programs to change without changing budgets, schedules, or overhead



# Successfully Involve Others

- Celebrate milestone achievements and completion
- Find allies and share the work
- Listen

# Possible Change Origins -1



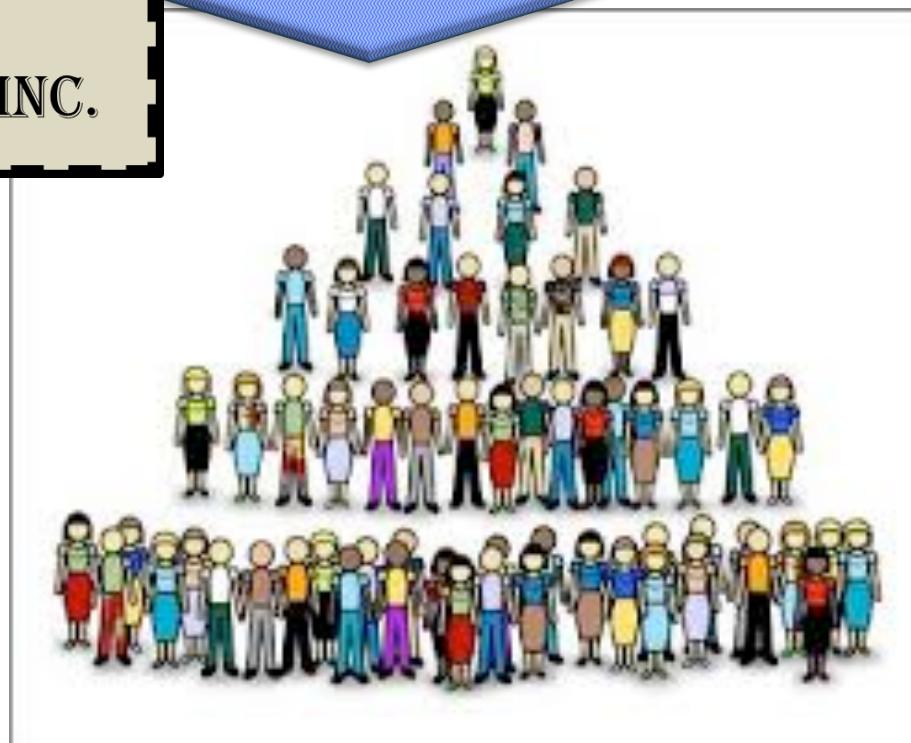
Top Down



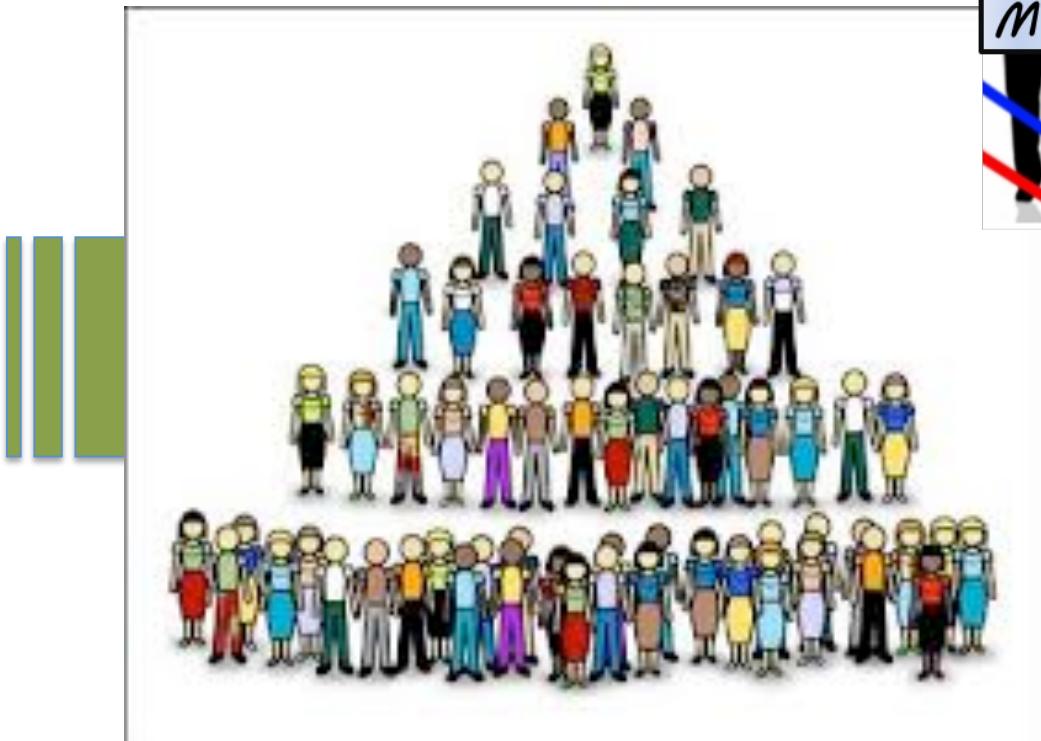
Middle Out

Bottom Up

# Possible Change Origins -2



# Possible Change Origins -3

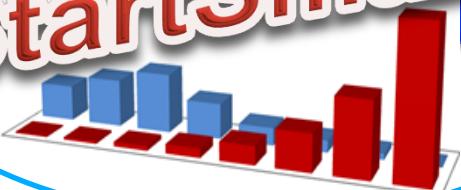


Middle  
Out

# Possible Change Origins -4



**Start Small**



**Bottom Up**

# Causes of Resistance to Change

- ✓ Stakeholders are uninformed
- ✓ Stakeholders are not included in the decisions
- ✓ The timing is inappropriate
- ✓ The change is not understood or misinterpreted
- ✓ There is lack of confidence that the change will be successful
- ✓ There are fears of unintended consequences that have not been addressed
- ✓ There are too many changes occurring at once

# Symptoms of Shortfalls



When There Is an <b>Absence</b> of	A Change Agent Will Likely See
Shared Vision	<ul style="list-style-type: none"><li>• Divergent, inconsistent efforts</li></ul>
Engaged Stakeholders	<ul style="list-style-type: none"><li>• Resistance</li></ul>
Actionable First/Next Steps	<ul style="list-style-type: none"><li>• Inaction</li><li>• False starts</li></ul>
Capacity for Change	<ul style="list-style-type: none"><li>• Anxiety</li><li>• Frustration</li></ul>

# Optimal Targets for Change Success -1



Organization's Primary Success Criterion	Best Change Origination	Targets for Change
Changing to keep up with the times (agile organization)	Most effective and quickest: bottom-up change; middle-out change can also work in concert or separately	Both product and process changes are needed, but they may not need to be simultaneous
Judicious risk-taking	Most effective middle-out and bottoms-up change	Carefully targeted changes in product and process can work

# Optimal Targets for Change Success -2



Organization's Primary Success Criterion	Best Change Origination	Targets for Change
Maintenance of organizational harmony	Most effective if from outside the organization (e.g., major customer); top-down change can also work	Changes in product more acceptable than changes in processes



# Optimal Targets for Change Success -3



Organization's Primary Success Criterion	Best Change Origination	Targets for Change
Improvement of organizational results	Most effective top-down change; middle-out change can also work	Changes may need to address product and process simultaneously



# Optimal Targets for Change Success -4



Organization's Primary Success Criterion	Best Change Origination	Targets for Change
--	-------------------------	--------------------



Changing to keep up with the times (agile)	Most effective and quickest: bottom-up change; middle-out change can also work in concert	Both product and process changes are needed -- may not need
--	---	---

# Optimal Targets for Change Success -5



Organization's Primary Success Criterion	Best Change Origination	Targets for Change
--	-------------------------	--------------------

disrupt inc

Judicious risk-taking	Most effective middle-out and bottoms-up change	Carefully targeted changes in product and process
-----------------------	---	---



# When NOT to Change

- When the potential payoff is not high
- When you cannot devote enough time and energy to the change
  - Expect it to take 2 – 10 times more than you initially planned!
- If you don't yet have enough credibility



# Improving Relationships

Dr. David Fraser's suggestions for focus

- Attention to yourself – clarify your change target and your priorities
- Attention to others – listening effectively
- Attitude – taking responsibility
- Self-control – to deal with challenging moments constructively
- Wavelength – “tuning in” to others Filters and focus – discerning yours and others’
- Connection – establish and strengthen connections with others
- Values – understanding what matters most to others
- Language – understanding people’s language Self-awareness – understanding how others see you
- Balance – understanding your own conflicting desires
- Care – the emotional dimension

# Conclusion



Next time a change is needed:

- Give all stakeholders the opportunity to help shape and drive the change
- Choose your change targets carefully, and watch for windows of opportunity
- Paper also includes:
  - 2 true change agent stories
  - Career implications
  - Skills self-assessment



**Thank You  
for your attention!**

**QUESTIONS?**

**25<sup>th</sup> anniversary**  
annual INCOSE  
international symposium  
Seattle, WA  
July 13 - 16, 2015