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eXecution+: Affordable, Effective Organizational Change

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Agenda

- Context: Overview of Raytheon
- What is eXecution+? (Principles & Story)
- Focus on the Most Critical Business Needs
- Understand How & Why We Do What We Do
- Disseminate Best Practices Across the Business
- One Deployment Methodology for Improvements
- Surface Barriers & Break Them Down
- Summary
- Conclusions

Context: An Overview of Raytheon

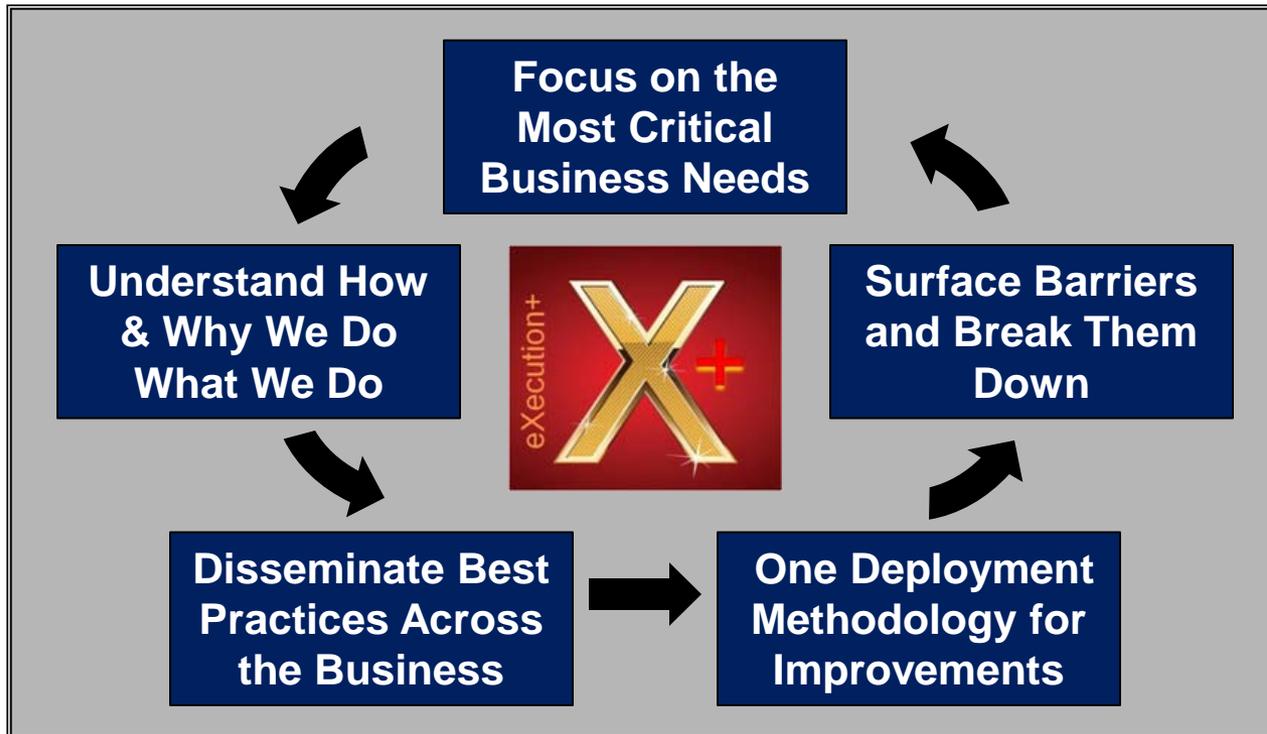


- **Six Major Businesses**
 - Integrated Defense Systems
 - Intelligence & Information Systems
 - Missile Systems
 - **Network Centric Systems (NCS)**
 - Raytheon Technical Services
 - Space & Airborne Systems

NCS at a Glance

Approximately 11,700 employees
 Approximately 4,900 engineers
 \$4.5 billion in 2011 revenue
 Over 1,300 programs in 72 countries
 Headquarters in McKinney, Texas

eXecution+ (X+) is...



Why is it called eXecution+?
 Engineering is all about the decisions made by engineers about how to do things (execution). We have some of the smartest people in the world, but we still have problems and our competitors continue to advance – we must keep raising our game (+). The x-factor is the effective and efficient application of engineering methods to solve problems – not compliance and not the way we’ve always done things (capital “X”).

- eXecution+ & CMMI for Development v1.3**
- Causal Analysis & Resolution
- Organizational Process Focus
- Organizational Process Performance
- Quantitative Project Management

Focus on the Most Critical Business Needs

The eXecution+ Difference

- Before anything else, decide what good looks like for the process
 - Not only from org process – also industry best practice and lessons learned
 - Ex. How should we manage requirements?

- Decompose the process into specific behaviors
 - Ex. Requirements Management = Update When Changed, Use Tool, Use Scripts, etc.

- Determine specific behaviors the organization does and does not do well
 - Quantitative & qualitative data – some things are difficult to measure

- Prioritize specific behaviors to fix

Key Principles

- Align everyone on good (vision)
- Doing something and doing it well are different
- Organizational change capability / bandwidth is limited

Change on the Cheap

- Pareto the behaviors driving performance – there may be one or two with the most impact
- Use data from existing metrics or surveys: the law of inertia applies to organizations too – the org is not likely to have improved while no one was watching

Understand How & Why We Do What We Do

The eXecution+ Difference

- Material is designed from the vantage point of three types of consumers:
 - Novice: Not an expert and they know it
 - Practitioner: Conversant and may or may not consider themselves experts
 - Expert: Resource sought by others

- Integrate material in one place
 - Use self-assessment questions to quickly provide feedback on user expertise level
 - Excerpt key behaviors on one page – don't make users dig through documentation

- Use different roles to review content
 - Technical Writers, Communications, & Novice Engineers
 - Single “editor” for content to ensure standards

Key Principles

- Teach the how and the why
- Put everything in one place accessible at any time
- Provide feedback on learning & performance
- Use templates to maintain common look and feel

Change On the Cheap

- Look for and link to existing material to reduce sustaining costs
- Use online mediums: inexpensive and on demand
- If instructor training is necessary, do it once and video it for on demand access later

Model for Online Educational Content

Page Header	
Left Nav	Title
	Lead Story
	Self Assessment Questions & Short Answers
	Getting Started
	Field Guides / Other Useful Information
	Description, Purpose, & Benefits
	Access Now : Resources List
	SME List
	FAQ
Page Footer	

eXecution+ Feature pages are web pages internally hosted that provide focused content, moderated by subject matter experts, explaining critical Engineering behaviors necessary for business success.

- Provides a one-stop shop for information on a particular topic
- Saves time by integrating information found in various sources into one location
- Explains How & Why we do what we do
- Teaching tool focused on learning and self-evaluation rather than measures

Think of each X+ Feature Page as an “Online SME” available 24/7.

Disseminate Best Practices Across the Business

The eXecution+ Difference

- In hierarchical organizations, email from the top does not always communicate
 - Use as many mediums as possible
- Make the functional and informal organization communication chains work
 - Can't go around it: Front-line leaders are key
- Communicate frequently – it takes a long time for the message to sink in
- When dealing with process, people tend to assume the worst – more bureaucracy
 - Always communicate the benefits of performing a particular action (not getting fired is not a benefit)

Key Principles

- People rely on input from their immediate supervisor to gauge importance
- People consume information in different ways – communicate using different ways
- Over communicate and then communicate again

Change On the Cheap

- Buy lunch and people will attend (on their own time) vs. all hands type activities
- Get the functional chain to work – they already have recurring meetings

One Deployment Methodology for Improvements

The eXecution+ Difference

- Common deployment process orchestrated from a single source
- Instrument the process to be followed
 - Good output does not necessarily indicate process execution efficiency
 - # of people trained, classes held also does not indicate execution efficiency
- Two types of measures and three collection methods
 - Types: Does it exist? Is it right?
 - Methods: Direct Collect, Solicit, Survey
- Share measures carefully outside of leadership – not about making it “green”

Key Principles

- One deployment process
- Make the measures about change not compliance or box-checking
- Measurement should be unobtrusive
- Achievement of the goal is not sufficient – must be sustained

Change On the Cheap

- Use existing artifacts and repositories to the maximum extent possible
- Avoid surveys and diagnostics – expensive & subjective
- Invest in measurement automation – more accuracy and reduces time to collect and report

Surface Barriers & Break Them Down

The eXecution+ Difference

- At some point, change will not occur as quickly as desired – common barrier classification taxonomy:
 - Education: “I don’t know how.”
 - Alignment: “I don’t think I should.”
 - People: “I should, others think I shouldn’t.”
 - Technology: “I should, but the solution doesn’t work.”
- Make the functional organization learn to resolve barriers – don’t let the process group jump in and do it for them
- If barriers are not getting resolved, start with leadership – there is most likely an alignment problem at some level

Key Principles

- Process group provides a “tension point” for organization
- Manage barriers in a systematic, documented fashion to closure
- Rate of change is governed by leadership involvement

Change On the Cheap

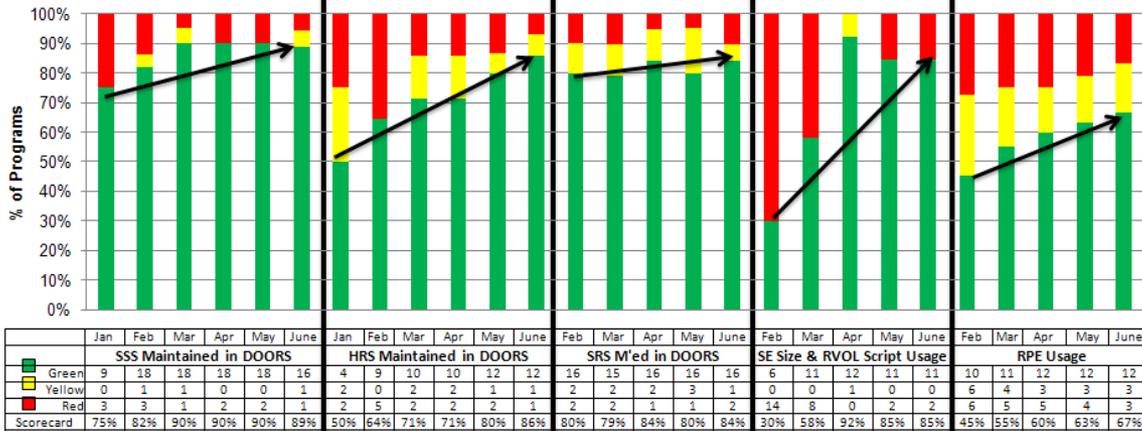
- Use existing CM or Action Item tools for barrier tracking
- Initiate barrier busting activities as soon as measures indicate lack of improvement

Summary - How is X+ different?

Typical Approach (Failure Mode)	Undesirable Effect	eXecution ⁺ Difference
Ad-hoc approach to deployment of improvements (whenever the improvement is ready)	Organizational bandwidth to address identified issues is limited and inefficiently utilized	Deployment schedule based on smaller "chunks" of change versus an entire solution at once
Metrics used to indicate change in behavior (tendency to focus on "making it green")	Culture of "box-checking" and compliance versus mentoring and explaining why we do what we do	Focus on hearts and minds versus compliance – metrics follow org. learning & communication
Each project develops a customized approach for deploying their particular solution	Leads not experts in deployment; Rework of deployment information; Variability	Defined templates, standardized measurement approaches, and coordinated schedule
Project lead queries program personnel periodically to measure status of change	Programs slow to respond to requests; Too many people pinging program for data at once; Data often subjective with justifications	Focus on developing quantitative, non-intrusive measurements to minimize human-in-the-loop data collection activities
When change not happening quickly enough, project lead begins to work individually with program personnel	Fixes parts of the organization (specific programs); Functional org. never learns how to implement org. change	Functional organizations accountable for change with support from org resources to provide added bandwidth
Barriers to change communicated in varying "languages" in different venues	Barriers get "lost" at different levels of the organization with no real resolution	Common classification of barriers with clear communication path up organization

Conclusion: eXecution+ Works

X+: Requirements Management: Organizational Use of DOORS



Today, we know:

- We manage specifications well in DOORS
- We use scripts to generate our metrics – more accurate and automatic
- We use RPE to generate MS Word versions of specs for delivery – 90% less time to create!
- We track design margin and use statistical measures for the variance in expected technical performance

- Organizational Change
 - Not just box checking
 - It's all about enhancing our performance ***not*** compliance
- Effective Communication
 - As many mediums as possible
 - How and Why
- Establish Need for Change & Clear Goals
 - Prioritize issues and break process down to behaviors
- Maintain Sense of Urgency
 - Leadership must drive
 - Resolution of issues is a ***top*** priority for the organization
- Broad Involvement
 - The broader functional organization is key – can't be just the process group
 - Process group orchestrates the improvement initiatives

We know the steps needed to change the organization.

Author Biography



Rob Adams has worked for Raytheon for the last ten years in various capacities as a hardware development engineer, process engineer, functional manager, and project manager. Currently he is the Engineering Strategy Execution Lead, focused on engineering process deployment and organizational change implementation for Raytheon's Network Centric Systems business. Rob received a BS in Electrical Engineering and an MS in Engineering & Technology Management from Oklahoma State University in Stillwater, OK.