

*Leadership Behaviors of Management
for Complex Adaptive Systems*

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Dr. Suzette S. Johnson
Northrop Grumman Corporation
Agile Practices and Leadership
Software Systems Engineering
Suzette.Johnson@ngc.com

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Agenda



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- Defining Complexity
 - Agile and Adaptive Methods
 - Impact on Management Practices
 - Actions Forward



Defining Complexity

*"The art of simplicity is a puzzle of complexity."
-Doug Horton*

Complexity Theory

- Complex Adaptive Systems
 - A dynamic network of many agents acting in parallel and reacting to what the other agents are doing
 - Principle of growth and evolution (high rate of change)
 - Complex systems adapt to their environment as they evolve
 - Control is dispersed and decentralized
 - Simple rules and governance used to direct behavior
- Complexity Leadership Theory
 - Built on complexity theory
 - Expands the locus of leadership from the role-based actions of an individual to interactions that occur across the organization and down to the individual and team level
 - Relationships are not defined hierarchically, but rather through interactions across the organization or project
 - The “Leader” role is an enabler of change

References:

Mike Cohn, MountainGoatSoftware

John Holland in *Complexity: The Emerging Science at the Edge of Chaos*.

Marion, R., McKelvey, B., & Uhl-Bien, M. (2007). Complexity leadership theory: Shifting leadership from the industrial age to the knowledge era. *Leadership Quarterly*, 18(4), 298-318.

Order and Chaos by Mitchell Waldrop

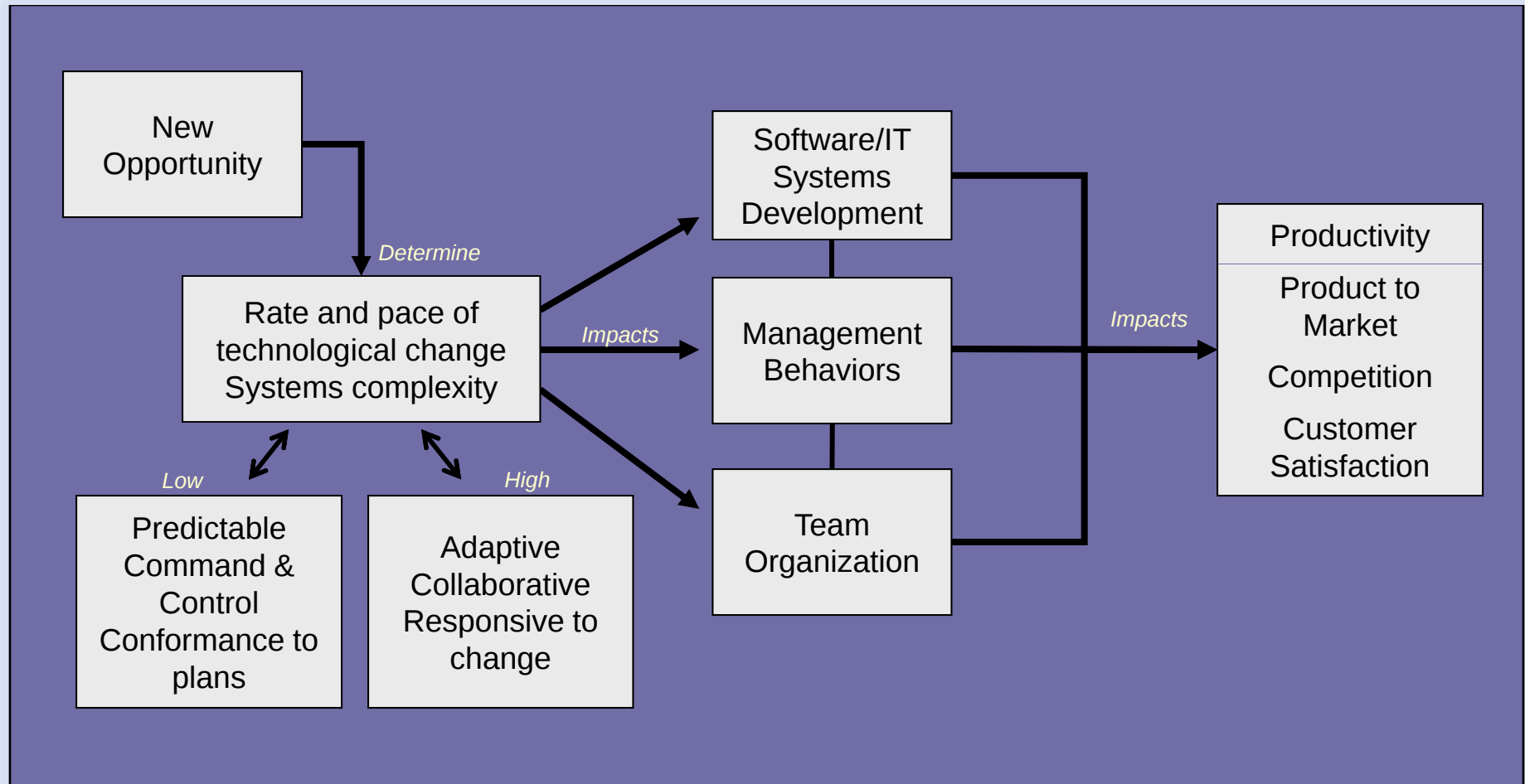
Meso and Jain, Agile software development: Adaptive systems principles and best practices

Complex or Complicated

Dictionary definitions:

- **Complex:**
 - A group of obviously related units of which the degree and nature of the relationship is imperfectly known
 - A whole made up of interrelated parts.
- **Complicated:**
 - Great difficulty in understanding
 - Difficult to analyze, understand or explain
 - Consisting of parts intricately combined

Predictable or Adaptive



Johnson, S. (2009). Dissertation. The Impact of Leadership Style on Software Development Project Outcomes: Traditional Versus Adaptive Processes.

Complex and Adaptive

- Engineering practices that welcome change and can easily adapt
- Management practices that emphasize human-centric behaviors
- An organizational structure that engages cross-functional teams
- An organization dedicated to continuous learning



Agile and Adaptive Methods

*In all development, chaos and complexities
arise preventing wanted functionality*



Why Agile and Adaptive Methods?

- Complexity of systems
- Decreased time-to-market
- Increased technological advancements
- Shortened product life cycle
- Desire for improved transparency of progress
- Reduce risk

Agile Practices: Responding to Change

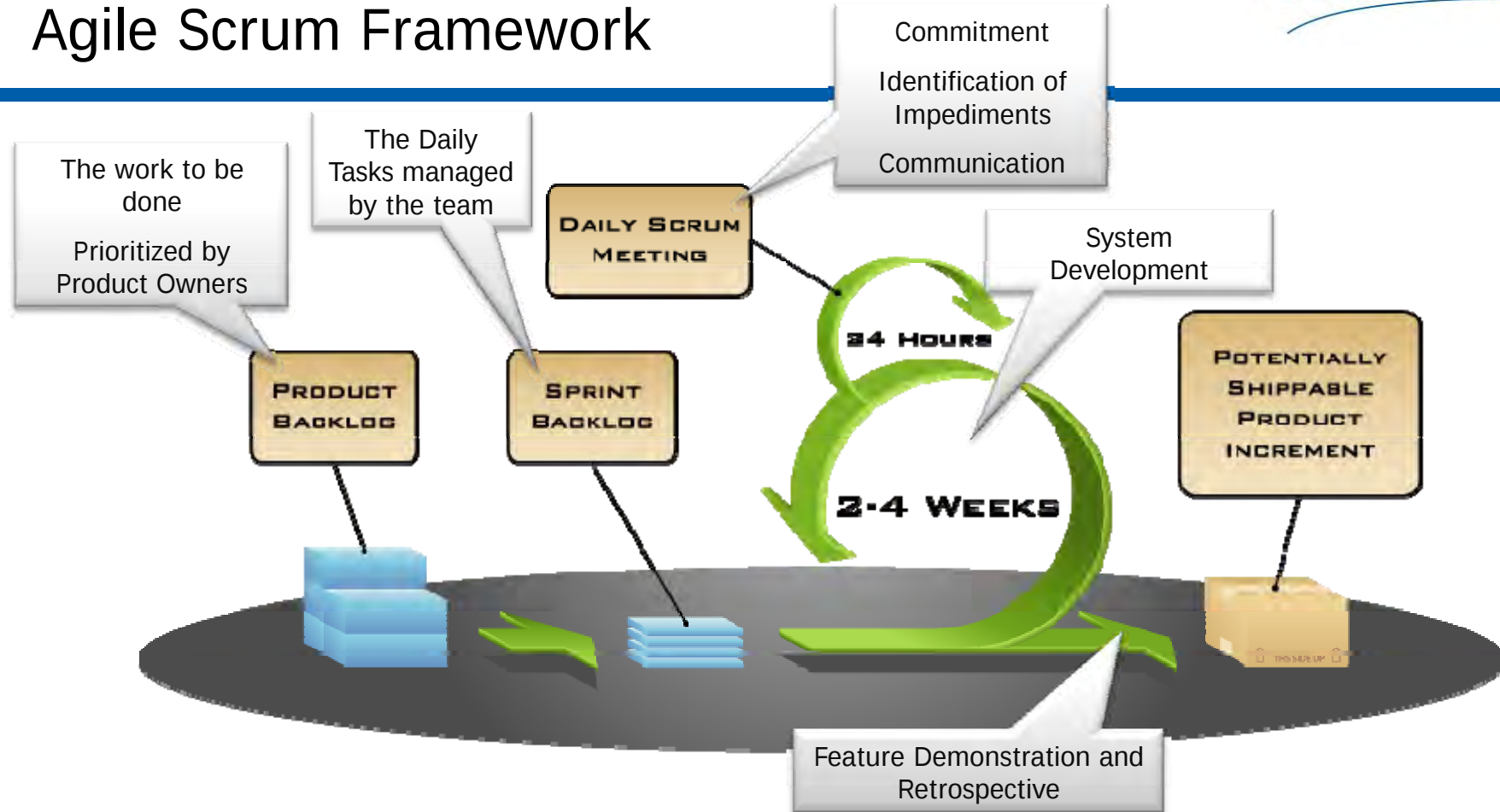
- “Agility is the ability to both create and respond to change in order to profit in a turbulent business environment.”
 - Jim Highsmith, Agile Software Development Ecosystems
- Emphasizes ongoing iterative development with completed, demonstrable functionality
- Flexibility balanced with structure
- Balancing on the edge between order and chaos determines success

Establish Principles



<http://agilemanifesto.org/>

Agile Scrum Framework



An example of an agile management framework

Inspect and Adapt
Visibility and Transparency

Image from: Mike Cohn, MountainGoatSoftware.com

Reference: Ken Schwaber, www.controlchaos.org



Leadership Behaviors of the Manager

*Create a workplace where people want to be,
where people are valued, and are full contributors to
forming and supporting the direction of the company*

Who is *The Manager*?

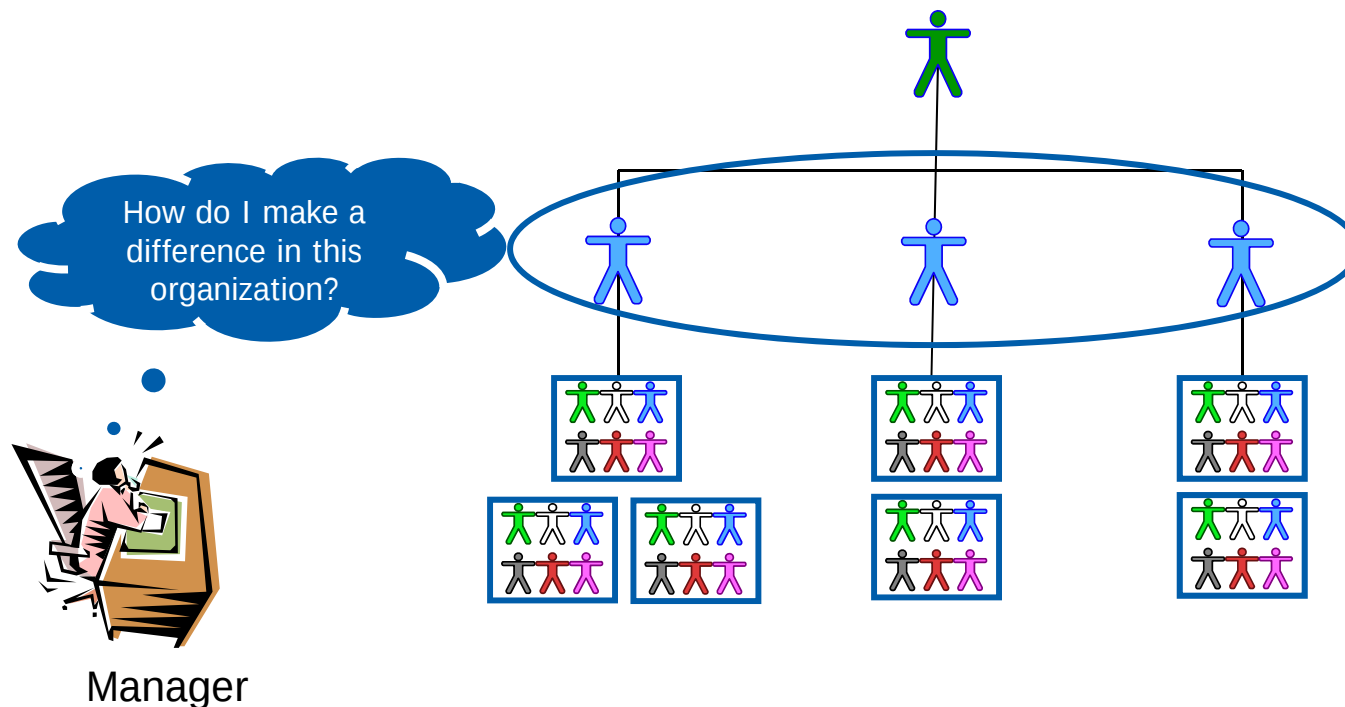
Managers want to provide value.

Managers want to contribute.

Managers want to be effective so others can be productive and successful.

Executive management influences

This level includes: Vice President of the Organization and above.



Leadership Behaviors of Managers



The Manager: Visionary Leader

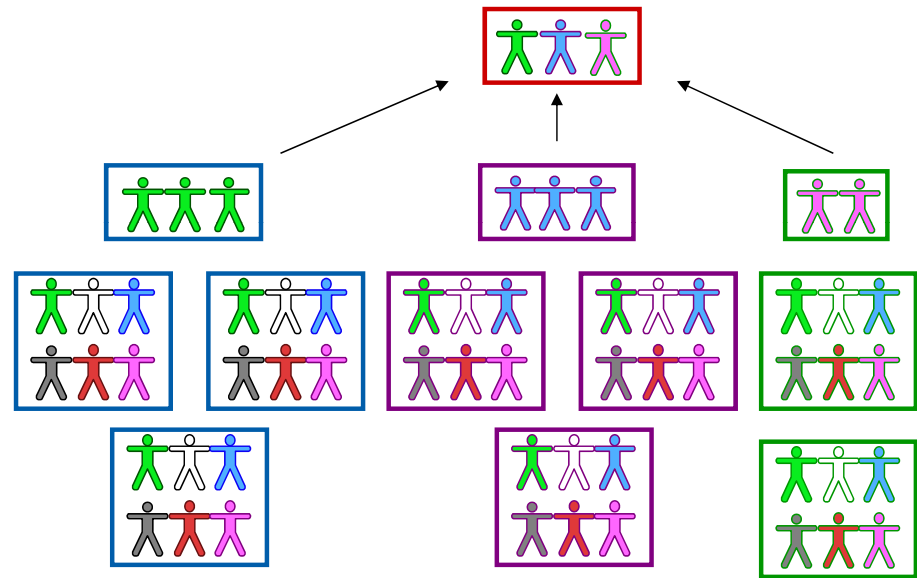
- Creates a vision
 - Product Roadmap
 - Understands business value
 - Refocuses the team when they drift off course
- Supports the initiation of new ideas
- Keeps purpose alive
- Adaptive to and enables change
- Expects success; Accepts mistakes
- Ensure decisions are compatible with needs of stakeholders



*Establish the
direction for where
the team is headed*

The Manager: Communications Builder

- Builds communication across teams and ensures that communication channels exist
- Communicates the roles and responsibilities within the communication process
- Finds time to listen to group members and their suggestions
- Participates in team daily stand-ups to understand progress

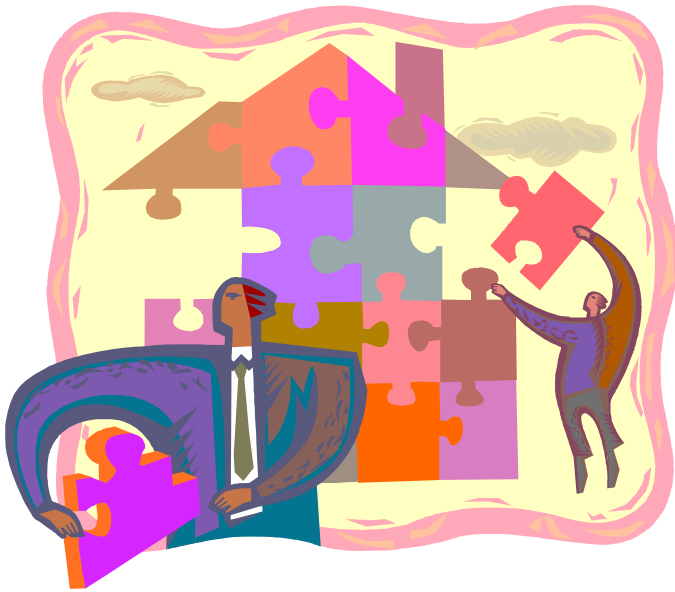


The Manager: Motivator and Encourager

- Builds collaborative teams
- Encourages self-management
- Encourages people to sign up for work they want to do
- Redirects as needed
- Works with individuals who are struggling when the team is unable to resolve problems
- Creates a pleasant work environment
- Treats all group members as equals



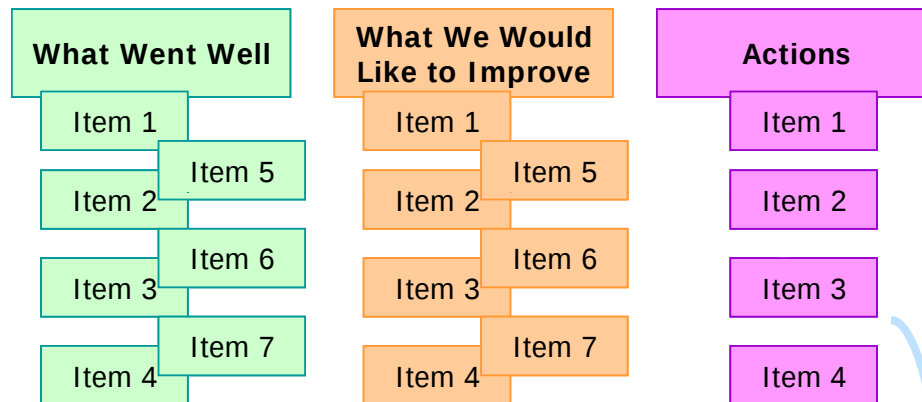
The Manager: Productivity Expediter



- Helps teams get the strategies and tools they need
- Listens to team members and individuals
- Helps teams develop their leadership skills
- Empowers team to remove barriers internal to their team
- Removes external barriers that interfere with progress
 - Do you have what you need?
 - Where do you think we are most vulnerable?

The Manager: Promotes Organizational Learning

Retrospectives



- Promotes, facilitates, and rewards collaborative learning
- Builds trust
- Seeks to improve/question existing practices
- Fixes processes not people
- Encourages learning and to feed it back into the planning process
- Takes action on results of the retrospective and puts suggestions into actions

What the Manager used to do that the Team does now

- Makes **commitments** on behalf of the team
- **Gives direction** to the team on how to implement the work
- **Monitors the team's progress**, to make sure they stay on schedule, and isn't having problems
- Steps in and **determines the solution**
- Conducts **weekly status update** to surface issues and provide direction
- Pushes the team to work harder than they might want to, using carrots and / or sticks
- **Decides task** assignments among the team members
- **Responsible for the team** doing the right thing at the right time in the right way.

Managers empower the team to make decisions to fulfill the team's commitments based on business/mission value

Scenarios: What Should the Agile Manager Do?

1. The team is upset because a person on their team is frequently late and is struggling to complete his tasks. What should the agile manager do?
2. Some teams are never delivering what they've committed. What should the agile manager do?
3. The team is only planning to work 18 of the 22 requirements that were anticipated to be done in this iteration. What should the agile manager do?

Challenges Managers Face

- Fear by some people when experiencing change
- Transitioning (the paradigm shift from command and control to empowered teams)
 - Follow through/action by management
 - Instilling discipline
 - Helping people through the new process
- Organizing and building distributed teams
- Balancing on the chaotic edge
- Balancing priorities

Actions Forward

- Create environments that emphasize collaboration, team empowerment, trust, and organizational learning
- Train managers in the practices that works best in adaptive environments
- When transitioning to more adaptive practices, communicate the principles to which the organization plans to adhere
- Nurture the principles of the organization
- Address team needs/impediments
- Establish cross functional teams to help deal with complexity

Summary

Historically traditional practices (low rate of change) emphasize...	Adaptive and agile practices (high rate of change) emphasize...
Directive and top-down	Leading, empowering, and collaboration
Managing the people and the work	Teams that are self-managed with distributed control
Limiting and reducing change	Welcomes change
Enforcing compliance to processes	Readily adapting processes as needed
Functional teams with handoffs between the teams	Cross functional teams responsible for delivering end-to-end capabilities including design, development, testing, configuration management, integration...

Suggested Reading List and References

Creating Adaptive Businesses

- Adaptive Enterprise – Steven Haeckel
- John Holland in *Complexity: The Emerging Science at the Edge of Order and Chaos* – Mitchell Waldrop

Leadership

- The Leadership Challenge – Kouzes and Posner
- Complexity leadership theory: Shifting leadership from the industrial age to the knowledge era – Marion, R., McKelvey, B., & Uhl-Bien, M. (2007). *Leadership Quarterly*, 18(4), 298-318.
- Project Leadership from Theory to Practice – Pinto, Thoms, et al.

Building Teams

- Group Genius
- When Teams Work Best – LaFasto and Larson
- The Five Dysfunctions of a Team - Patrick M. Lencioni

Agile Development Practices

- Agile Project Management with Scrum – Ken Schwaber
- The Manager's Role in Scrum, ScrumGathering, Nov. 2007 – Henrik Kniberg
- www.mountaingoatsoftware.com – Mike Cohn

Managing Change

- Fearless Change – Manns and Rising
- The Fifth Discipline – Peter Senge
- Leading Change – John Kotter

NORTHROP GRUMMAN

The logo features the company name in a bold, italicized, blue sans-serif font. Below the text is a solid blue horizontal line that starts under the 'N' and ends under the 'M'. From the left end of this line, a blue arc curves upwards and to the left, ending under the 'N'.