# The MITRE Systems Engineering Guide

## *Practical Guidance for Systems Engineering*

October 2010

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*Director, MITRE Systems Engineering Practice Office*

13th Annual NDIA Systems Engineering Conference
October 2010

MITRE

# An Initiative of the Office of the Corporate Chief Engineer (OCCE)

**OCCE …**

- **Formed to enhance corporate-wide practice of systems engineering**
- **Enhance technical quality of MITRE work**
- **Promote cross-cutting integration**
- **Champion enterprise engineering**

**Today's focus**

# The MITRE SE Guide

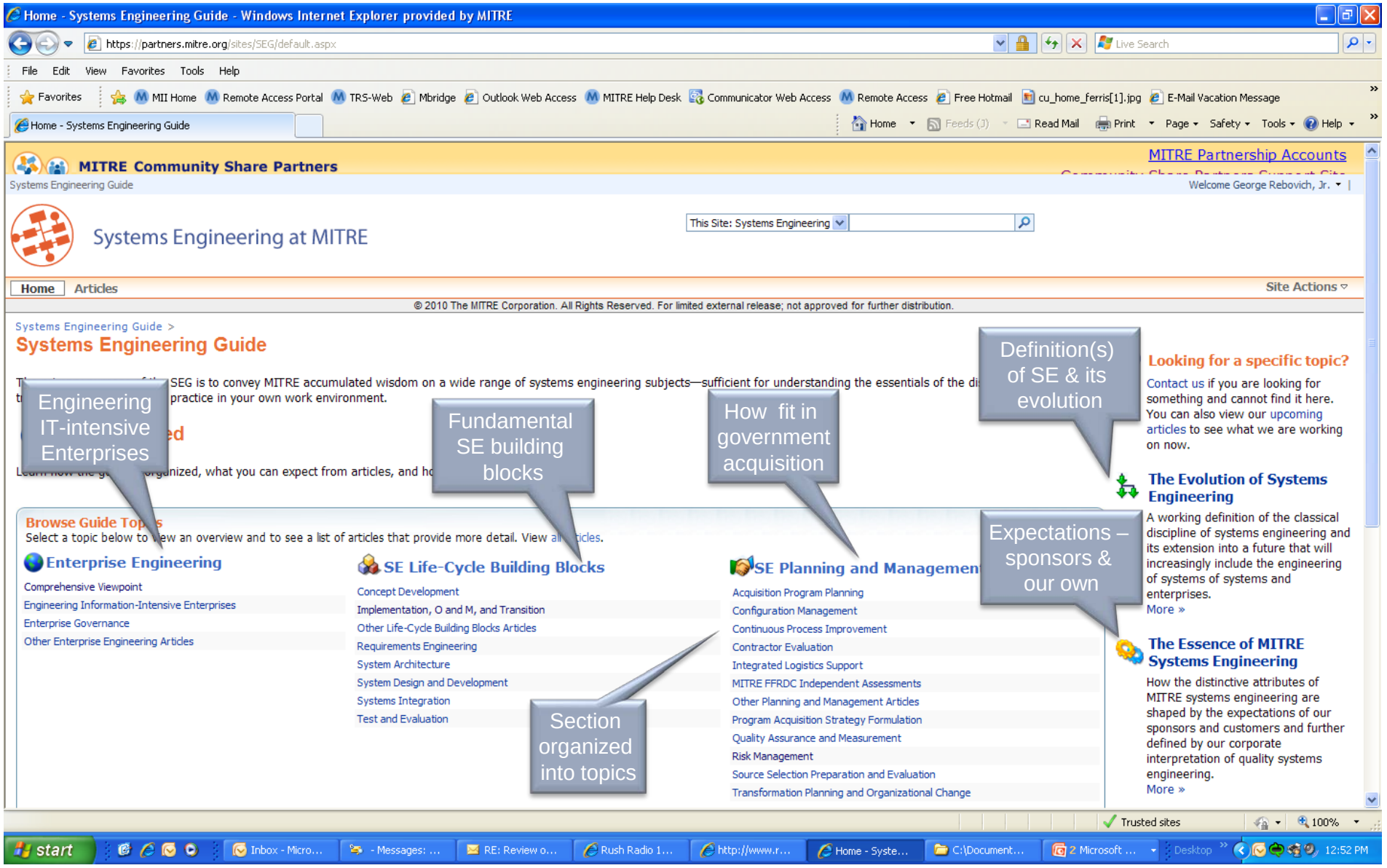
- Practical guidance on MITRE systems engineering
  - Like having a discussion with a MITRE expert available 24/7
- Primary Audience
  - MITRE staff leading or performing an FFRDC SE activity
  - Individuals who want to learn SE from this perspective
- Purpose
  - Convey accumulated wisdom on systems engineering practice
  - Accelerate individuals up the learning curve
  - Hit the ground running with that knowledge in customer environment
- Sources of wisdom
  - MITRE experience (> 130 senior contributors across the Corporation)
  - Other sources – when they provide practical advice for MITRE SEs
- Complements, does not duplicate, other resources
- Guide organization & focus based on MITRE SE Competency Model
- 101 articles posted, more in the works

# SE Guide – A Resource for the Customer, Too

- **Best practices & lessons learned relevant to program manager & other government member roles & responsibilities**
  - **Systems Engineering & Acquisition a team sport**
  - **Tips on specific subjects, ideas for program planning**
- **Brings to bear wisdom accumulated from across all MITRE customers & sponsors for the benefit of a government program**

***Dedicated to capturing & sharing our SE knowledge & expertise across the Corporation for the benefit of all our customers***

# 5 Major SEG Sections



# SEG Section Page (1/2)

Home - Systems Engineering Guide - Windows Internet Explorer provided by MITRE

https://partners.mitre.org/sites/SEG/Sections%20and%20Topics/SE%20Life-Cycle%20Building%20Blocks.aspx

Systems Engineering at MITRE

This Site: Systems Engineering

Home | Articles | Site Actions

Intro & Background

List of topics

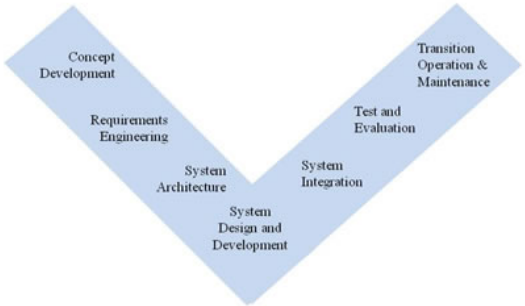


Systems Engineering Guide > Life-Cycle Building Blocks

## SE Life-Cycle Building Blocks

**Introduction**

MITRE systems engineers (SEs) orchestrate the complete development of a system, from a need through operations to retirement, by applying a set of life-cycle building blocks. SEs are expected to understand and work with fundamental building blocks for engineering systems, regardless of the specific life-cycle methodology used. They are expected to define systems conceptually, transform user needs into system requirements, and develop and assess architectures. They are expected to compose and assess alternative design and development approaches; develop test and certification strategies; monitor and assess contractor efforts in design, development, integration, and test; and assist with field deployment, operations, and maintenance.




**Background**

All systems engineering models and processes are organized around the concept of a life cycle. Although the detailed views, implementations, and terminology used to

**Topics in this Section**

Name

- Concept Development
- Implementation, O and M, and Transition
- Other Life-Cycle Building Blocks Articles
- Requirements Engineering
- System Architecture
- System Design and Development
- Systems Integration
- Test and Evaluation

**Sections and Topics**

**Enterprise Engineering Section**

- Comprehensive Viewpoint
- Engineering Information-Intensive Enterprises
- Enterprise Governance
- Other Enterprise Engineering Articles

**SE Life-Cycle and Building Blocks Section**

- Concept Development
- Requirements Engineering
- System Architecture
- System Design and Development
- Systems Integration
- Test and Evaluation

Trusted sites | 100%

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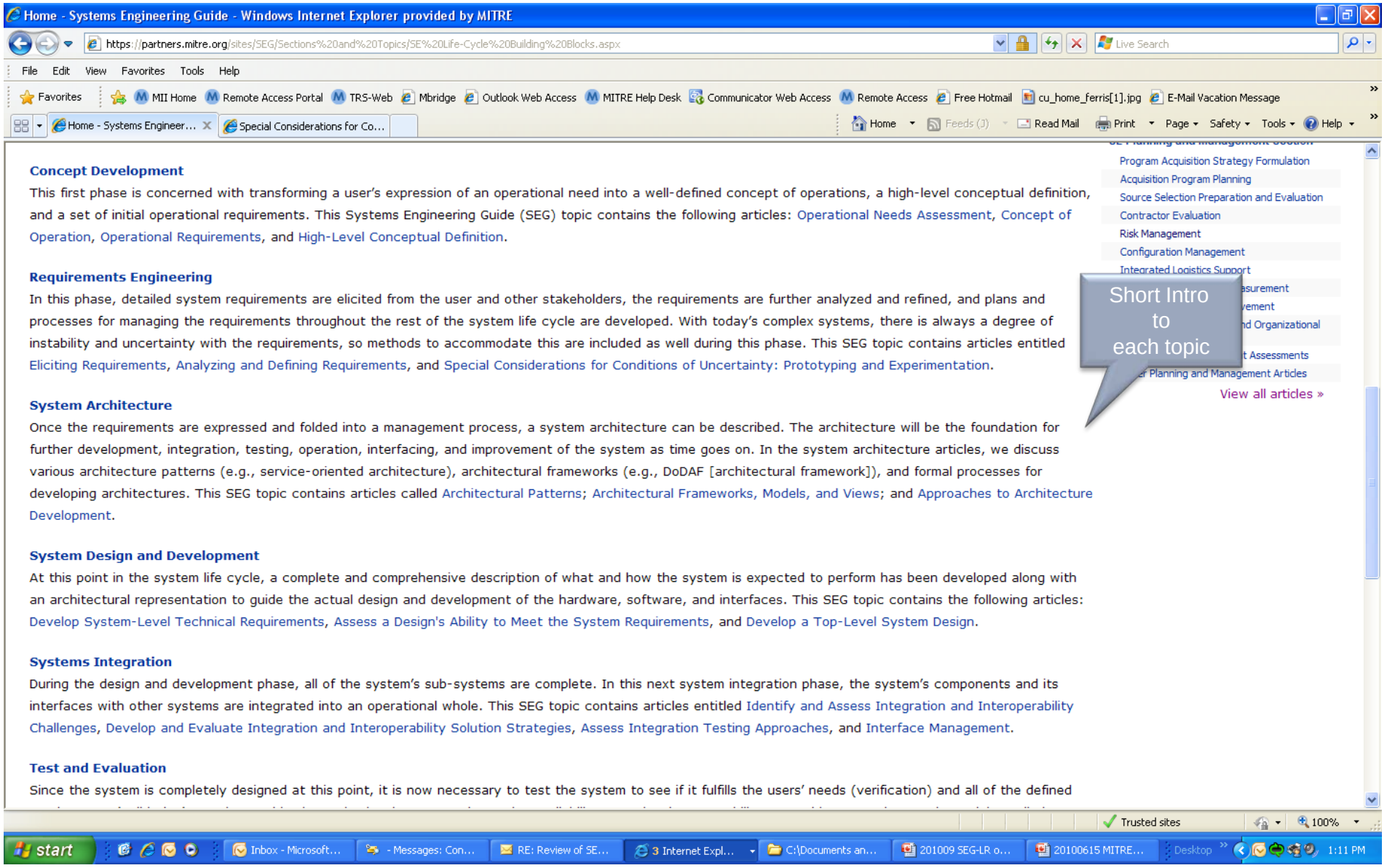
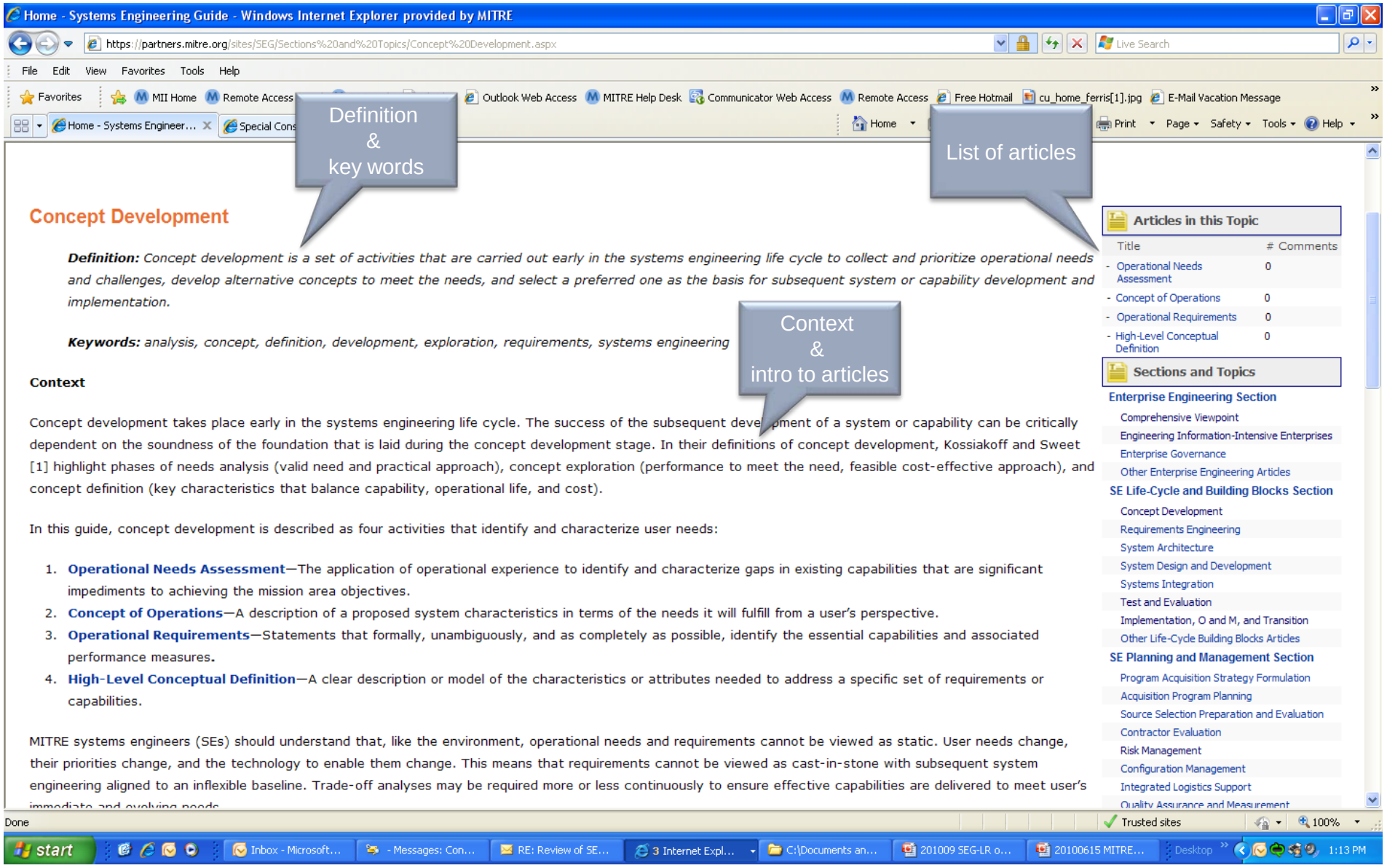
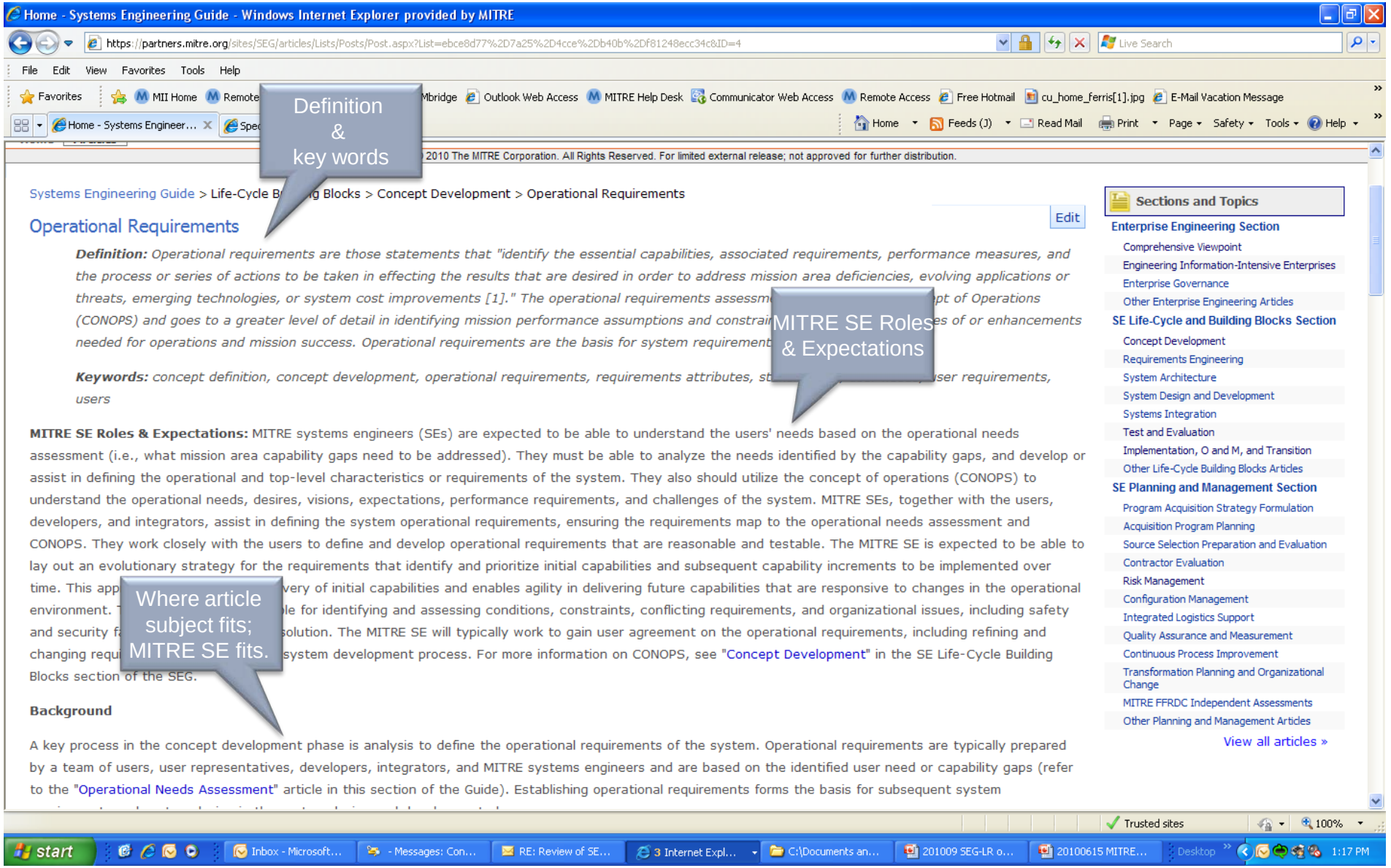
# SEG Section Page (2/2)



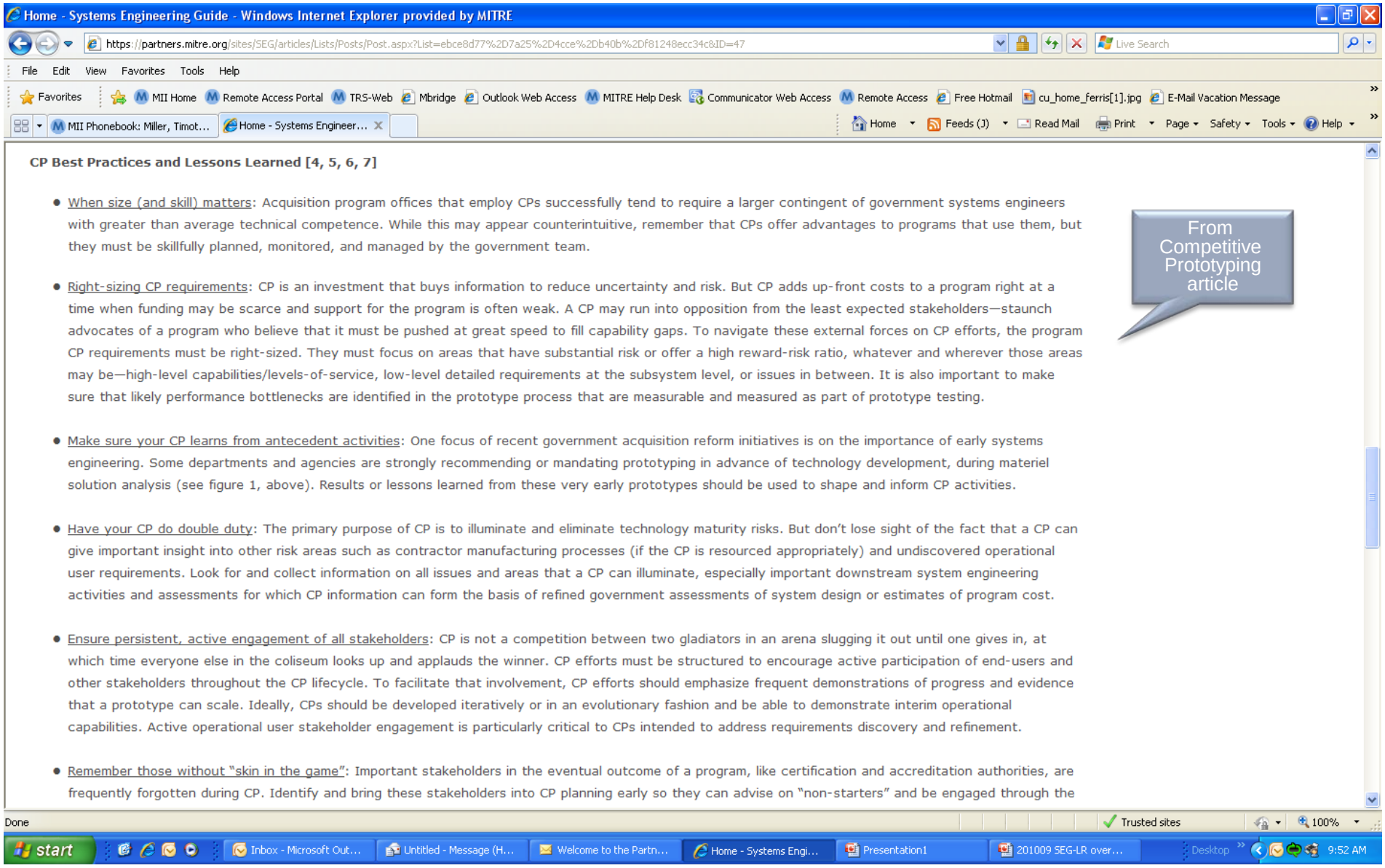
# SEG Topic Page



# SEG Article Page



# *Competitive Prototyping* Article - Best Practices & Lessons Learned



# To Obtain your Account … (active duty military, civilian government and FFRDC employees)

**First ….**

- **Send an email from your government or FFRDC email account to segteam@mitre.org that:**
  - **Requests access to the "SEG-LR extranet site"**
  - **References "George Rebovich – 13th Annual NDIA SE Conference"**

**Next …**

- **You'll receive an email asking you to set up a password**

**Then …**

- **You'll receive an email with a link to the site that you can access with your email address and password**

**A final note …**

- **Once in the site, you can suggest ideas for additional topics to cover or recommend your own best practices & lessons learned**

# Contact Information

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