# Systems Engineers and Program Managers: A Perspective on Similar Career Paths

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# SE: Definition

Systems Engineering is an interdisciplinary approach and means to enable the realization of successful systems. It focuses on defining customer needs and required functionality early in the development cycle, documenting requirements, then proceeding with design synthesis and system validation while considering the complete problem:

| Operations | Cost & Schedule |
|---|---|
| Performance | Training & Support |
| Test | Disposal |
| Manufacturing | |

*Definition of the International Council on Systems Engineering (INCOSE)*

*https://www.incose.org/systems-engineering*

# S.I.M.I.L.A.R Process

- **S**tate the challenges and problems facing a business
- **I**nvestigate solutions or alternative methods
- **M**odel the alternatives and the ways to enforce them
- **I**ntegrate relevant systems, subsystems, and people to facilitate success
- **L**aunch the system
- **A**ssess performance
- **R**e-evaluate outputs to improve the system
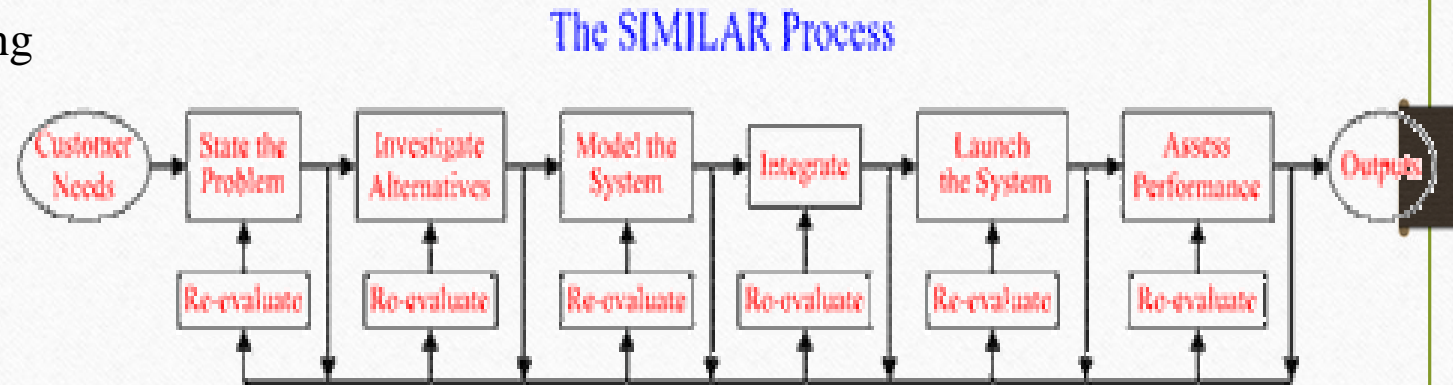


**Figure 1.** The Systems Engineering Process from A. T. Bahill and B. Gissing, Re-evaluating systems engineering concepts using systems thinking, *IEEE Transaction on Systems, Man and Cybernetics, Part C: Applications and Reviews,* **28** (4), 516-527, 1998.

# Key Attributes of System Engineers

- Technology savvy
- Leader
- Integrator
- Communicator
- Product life cycle management
- Resource manager
- Experience?

# What is a Program?

A collection of related projects that when integrated, collectively provide a product or service of greater benefit to the customer than the sum of the individual projects.

# Program Management

The execution of a group of related projects in a coordinated manner to obtain benefits not available from managing them individually. Program management is the application of knowledge, skills, tools and techniques to meet program requirements.

https://www.pmi.org/learning/featured-topics/program

# Key Attributes of a PM

- Strategy developer
- Inspirational leader
- Team builder
- Resource manager
- System Integrator
- Communicator
- Customer focused

# Similar Attributes?

- Technology savvy
- Leader
- Team Builder
- Resource manager
- System Integrator
- Communicator
- Product life cycle management
- Experience/Scar Tissue?

- Strategy developer
- Inspirational leader
- Team builder
- Resource manager
- Program Integrator
- Communicator
- Customer focused
- Experience/Scar Tissue?

# Where Our PMs Come From

This data describes the previous positions held by the newest (137) MFC Program Mangers since 2016.

# Related Skills to Program Success

**Program Manager**

- Budget and Control
- Contract Management
- Financial Management
- Procurement
- Risk and Opportunity Management
- Schedule Management
- Stakeholder Management
- Team Management
- Transition Management
- Capture Management
- Operations Excellence
- Technical Management
- Life Cycle Management

**System Engineer**

- Requirements Management
- System Specifications
- Budget and Control
- Design
- Procurement
- Risk and Opportunity Management
- Schedule Management
- System Integration
- System Testing
- Team Management
- Transition Management
- Technical Management
- Life Cycle Management

# How Did You Learn These Skills?

- Budget and Control
- Contract Management
- Financial Management
- Procurement
- Risk and Opportunity Management
- Schedule Management
- Stakeholder Management
- Team Management
- Transition Management
- Capture Management
- Operations Excellence
- Technical Management
- Program Diversity

**On the job?**

**Formal Schooling?**

- Requirements Management
- System Specifications
- Budget and Control
- Design
- Procurement
- Risk and Opportunity Management
- Schedule Management
- System Integration
- System Testing
- Team Management
- Transition Management
- Technical Management

# In Summary…

- Initial formal education is important in both disciplines to learn the tools to be successful.
- Although there are differences between the career paths of Systems Engineers and Program Managers, clearly there are similarities.
- Advanced formal education is available in both disciplines but a significant amount of knowledge is learned "on the job".

**Both Are Critical To Successful Program Execution!**