



**International Council on Systems Engineering**  
*A better world through a systems approach*

# Qualifications, certifications, what's the point?

## How and why to formalize competency in your organization


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# Agenda



- Definitions
- Requirements
- Architecting
- Interfaces
- Integration
- Testing
- Operations and Maintenance
- An Example**
- Benefits

# Some definitions

# Certification

Credentials that validate an individual's knowledge and skills in a specific field or area. Typically earned by completing a specific training program or passing an exam.

Examples: Professional certifications like Project Management Professional (PMP), Certified Public Accountant (CPA) or Certified Systems Engineering Professional (CSEP).

# Qualification

The skills, knowledge, and experience an individual possesses, which are necessary to perform a specific job or task.

Often gained through education, training, and practical experience.

Examples: A degree, a specific work experience, or a certain level of proficiency in a skill.

**Certification is a credential that shows you've met certain standards, while qualification is the ability to do a job.**

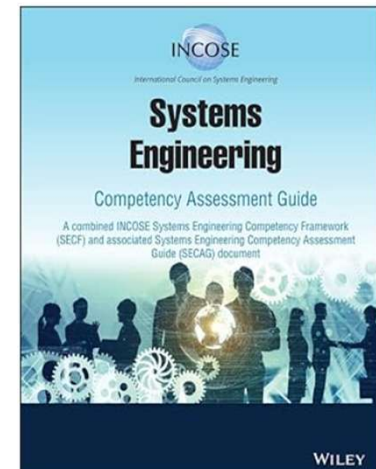
# Competence

The ability to do something well

# Competency

A measure of an individual's ability in terms of their knowledge, skills and behavior to perform a given role

**“The sum of an individual's competencies  
makes up their competence”**



# Know your requirements

What is the intended goal of implementing this program?

# Why?

What is the goal of implementing this program?

Build new competencies or capabilities

Address a skills gap (current or future)

Problems have occurred



# Add skills

Who?  
How fast?  
Levels?  
Mandatory?

# Address gaps

Who?  
How fast?  
Levels?  
Mandatory?

# Fix problems

Who?  
How fast?  
Levels?  
Mandatory?

## Add skills

Who?

Some employees

How fast?

Low urgency

Levels?

Not needed

Mandatory?

No

## Address gaps

Who?

How fast?

Levels?

Mandatory?

## Fix problems

Who?

How fast?

Levels?

Mandatory?

## Add skills

Who?	Some employees
How fast?	Low urgency
Levels?	Not needed
Mandatory?	No

## Address gaps

Who?	Most employees
How fast?	Medium urgency
Levels?	Possibly
Mandatory?	Maybe

## Fix problems

Who?
How fast?
Levels?
Mandatory?

## Add skills

Who?	Some employees
How fast?	Low urgency
Levels?	Not needed
Mandatory?	No

## Address gaps

Who?	Most employees
How fast?	Medium urgency
Levels?	Possibly
Mandatory?	Maybe

## Fix problems

Who?	Most or all employees
How fast?	Urgent
Levels?	Possibly
Mandatory?	Yes

# Create your architecture

How will you structure the program?

# How?

How will you structure the program?

Which employees?

As they hire in, or current workforce?

Knowledge or demonstrated proficiency?

# Which employees

The larger the portion of your workforce that is included, the greater the scope of the program effort & cultural impacts

# When

Implementing the qualifications on new employees as they arrive creates less friction than imposing a new requirement on current employees

# Know vs Do

If focusing on knowledge, there may be existing certifications you can leverage (SEP, PMP, CPA etc.)  
A blended or tailored approach may best serve needs

# Define your interfaces

What is the scope and where are the boundaries of the program?



# With whom?

What is the scope and where are the boundaries of the program?

Required for certain positions?

Develop in house or contract out?

Who will execute the program?

Extent of administration required?

# Position requirements

If there will be certain positions for which the qualification is required, include your HR team

# Development

If the desire is to develop the program in house, which employees have the skill and time?

# Execution

Will current employees (not candidates) need to help execute the program?

# Administration

What level of administration is needed?

# Determine your integration plan

What will implementation look like?

# How and when?

What will implementation look like?

Establish processes and procedures

Plan for a pilot

Plan thoughtful messaging

Prepare for friction

# Prepare

Ensure processes and procedures are in place

# Pilot

Plan to pilot the program on a subgroup of employees.

# Message

Build clear messaging about the “why”  
Have strong and visible leadership support  
Lather, rinse, repeat

# Expect Friction

Resistance to change is natural and very common

# Test the system

Pilot the program before official launch

# Try it

Pilot the program before official launch

Execute a pilot

Collect data

Make adjustments

Host a Readiness Review

## **Pilot (V&V)**

Identify sample candidates, other program participants

## **Collect data**

Feedback surveys, other data if relevant (time, cost, success rate...)

## **Remediate**

Make adjustments, regression test as needed

## **Review**

Host a readiness review with key stakeholders



# Operate and Maintain the system

Implement the program and make improvements

# Field it

Implement the program and make improvements

Launch

Execute & monitor

Address issues and make improvements

# Launch

Message in advance

Clarify expectations

# Execute

Continue to collect data and feedback

Hold process reviews

# Improve

Address issues

Incorporate best practices

Build a cadre of capable system modelers

# Example

A sample MBSE qualification program

Build a cadre of capable system modelers

- Why? Growth area

# Example

A sample MBSE qualification program

Build a cadre of capable system modelers

- Why? Growth area
- How? New employees mandatory,  
current employees voluntary  
Knowledge and skill

# Example

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A sample MBSE qualification program

Build a cadre of capable system modelers

- Why? Growth area
- How? New employees mandatory, current employees voluntary.  
Knowledge and skill
- With whom? Within SE division.  
Leverage CSEP and OCSMP, tailor to corporate practices

# Example

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# Example

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- Try it

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- Try it
- Field it

# BENEFITS



**Common knowledge**  
**Common language**  
**Consistent behaviors**

**Organizational flexibility**  
**Clarity on organizational health**  
**Mentoring & collaboration**  
**Sense of community**



# Questions?



# Thank you



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