

# How to Train an Enterprise of Systems Engineers

WHIRLPOOL CORPORATION



2018 Annual INCOSE  
**Great Lakes Regional Conference**  
**SYSTEMS AT THE CROSSROADS**  
17 - 20 October 2018 | Indianapolis, Indiana



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CSEP



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# WE'RE REACHING ACROSS THE WORLD

Our brands serve consumers in every region



# OUR SCALE AND REACH CREATE GROWTH OPPORTUNITIES



\$21B

Annual sales

70

Manufacturing and R&D centers

92K

Employees worldwide



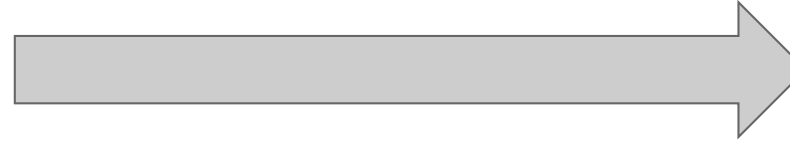
MORE THAN  
**70** million  
PRODUCTS SOLD  
*each year*

“Systems Engineering training  
within your organization can be  
**effective** given the right  
**tailoring, education, practice,  
and follow-up support”**

- How to start
- Training context
- Training overview

CONTENT





# WHERE WE ARE --> WHERE WE WANT TO BE

PRACTICE



understand it

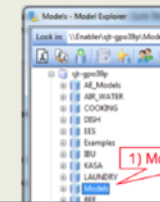


WHIRLPOOL CORPORATION SOP	
DVP&R PROCESS	02/21/2018
Audience: System Architect, System Integrator; Subsystem owners	
WHIRLPOOL CORPORATION PDX SOP	
CREATE AND UPDATE CONCEPTUAL SYSTEM ARCHITECTURE MODEL	04/12/2017
Audience: Architecture Leader, System Architect, System Integrator, Subsystem and Cross-Functional Design Team	

## CREATE NEW CON

No new Conceptual Architecture made from an existing Whirlpool specific SysML profiles and add-on

- From PTC Model Manager
  - Select the "Whirlpool"
  - Right-click and
  - Set the Repository to another Repository
  - Select Retain
  - Rename the



WHIRLPOOL CORPORATION SOP	
Requirement Writing Guide	01/08/2018

## 1 Introduction

### 1.1 Scope

This document applies to all written Requirements produced by product development teams (marketing, merchandising, GCD, GSS, manufacturing, engineering, etc) .

### 1.1 Overview

The purpose of this document is to assist in the process of writing good requirements. It outlines a number of aspects to consider that are important when requirements are being created.

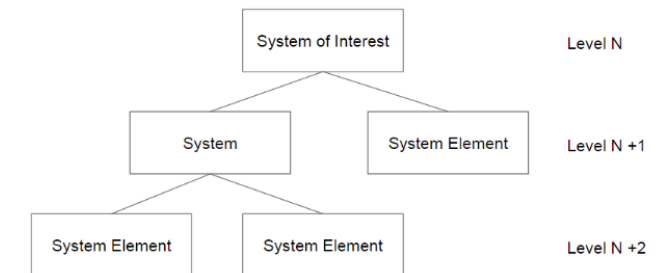


Figure 1

Consider a general system that consist of two system elements as illustrated in figure 1. This document can be applied when writing requirements, independent of level. The system and system elements will have an associated requirement specification with the corresponding

# HOW TO START?



# WE ASKED: WHAT SHOULD BE OUR OVERALL STRATEGY?

## WHIRLPOOL PRODUCT DEVELOPMENT

WPD System Planning Advanced Project Production Project Help Center DPL Learning Tools and Resources

### WHIRLPOOL PRODUCT DEVELOPMENT (WPD)

#### Existing Constraints

#### WHAT IS THE WPD SYSTEM?

Whirlpool Product Development (WPD) is a cross-functional, global, and consumer-focused way of approaching product development. WPD is both a system and a project delivery process. The WPD system encompasses the WPD process as well as the foundational behaviors, elements, capabilities, and tools required to consistently deliver Product Leadership and Brand Leadership. [Click here](#) for a brief video.

#### WHO WILL USE THE WPD SYSTEM?

Everyone who touches the product development process will work within WPD. From Marketing to Manufacturing, To Global Consumer Design and Consumer Care, cross-functional teams throughout Whirlpool Corporation will be involved in WPD.

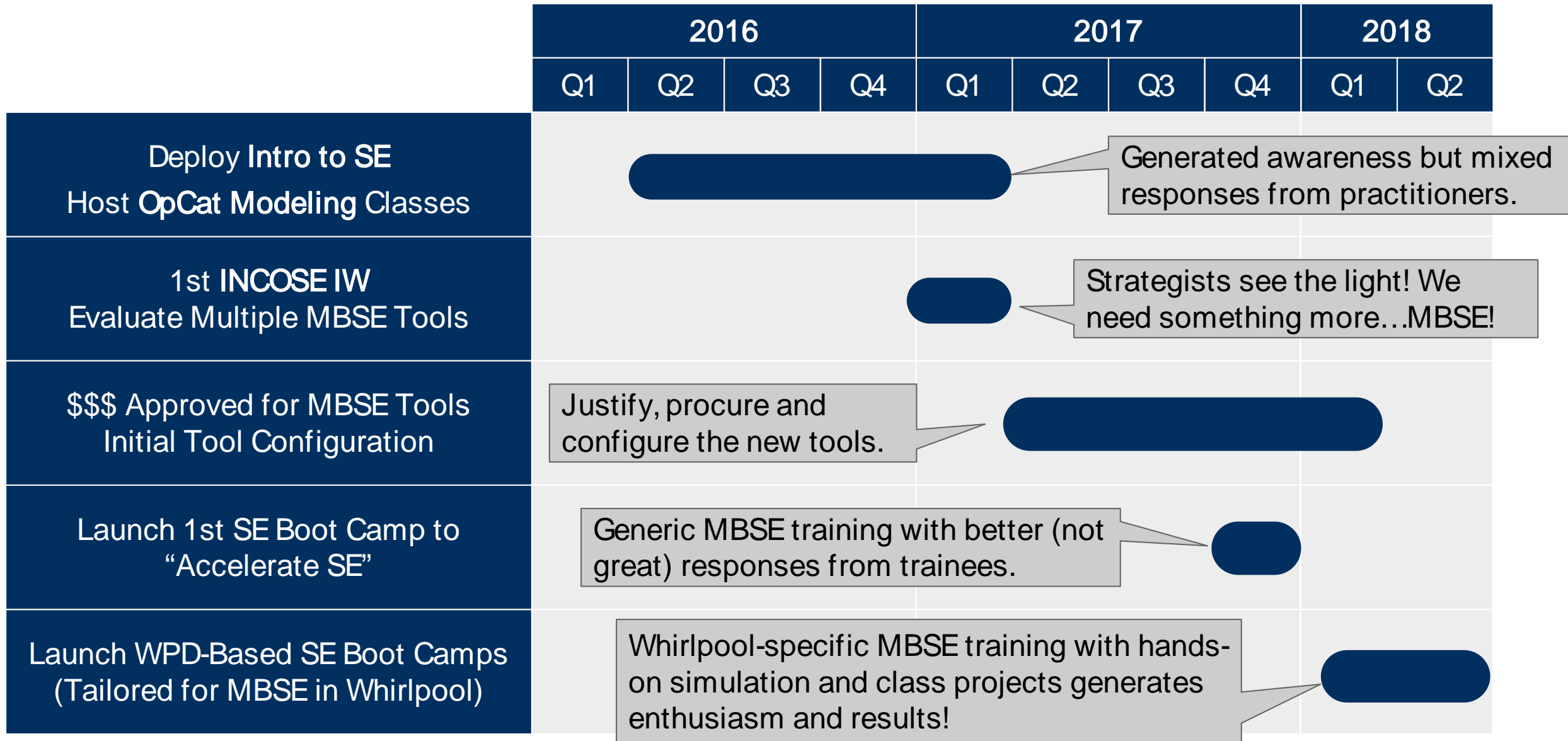
#### Company Benchmarking



#### Universities



# HOW DID WE GET STARTED AND TRACTION?

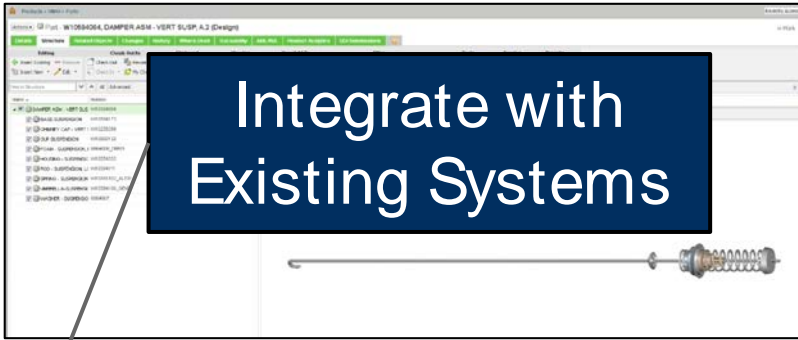


# TRAINING CONTEXT

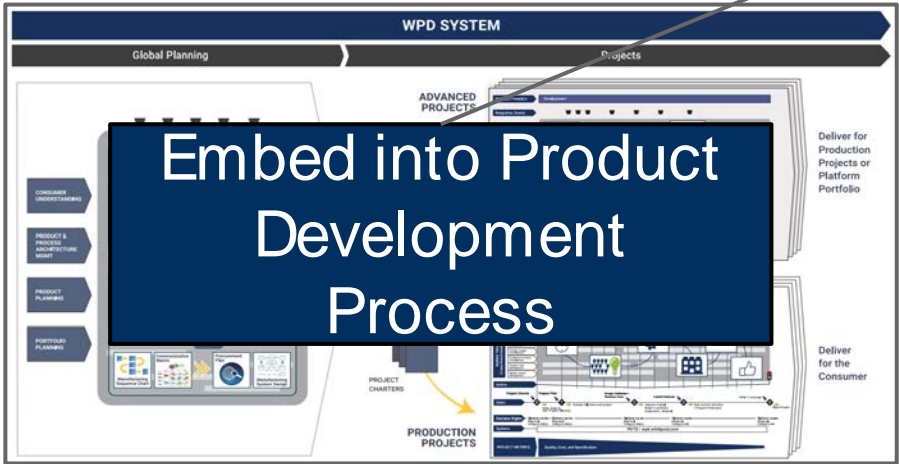
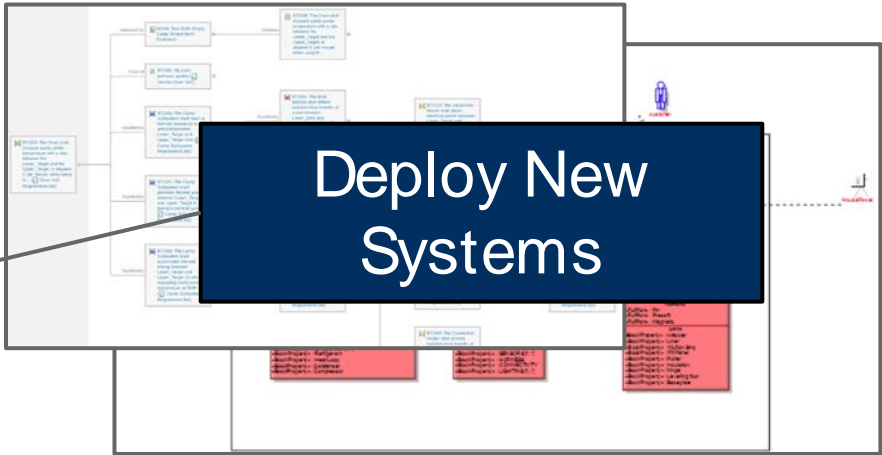
# TRAINING INPUTS & INTERFACES

	Project Management				WFO				Legacy Systems				Systems Engineering											
Modality	SLT	SLT	SLT	SLT	SLT	SLT	SLT	SLT	Online	Online	Online	SLT	SLT	SLT	SLT	Online	SLT	Online	Online	SLT				
Content Completion Status	Y	A	Y	N	Y	A	Y	A	N	N	A	Y	Y	Y	N	Y	Y	Y	Y	Y				
38997	Y	Y	Y	Y	N	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
Course Name																								
Activators & Services																								
ADP																								
ADP																								
Algorithm																								
ADP																								
Architecture																								
Architecture																								
Build Process	07				1	2						2		3		4		5						
CAD Leader	16				1							2		3		4		5						
CAD Team/Drafters	88				1							3		3		3		4						
CAD	0				1							3		3		4		5						
CAD Leader	0				1							2		3		4		5						
Cost and Quality Leader	33				1	2						3	2	3	4	5	6	7	8	9				
Cost and Quality Team	87				1	2						3	2	3	4	5	6	7	8	9				
ESD Architecture Team	7				1	2						3	2	3	4	5	6	7	8	9				
ESD Architecture Leader	8				1	2						3	2	3	4	5	6	7	8	9				
ESD Architect	11				1	2						3	2	3	4	5	6	7	8	9				
ESD Lead	12				1	2						3	2	3	4	5	6	7	8	9				

Support Key Org Roles



SE Training content

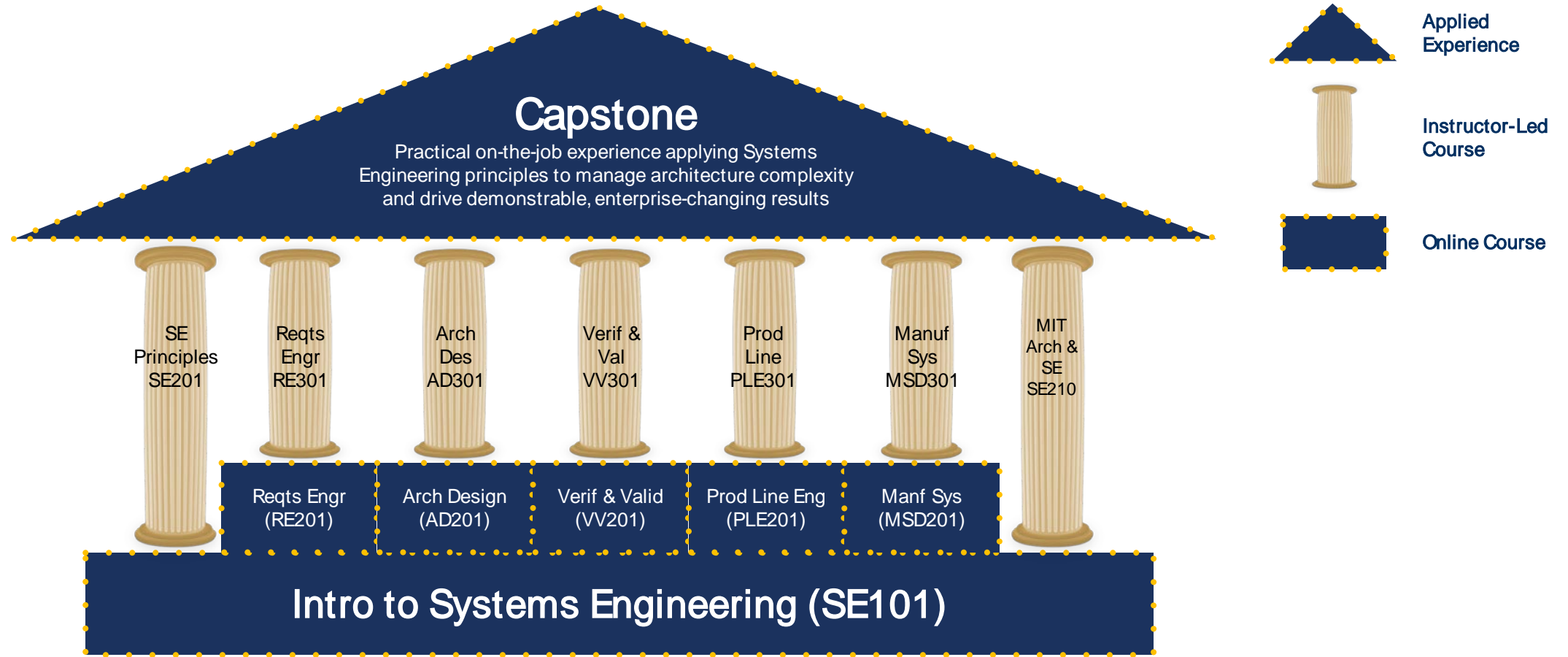


Data Updated		SE Discipline	PDCS : SMC	PDC Status	IA	UA	Drillers	Crash	Cooking	Refrigeration	KASA
7/25/17	Requirements Engineering	Health Status	Deployed								
7/25/17	Architecture Design - Behavior	Help Chain	Deployed								
7/25/17	Architecture Design - Structure										
7/35/17	Validation										
7/35/17	Product Line Engineering										
Outcomes	Deployed										
SCP											
Help Chain											

Improve Metrics

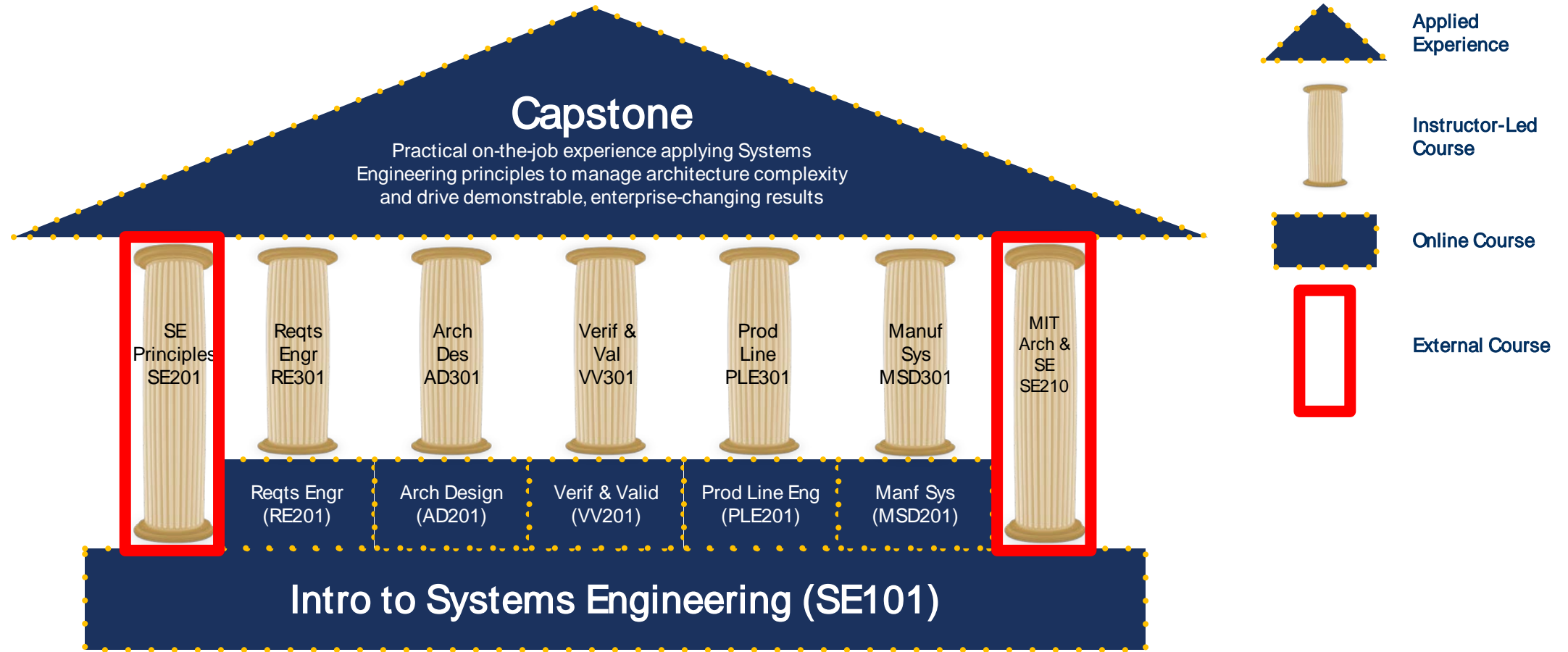
# TRAINING OVERVIEW

# TRAINING IS TAILORED TO OUR ORGANIZATION...



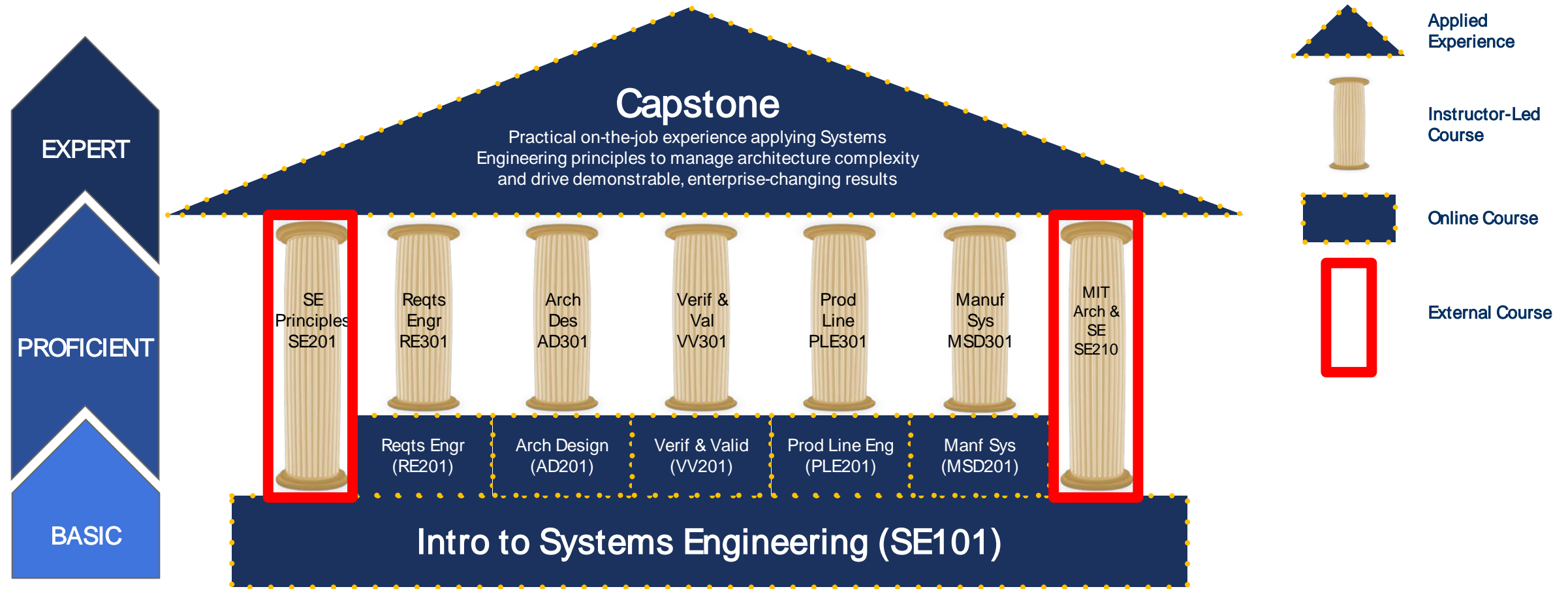
CURRICULUM IS A MIX OF ONLINE AND INSTRUCTOR-LED COURSES

# ...TO SUPPORT OUR UNIQUE NEEDS ...



EXTERNAL TRAINING BRINGS AN OUTSIDE PERSPECTIVE AND ADDS CREDIBILITY

# ...AND BUILD CAPABILITIES



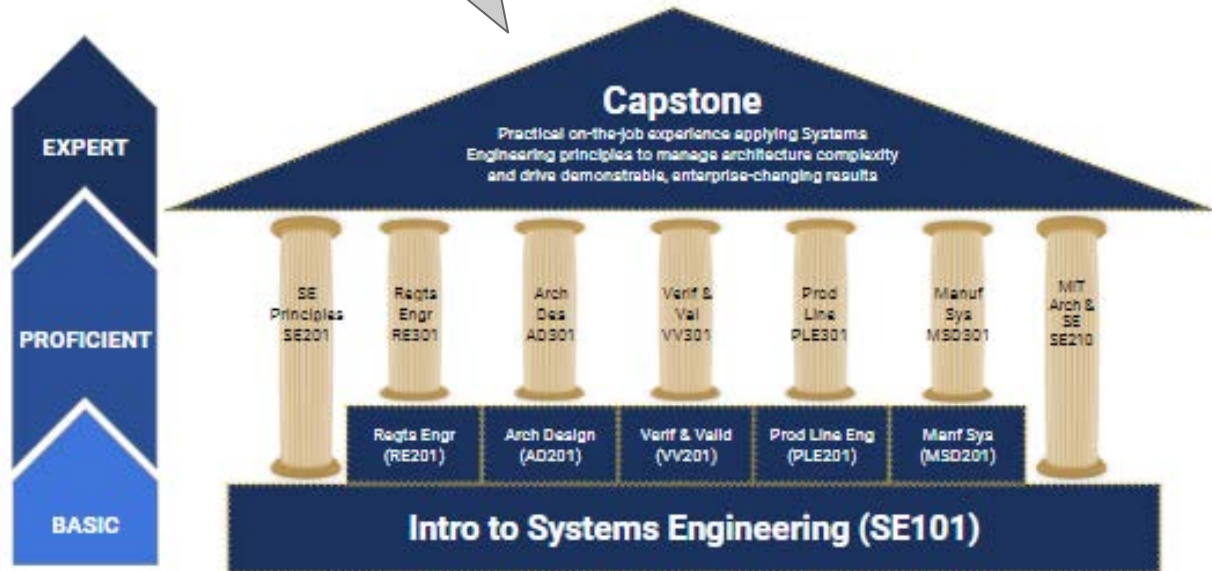
TIERED STRUCTURE ENABLES MODULAR APPROACH THAT SUPPORTS MANY ROLES



# EXPERT ROLES ARE MORE THAN TRAINING

Demonstrated success  
applying the methods and  
using the tools

Supported by certification  
status (CSEP or ESEP level)  
and recognition in industry

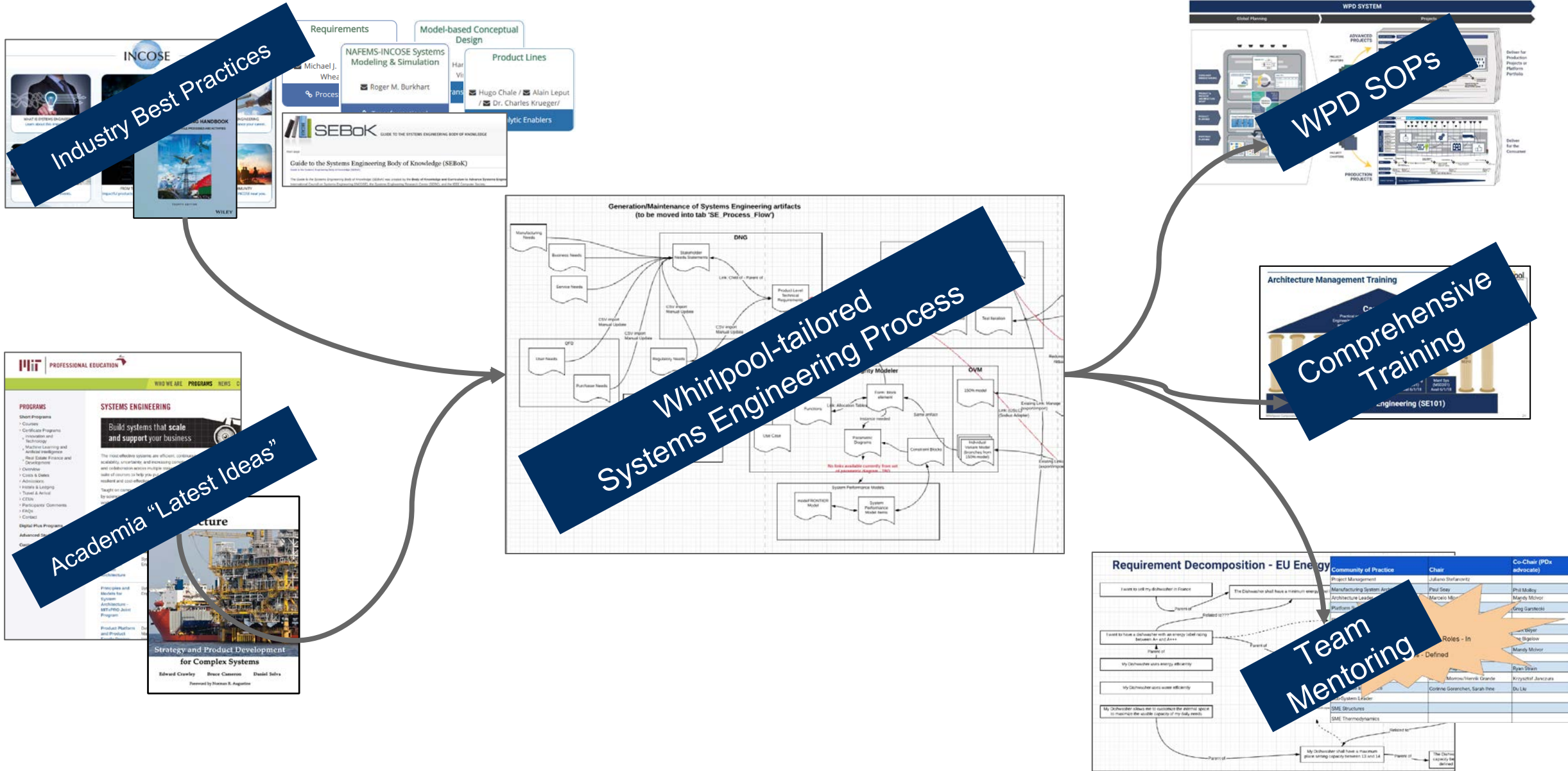


**Multi-Level Base Credentials**  
The Base ASEP, CSEP, and ESEP credentials cover the breadth of systems engineering at increasing levels of leadership, accomplishments and experience.

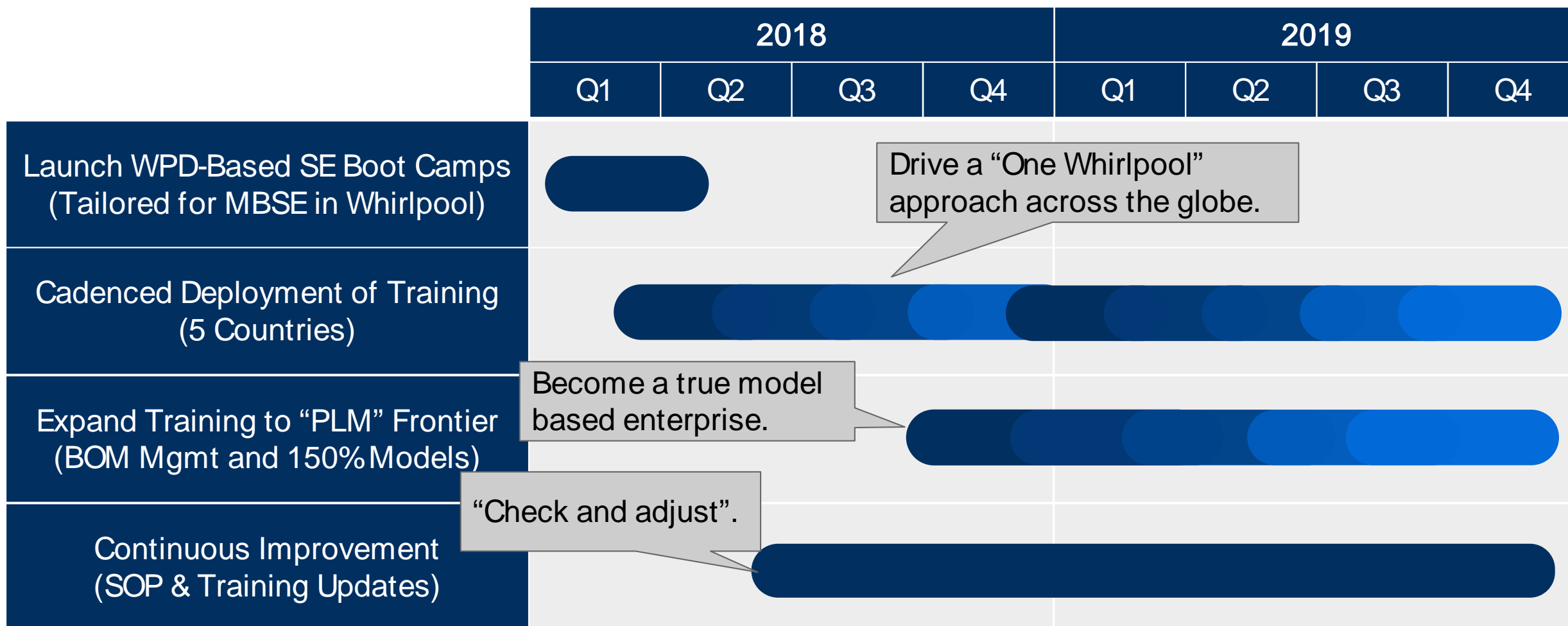


9 CSEPs  
+ 5 in process

# SO WHAT DID WE DO?



# HOW ARE WE GETTING TO WHERE WE WANT TO BE?



“Systems Engineering training within your organization can be effective given the right tailoring, education, practice, and follow-up support”

# LET'S GET STARTED



## WE ASKED: WHAT SHOULD BE OUR OVERALL STRATEGY?

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#### WHIRLPOOL PRODUCT DEVELOPMENT (WPD)

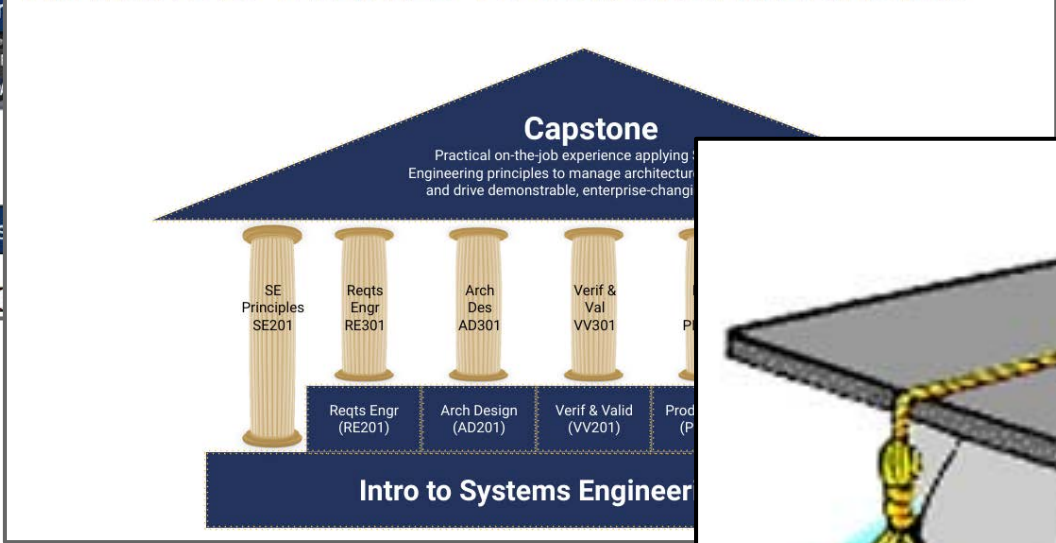
**Existing Constraints**

WHAT

WHO

WHO WILL USE THE WPD SYSTEM?

## TRAINING IS TAILORED TO OUR ORGANIZATION...





# THANK YOU

## JOIN THE CONVERSATION

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@WhirlpoolCorp #WhatMatters



LinkedIn.com/company/Whirlpool-Corporation  
WhirlpoolCorp.com

# Whirlpool CORPORATION

Whirlpool® KitchenAid® MAYTAG® i indesit® Hotpoint\* Consul BRASTEMP  
AMANA® JENN-AIR® Bauknecht® acros® DIQUA帝度 every drop®

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