Capability Readiness Levels of Model-Based Enterprise Ecosystem

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Self-Introduction

Xiaomei Yu – pronounced as “Shaw-May You”.

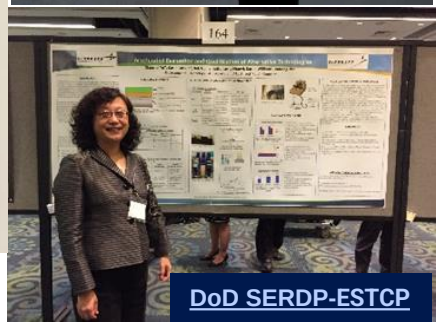
A lifelong learner -

- INCOSE CSEP
- Professional Certificate – Architecture & Systems Engineering, MIT
- Ph.D./BS in Polymer Chemistry and Physics

Current roles - LM Associate Fellow, MBE Architect

29 Years - Consistently and repeatedly delivered impact
covering end-to-end product lifecycle;
Multiple industries:
Defense and Aerospace, HVAC,
Transportation, Renewable Energy & Resources


SWE Patent Award



Outline

1. Terms and Definitions
2. Motivation
3. What are the Capability Readiness Levels?
4. How Is It Applied?
5. The Benefits and Impact

Terms and Definitions

1. ***Capability*** is the power or ability to perform a specific task or function that transforms an organization's technical and business processes.
2. ***Capability Readiness Levels*** is a type of measurement system used to assess the development state of a capability and guide the concurrent engineering of transdisciplinary teams through the development lifecycle.
3. ***Model-Based Enterprise*** is an organization that applies new capabilities and use models conducting flexible and agile design through concurrent engineering and an integrated digital thread, therefore, to react and predict customer needs with speed, agility, and deeper insights.
4. ***Model-Based Enterprise Ecosystem*** is a network of organizations, stakeholders, and other entities using system model as the authoritative source of truth and deliver a product or service though a constantly evolving relationship and a fully integrated digital thread as the enabler.

Motivation

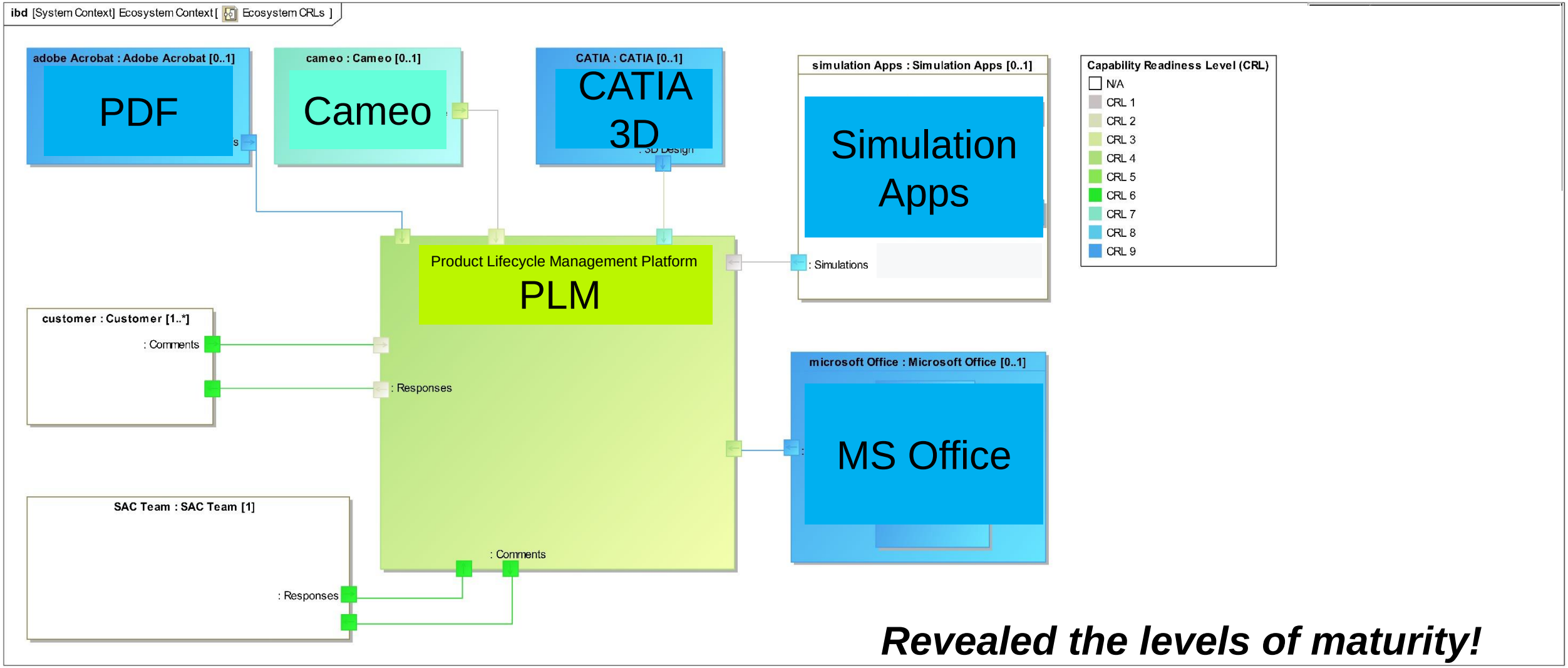
- Model-Based Development
- Concurrent Engineering
- More Functional Teams
- Higher Complexity
- New Interfaces at All Levels
- Agile Development and Deployment
- New Culture

Capability Readiness Levels

	Capability Design	Metrics for Impact	Use Cases / Requirements	Data Architecture	Processes	Tools	Comm. &Training
CRL 9	Deployed to production environment for all programs.						
CRL 8	Deployed to production environment for some programs.						
CRL 7	Developed and deployed to production environment for one program.						
CRL 6	C/P	C	C	C/P	C/P	C	C/P
CRL 5	T	P	P	T	T	P	T
CRL 4	S	T	T	S	S	T	D
CRL 3	D / S	S	S	D	D	D	
CRL 2	D	D	D	D			
CRL 1	D	D					

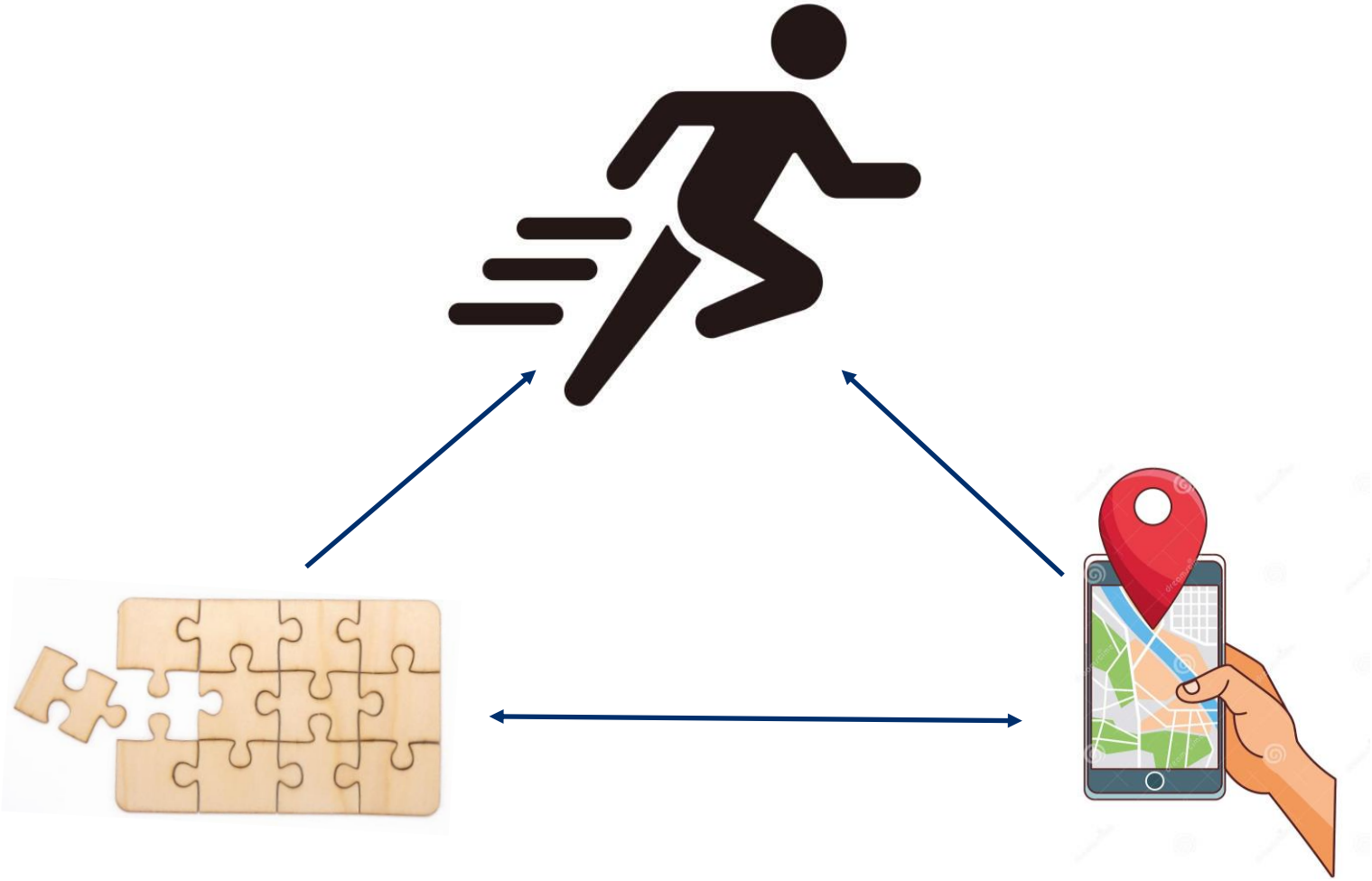
Defined; Simulated; Tested; Piloted; Completed

An Example Application



Revealed the levels of maturity!

The Benefits and Impacts



Accelerated deployment of capabilities and solutions with sim. estimated benefits.
CRLs used as the “GPS” guiding and gauging through the journey.

Thank you!

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