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

Agile Engineering Strategies When Knowledge is Uncertain and Environments are Dynamic

INCOSE Agile Systems and Systems Engineering Working Group

May 8, 2025

Rick Dove, Chair, AS&SE Working Group

Agile Engineering
When Knowledge is Uncertain and Environments are Dynamic

Abstract

INCOSE's working group for Agile Systems & Systems Engineering is investigating and advancing the fundamental understandings of systems engineering agility. To this end we are interested in engineering strategies, principles, and practices that successfully deal with projects and products operating with uncertain knowledge in dynamic environments. This webinar will overview what the working group has done and is doing – with an emphasis on the eight strategic aspects that enable and facilitate engineering agility recently published as INCOSE's Systems Engineering Agility Primer now being expanded in a Guide product.

Presenter Bio

Rick Dove is a Fellow of the International Council on Systems Engineering (INCOSE), chairs the working groups for Agile Systems and Systems Engineering and for System Security Engineering, and leads the projects for System Security in the Future of Systems Engineering and for Agility in the Future of Systems Engineering.

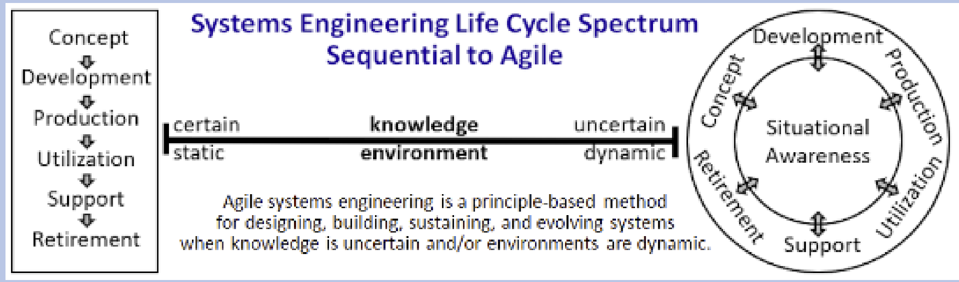
Public Page

Working Group Purpose & Mission

www.incose.org/communities/working-groups-initiatives/agile-systems-se

Mission:

The purpose of this working group is to identify and develop a body of knowledge that will inform systems engineering and related processes which require agile system capability. Agile systems of interest to this working group include both systems engineering processes and systems-engineered systems. This working group views agility as a sustainable system capability, enabled and constrained fundamentally by system architecture. This architecture delivers agile capability as reconfiguration, augmentation, and evolution of system functionality; enabling the system to respond to new and immediate situational requirements effectively. Effectiveness of response is measured in response time, response cost, response predictability, and response scope sufficient to sustain the system's functional intent.



Transformation Enablers

TechOps Domain

XXX (2,742 is correct number)

Members

2012

Established

Chair

Rick Dove

Co-Chair(s)

Ron Lyells

Larri Rosser

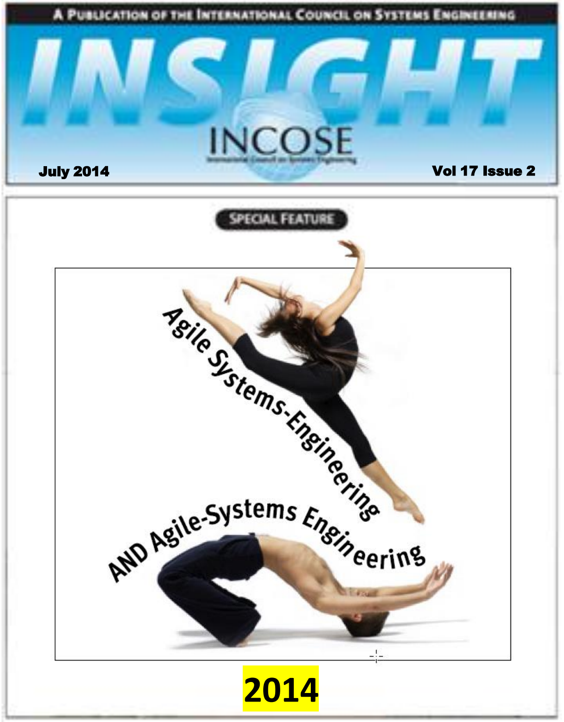
Robin Yeman

Inquiries

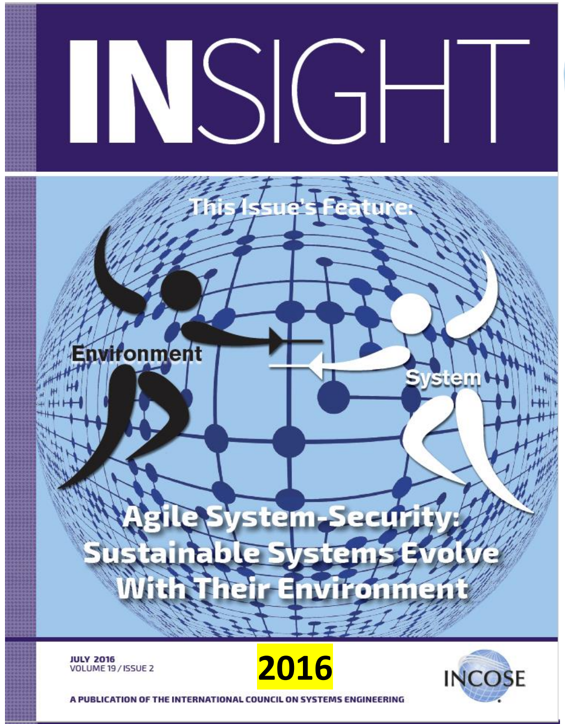
agilesse@incose.net

INSIGHT is used for engagement and socialization

(2014/16/18/21/23)

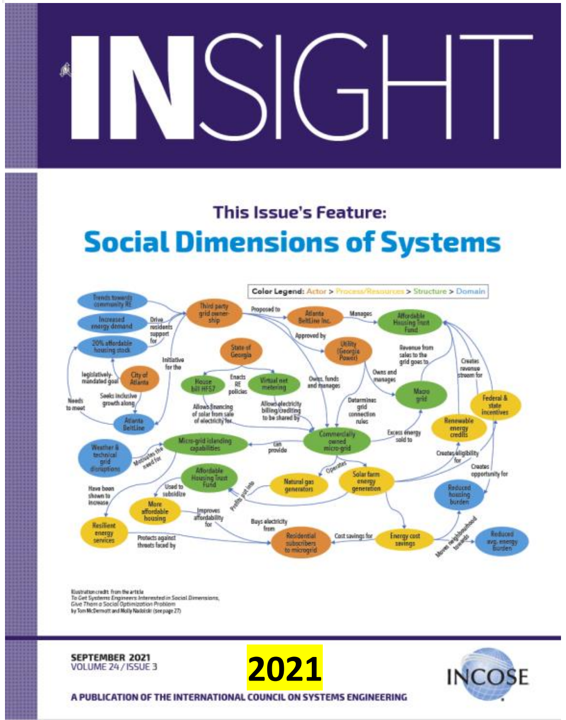


2014



2016

2018



2021

2023

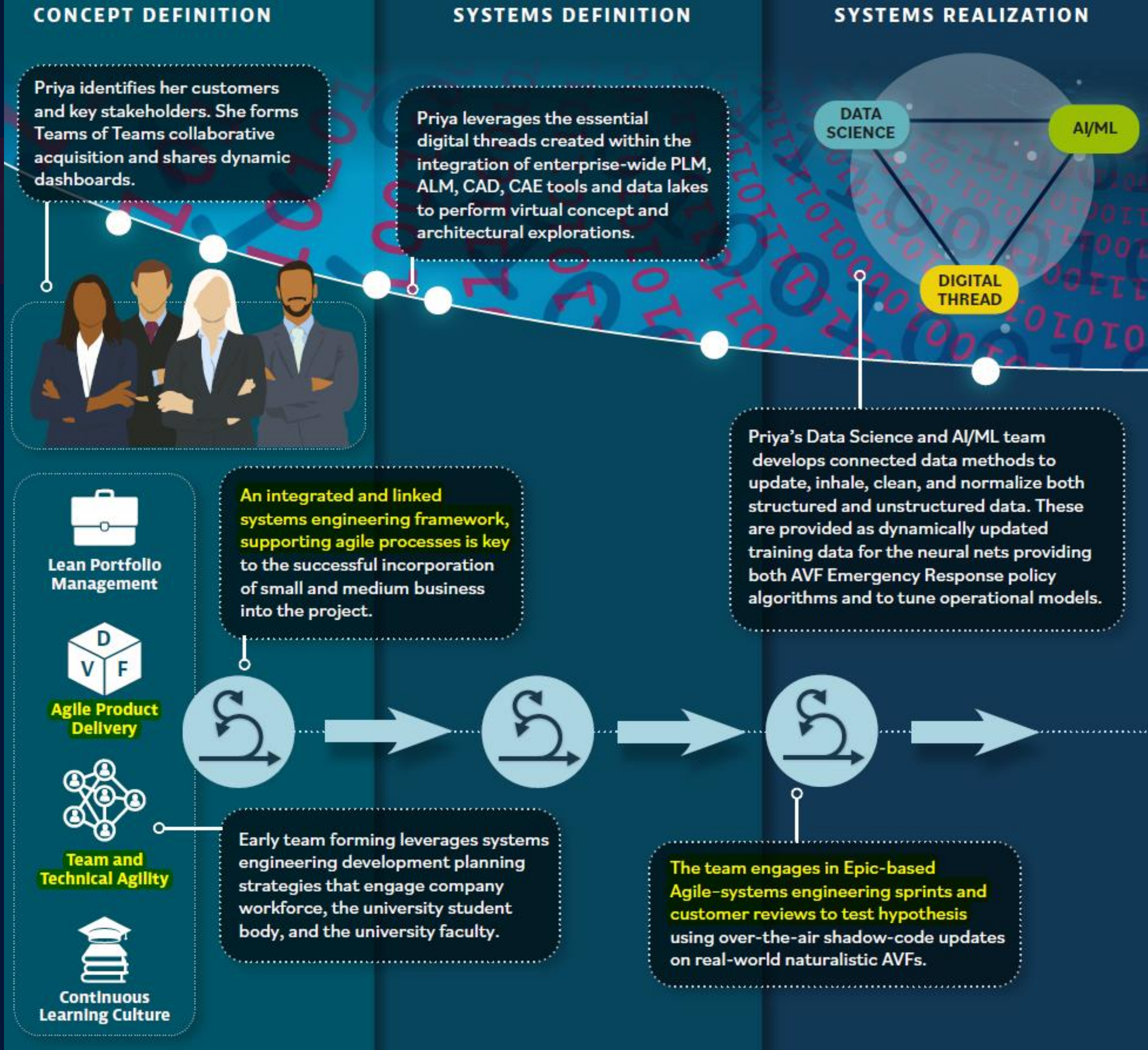
A DAY IN THE LIFE
OF A SYSTEMS ENGINEER IN 2035

Systems engineering practices will make significant advancements to deal with systems complexity and enable enterprise agility.

Vision 2035

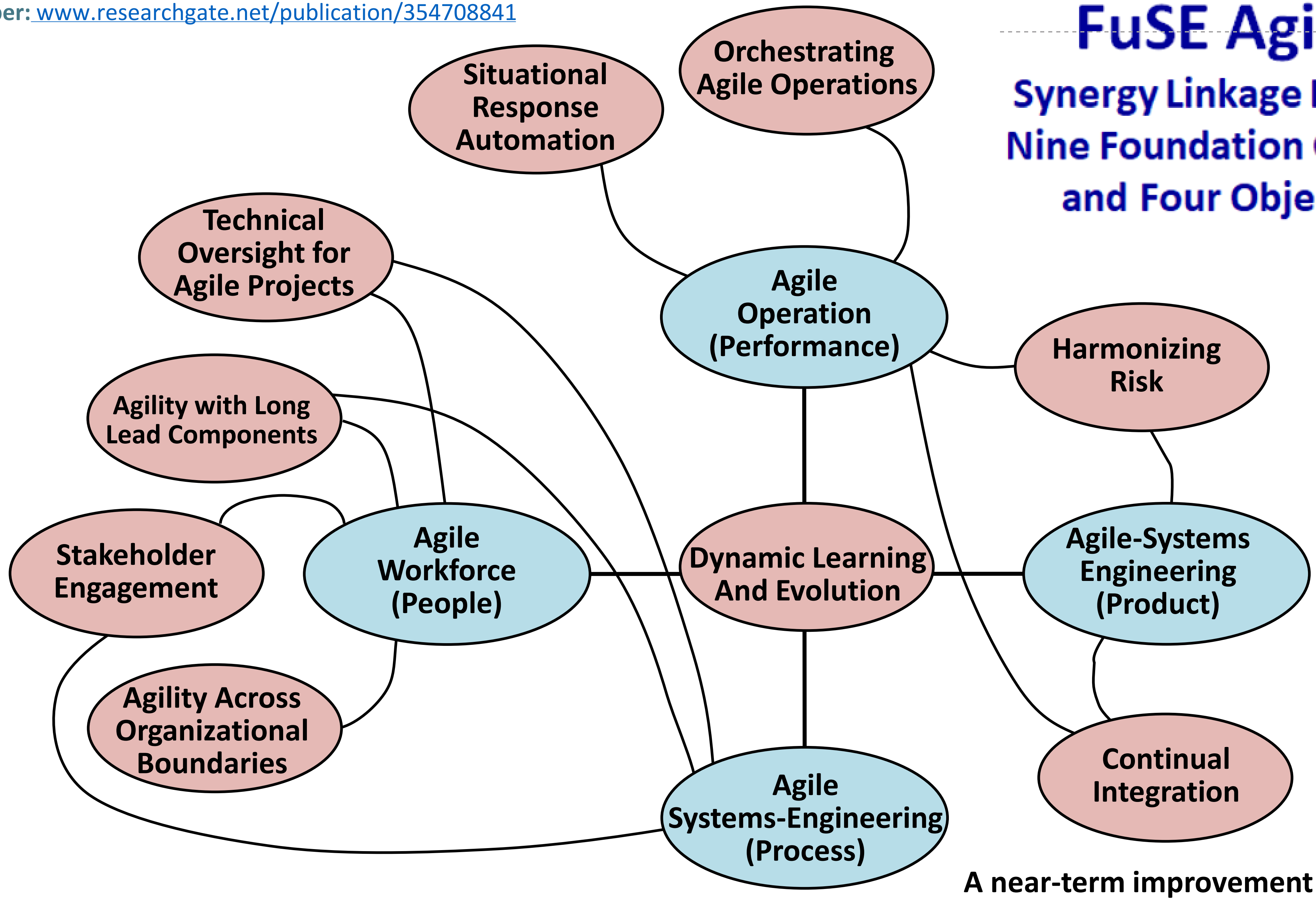
- our mission -

Systems engineering anticipates and effectively responds to an increasingly dynamic and uncertain environment.



FuSE Agility

Synergy Linkage Between Nine Foundation Concepts and Four Objectives



A near-term improvement foundation, not a comprehensive strategy web.

Decision Making Guidance for Agile Systems Engineering

TPP-2022-136

Problem Statement

Deciding how much Systems Engineering to apply, when in a project's lifecycle, and how to apply it, is a difficult task dependent on factors that vary by project and problem type

Project Description

- Identify characteristics of projects that inhibit or enable scaling and agility of the application of SE
- Define criteria for deciding on how much and when to apply SE technical practices (processes & products)

Key Deliverables

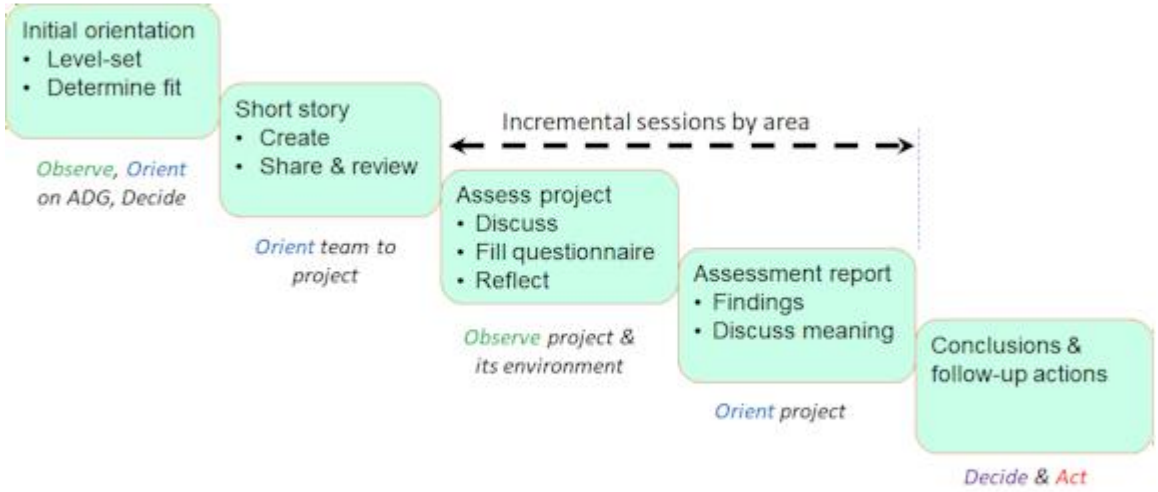
- Create a 'rubric' and methodology to determine relative dynamics of development environment and ability to respond to those dynamics
- Create an INCOSE product covering use of methods

Early Adopters and Reviewers

- CubeSat project, Norwegian University Science & Technology
- Research project with Boeing, suppliers, FAA, and airlines
- Town of Cary, North Carolina – procurement process and infrastructure projects
- Space Force project for a Command and Control System

Technical Product Plan 2025

- Production activity in process, expected Q2 availability



International Standard for SE Agility - WIP

A new international standard on systems engineering agility is being developed

- **ISO/IEC/IEEE 24748-10, *Guidelines for systems engineering agility***

Schedule

- **2023 November – work began**
- **2024 November – Approved to proceed to Draft International Standard (DIS)**
- **2025 May – Comments due**
- **2025 June – Disposition the comments, make any required adjustments**
- **2025 Aug – Release Final Draft (anticipated)**
- **2026 Q1/2 – Publication (anticipated)**

If you are a systems engineer, system acquirer, sub-system developer, chief engineer or executive manager, you need to understand what it means to be agile in the context of systems engineering. The Systems Engineering Agility Primer is your go-to resource for initiating discussion, consideration, and transformation towards agile practices.

This concise 4-page primer answers the critical question "What constitutes agile systems engineering and why?" by explaining the eight core aspects:

- Adaptable modular architectures
- Iterative incremental development
- Attentive situational awareness
- Attentive decision making
- Common-mission teaming
- Shared-knowledge management
- Continual integration and test
- Being agile as an operations concept

Understand how these aspects manifest uniquely in systems engineering to provide agility in the face of uncertain knowledge and dynamic environments. Contrast the differences between agile and traditional sequential approaches to see the benefits of transformation. Take the first step in your agile transformation journey with the Systems Engineering Agility Primer.

Go to the INCOSE Store to download the primer for free today!

SE Agility Primer

Agile systems engineering

is a strategy-based method

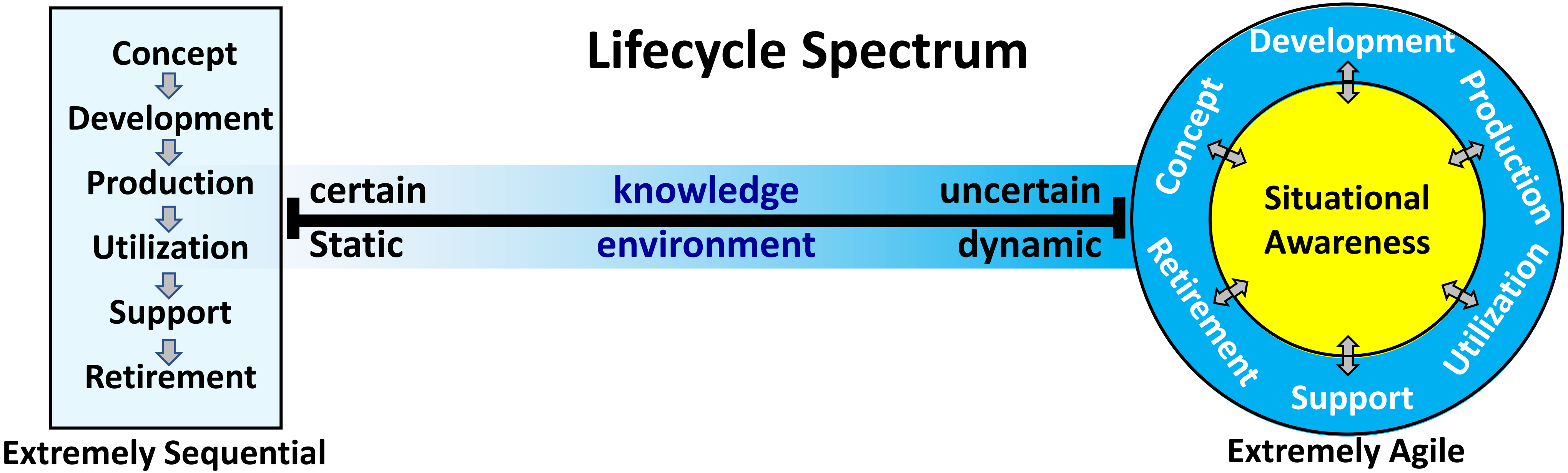
for designing, building, sustaining, and evolving systems

when knowledge is uncertain and/or environments are dynamic

Agile System Engineering is a what, not a how.
There are many hows, principally focused on the development phase,

and also many focused on a single (software) engineering discipline,

Context



Agile systems engineering is systems engineering as known in:

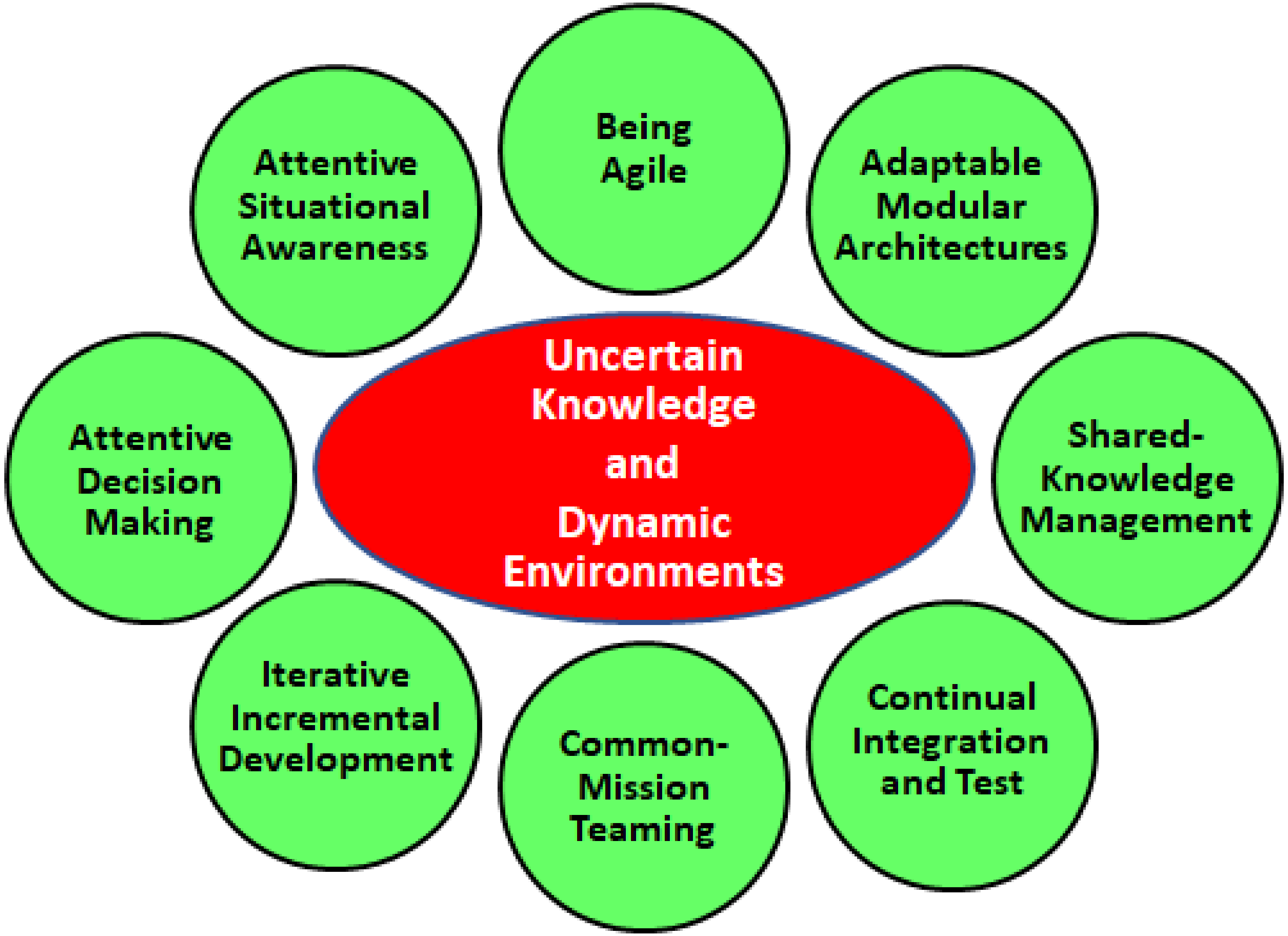
- ISO/IEC/IEEE standards
- Vee model
- INCOSE Systems Engineering Handbook
- however it is practiced by organizations that design, build, and sustain systems.

What distinguishes it as “agile” systems engineering is its:

- leverage of situational awareness,
- enablement of continual system evolution,
- intent to satisfy mission rather than plan.

Eight Strategic Aspects That Enable Agility

www.researchgate.net/publication/373092973



Just a Visual

Adaptable Modular Architectures

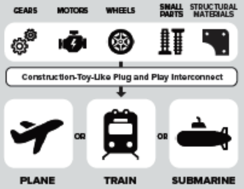
Needs: Facilitated product and process experimentation, modification, and evolution.

Behaviors: Composable and reconfigurable product and process designs from variations of reusable assets.

Discussion: One fixed process approach won't fit all projects, so an appropriate process should be easy to compose and evolve according to context and usage experience. Variations of reusable assets are built over time as features are modified for different contextual usage.

A hallmark of agile systems engineering is iterative incremental development, which modifies work in process as suitability is repetitively evaluated. The agility of the process depends upon the agility of the product so both process and product can be easily changed.

Assets With Feature Variations



Notional Agile Architecture Pattern.

Iterative Incremental Development

Needs: Minimize rework, maximize quality, facilitate innovation.

Behaviors: Incremental loops of building, evaluating, correcting, and improving capabilities.

Discussion: Generally increments create capabilities and iterations add and augment features to improve capabilities.

- Increment cycles are beneficially timed to coordinate events such as integrated testing and evaluation, capability deployment, experimental deployment, or release to production.
- Increments may have constant or variable cadence to accommodate management standards or operational dynamics.
- Iteration cycles are beneficially timed to minimize rework cost as a project learns experimentally and empirically.

Iterative capability improvements (looping) and incremental capability additions (successive development periods).

Common-Mission Teaming

Needs: Coherent collective pursuit of a common mission.

Behaviors: Engaged collaboration, cooperation, and teaming among all relevant stakeholders.

Discussion: Collaboration, cooperation, and teaming are not synonymous, and need individual support attention. Collaboration is an act of relevant information exchange among individuals, cooperation is an act of optimal give and take among individuals, and teaming is an act of collective endeavor toward a common purpose.

Tightly integrated coherent operation.

Continual Integration & Test

Needs: Early revelation of system integration issues.

Behaviors: Integrated test and demonstration of work-in-process.

Discussion: Discovering integration issues late in development activities can impact cost and schedule with major rework. Synchronizing multiple domain engineering activities via continual integration and test provides faster and clearer insight into potential system integration issues.

Iteratively evolving self-driving technology integration platform.

Attentive Situational Awareness

Needs: Timely knowledge of emergent risks and opportunities.

Behaviors: Active monitoring and evaluation of relevant internal and external operational-environment factors.

Discussion: Are things being done right (internal awareness) and are the right things being done (external awareness)? Having the agile capability for timely and cost-effective change does little good if you don't know when that ability should be exercised. Situational awareness can be enhanced with systemic methods and mechanisms.

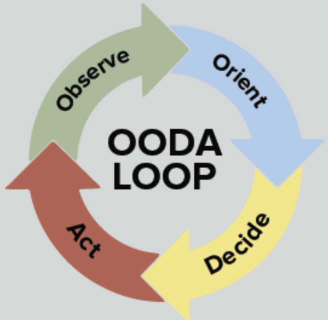
Alert, in-the-moment, constant attention.

Attentive Decision Making

Needs: Timely corrective and improvement actions.

Behaviors: Systemic linkage of situational awareness to decisive action.

Discussion: Empower decision making at the point of most knowledge. As a counter example, technical debt (a term for knowing something needs correction or improvement but postponing action) is situational awareness without a causal link to prompt action.



Responsible attention may take time, but never pauses.

Shared-Knowledge Management

Needs: Accelerated mutual learning and single source of truth for internal and external stakeholders.

Behaviors: Facilitated communication, collaboration, and knowledge curation.

Discussion: There are two kinds of knowledge to consider. Short time frame operational knowledge: what happened, what's happening, what's planned to happen. Long time frame curated knowledge: what do we know of reusable relevance, e.g., digital artifacts, lessons learned, and proven practices.

Information containers of any kind, available to all, and typically digital.

Being Agile: Operations Concept

Needs: Attentive operational response to evolving knowledge and dynamic environments.

Behaviors: Sensing, responding, evolving.

Discussion: Agile systems engineering is not about doing Agile, it is about being agile. Being agile is a behavior, not a procedure—a behavior sensitive to threats and opportunities in the operational environment, decisive when faced with threat or opportunity, and driven to improve these capabilities. Deciding how to implement any of the core aspects, even this one, should be done with sense-respond-evolve principles in mind as aspect objectives.

Three principles that operationalize agility.

Primer Link: https://www.incose.org/publications/products/agile-primer

SE Agility Guide – Working Outline

1. Purpose and Nature of the Guide – 1 page (what to expect and not to expect, how to use this guide)
2. Context – 2 pages: why and when is an agile SE approach needed, its objectives, its nature, and its benefits
3. Eight Strategic Aspects – 2 pages each
4. Synergy – 2-3 pages
   Synergies among aspects toward viewing them as a coherent systemic network
5. Case Story Examples – 4 pages each
   (how Aspects have been employed in a variety of environments):
   1. Driverless Vehicle Technology – (US Navy)
   2. Aircraft Radio Product Line – (Collins)
   3. Agile Transformation to Agile SE – (Lockheed Martin)
   4. Vehicle Innovation Product Family – (Tesla)
   5. High Performance Sports Cars – (McLaren)
   6. Space System – (Multi-project amalgamation).

Total: ~50 pages

Preliminary material has been developed for all outline areas.
ETA – late-2025

Chapter 3 – Strategic Aspects (outline)

Look and Feel of 8 Aspects at 2 Pages Each

Why/Needs (why this strategy is needed)
- xxx

What/Behaviors (what this strategy looks like as an outcome)
- xxx

Informative similar concepts
- xxx

How/OpsCon (Sense-Respond-Evolve triplet)
- xxx

Practice examples
- xxx

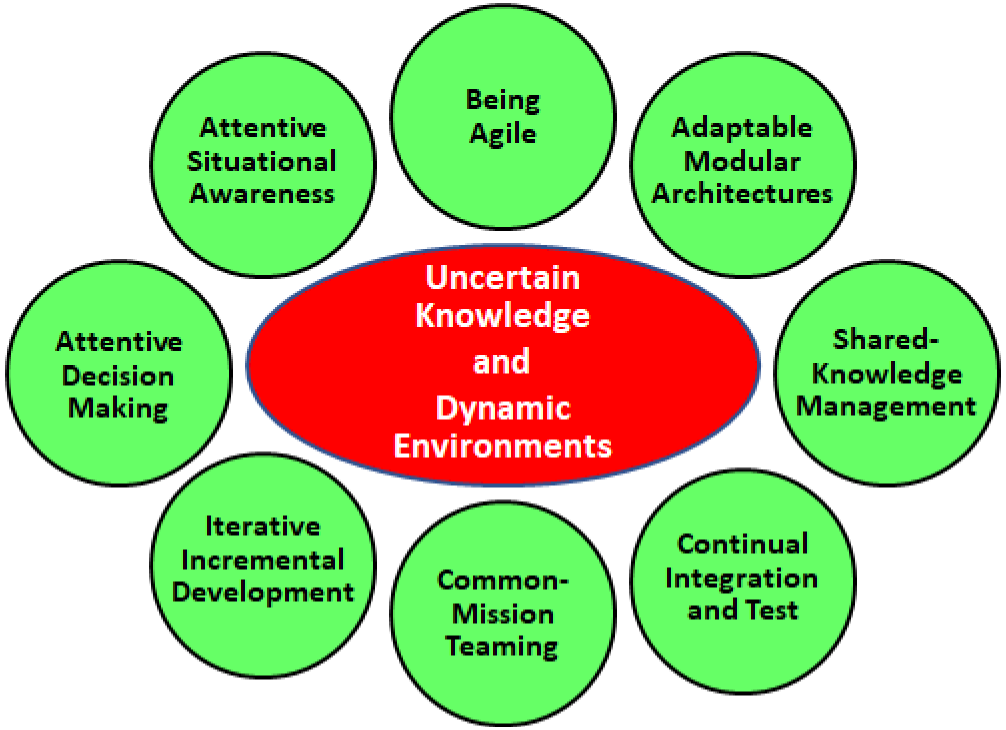
Heuristics (tips and tricks)
- xxx

Theory (how it mitigates uncertain knowledge and dynamic environments)
- Uncertainty: xxx
- Dynamics: xxx

Value (how it minimizes rework, maximizes quality, facilitates innovation)
- xxx

Social considerations (what can make it desirable/embraceable/engaging)
- xxx

Comparative Assessment Metrics (quantitative and qualitative evaluation)
- xxx



Preliminary material has been developed for all outline areas,
one Aspect has been completed to verify that 2-pages is sufficient.

Chapter 5 – Case Stories

Case stories are 4 pages long, intended as:

- Inspiration from in-practice examples
- Enticement as succinct short reads
- Variety across application domains
- Diversity of implementation methods
- Reference for revisits over time

The case stories are from actual practice; but are referred to as case stories rather than case studies because:

- they contain examples selected for aspect employment diversity rather than comprehensive coverage
- some case stories might be amalgams from multiple but similar project activities

4-page drafts finished for:

1. Driverless Vehicle Technology – (US Navy)
2. Aircraft Radio Product Line – (Collins)
3. Agile Transformation to Agile SE – (Lockheed Martin)
4. Vehicle Innovation Product Family – (Tesla)

In process:

5. High Performance Sports Cars – (McLaren)
6. Space Systems (amalgamation)

Driverless Vehicle Technology

Systems Engineering Agility Case Story (draft 241204)

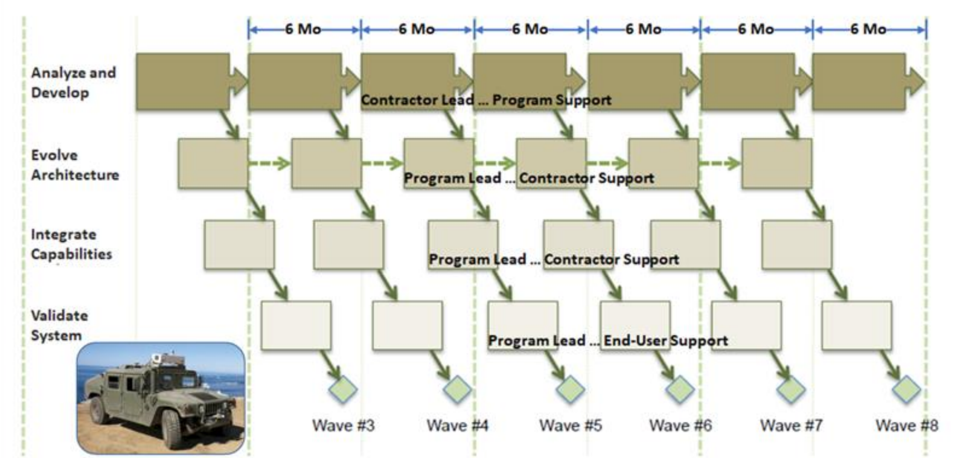
Introduction

This project did continuous agile development and evolution of uninhabited, off-road vehicle technology.

In 2015, a team from INCOSE studied the project's 6-month overlapping-increment wave-model process, and published it as a case study (Dove, Schindel, Scrapper 2016). Examples in this case story focus solely on the project's employment of the eight strategic aspects of systems engineering agility. Most notably, the process put a prime emphasis on enabling and facilitating team effectiveness: creating an embraced culture of engagement, a collective consciousness emerging from comprehensive real-time information support, and a team conscience on a mission for the end users.

The project ran multiple sub-projects with multiple sponsors simultaneously. At study time, the project employed 6 subcontractors with 4-5 engineers each for device development and 60 government employees for continuous process and product systems engineering and project support.

The figure captures the project's overall wave-model process. This figure shows how the project's engineering tasks relate to each other as they are subsequently explained in the framework of the eight aspects.



Operational Concept: Iterative incremental development with overlapping six-month waves

High Points

Adaptable Modular Architectures:

- Architecture and interface standards designed, evolved, and enforced by program management.
- Task composability facilitated by common interactive interfaces for contractors and internal resources.

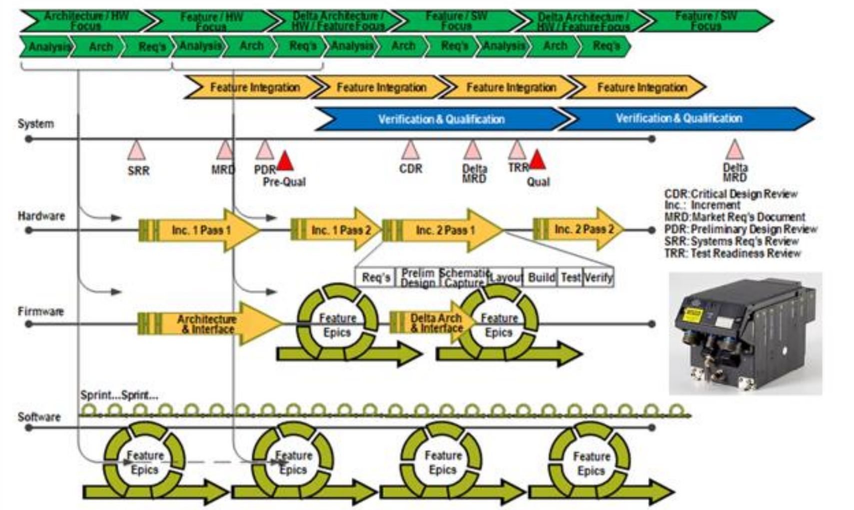
Aircraft Radio Product Line

Systems Engineering Agility Case Story (draft 240825)

Introduction

Rockell Collins, circa 2015, was a supplier of radios to military and commercial aviation markets when they invited a team from INCOSE to study their agile systems engineering approach in a three-day workshop. Examples in this case story are drawn from notes, recordings, and published papers associated with that study (Dove, Schindel, Hartney 2017).

The figure below is Rockwell's depiction of their overall process. This figure will aid in appreciating how all the moving parts relate to each other as they are subsequently explained in the framework of the eight aspects.



Operational Concept: Tailored process influenced by Scrum and SAFe..

High Points

Adaptable Modular Architectures:

- Product line architectural tenets: modularity, commonality, scalability, standardization.
- Engineers could easily switch among 3 or so projects to accommodate resource availability.

Iterative Incremental Development:

- Software and firmware attempted to align on 30-day increments.
- Hardware budgeted for two versions of completed capabilities for feedback and variations.

Attentive Situational Awareness:

- External awareness drove a continually evolving Market Requirements Document (MRD).
- Internal awareness looked for project opportunities to extend the product line.

Vehicle Product Family Innovation

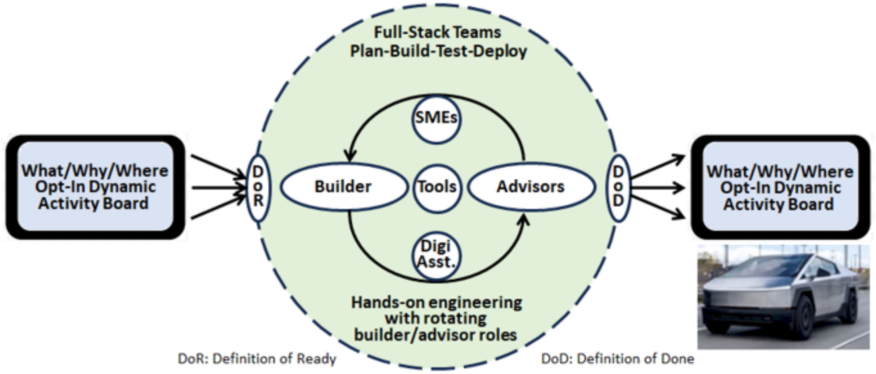
Systems Engineering Agility Case Story (draft 250309)

Introduction

Examples in this case story are drawn from what was publicly available about engineering agility at Tesla Motors in its automotive business. Source material is principally a selective amalgamation from many differently focused video accountings of Joe Justice's engagement at Tesla (circa 2020) as an employee and his subsequent continued monitoring through 2023.

This accounting is purposely written in the past tense as it is based on information from a specific time period; but the chosen examples have timeless value whether still in practice at Tesla or not.

Tesla operated at the extreme right of the life cycle spectrum, where all systems engineering phases occurred concurrently and systems engineering was a continuous activity affecting all vehicles in development, in production, and in operation. Group experiential engineering was practiced, where full-stack teams rotate all members periodically through roles of hands-on builder and advising. Design eventually emerges from successful building, modifying, and testing.



Operational Concept: Digitally assisted hands-on group experiential engineering. Output may be a new increment of capability or an iterative improvement on an existing capability.

High Points

Adaptable Modular Architectures:

- Engineering process, product, and factory composed of modules with stable interfaces.
- Rapid opt-in modular teaming enabled by culture and personnel-interaction handbook rules.

Iterative Incremental Development:

- 60 part changes a day average in 2021/22 reflected constant improvement iteration pace.
- Automated safety certification testing enabled continuous iterative development.

Attentive Situational Awareness:

- Ubiquitous AI tools provided awareness of engineering, product, and production improvement trends.
- Software called Autobidder rapidly found alternative suppliers to resolve supply issues.

Attentive Decision Making:

- DSM tool eliminated human manager decision delays by answering questions directly.
- Service options and scheduling driven by operational monitors and digital twin profile.

Common-Mission Teaming:

- Opt-in mission-pulled team composition.
- Clear and monitored mission focus to minimize/eliminate multi-mission switching costs.

Shared-Knowledge Management:

- DSM-AI did long term knowledge curation and cross-company dissemination.
- WIP knowledge continuously evolved on personal phones, computers, and factory screens.

Continual Integration & Test:

- Each vehicle on the production line was treated as an automated integration & test platform.
- Production line cars ran software doing integration regression testing as parts were added.

Being Agile

- Continual innovation mission on product and production performance, efficiency, and cost.
- Production processes and tooling were designed to facilitate rapid/frequent change.

Adaptable Modular Architectures

Tesla used modular architectures with interconnect specifications for everything: product, process, facility, production, tooling, and teams. Adaptable modular architectures appear to be a dominant mental pattern for all types of systems at Tesla.

Interconnect specs were allowed to evolve asynchronously with backward compatible adaptors.

Service personnel were rapid module-swap replacement trained rather than repair trained (repairs done at the factory provided a continuous learning experience).

Culture and anti-handbook handbook (3.5 pages) provided personnel collaborative interface rules for rapid adaptable opt-in modular teaming.

Tesla built what they called Gigafactories, as these factories cover a larage amount of geography. Each successive factory build took less time then the previous build as they employed a modular factory-design approach that learned and improveed on both design and construction techniques of replicated factory modules.

Iterative Incremental Development

At Tesla every car on the production line had capabilities that could be improved at any time, and new capabilities that could be added at any time.

Tesla was making 60 part changes a day on average in the 2021/22 time frame. Not a fixed number, but indicative of the pace of constant improvements. Part variation among cars was not a service issue as the modular architecture maintained stable interfaces to allow swap-out replacements.

Nested iterations – a group experiential engineering project is often an iterative improvement over the performance of an in-production vehicle component, and the depicted circle itself is a continual iteration on an improvement activity with a given builder often completing an iteration before rotating into an advisor role.

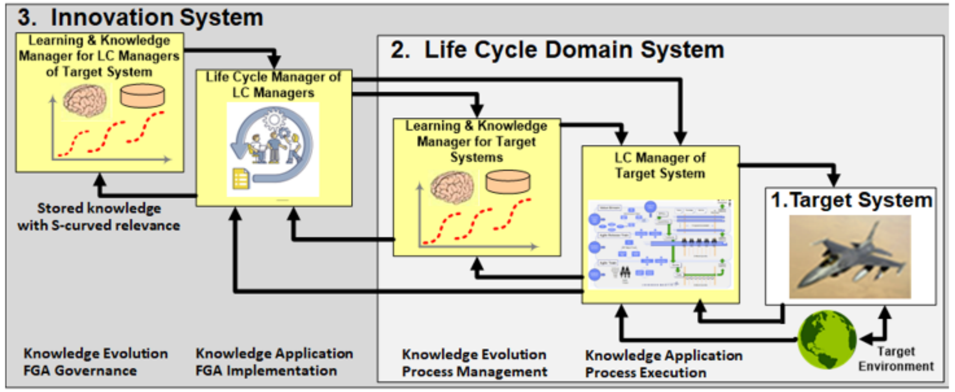
Agile Development of an Agile SE Process for Aircraft Evolution

Systems Engineering Agility Case Story (draft 250207)

Introduction

A team from INCOSE studied Lockheed Martin's development and evolution of a scaled agile approach for F16 and F22 aircraft capability evolution (Dove, Schindel, Garlington 2018). At that time Lockheed Martin's Integrated Fighter Group (IFG) at Fort Worth, Texas, was principally involved in periodic evolution of weapons and avionics systems in these aircraft, for a variety of customers. The previous sequential systems engineering approach was having increased difficulty in meeting the need for faster delivery cycles with increasing system complexity. IFG adopted the SAFe framework with some initial modifications as a starting point for what will here be called Fighter Group Agile (FGA). A four year period actively experimented, augmented, and modified the initial approach with a variety of customizations that better fit the nature of IFG's business and engineering needs.

A generic reference architecture pattern for systems engineering agility (Schindel & Dove, 2016) is graphically specific in the figure below to reflect and clarify the application at IFG.



Agile innovation and evolution of the agile systems engineering process at Lockheed Martin IFG

System 3 represents the innovation process that created and evolved FGA, initially with two dedicated small teams of overlapping membership within the Governance Team functioning as Process Owners and Implementors employing a Scrum-like operational process.

System 2 represents the developed and evolving FGA. At the time of the study this process was employed by an internal workforce of 1200 engineers and managers principally engaged in software development and systems integration. Hardware and electronic device development was externally subcontracted. As FGA evolved there were often two separate instances, one for F16 and the other for F22 projects, so that one could experiment with a new variation while the other waited to see the results before full incorporation or reversion.

System 1 represents a variety of concurrent customer-contracted aircraft modification projects. Typically each project involves multiple F16 or F22 aircraft provided by the customer.

Aspect application examples below will include instances in all three systems where appropriate.

High Points

Adaptable Modular Architectures:
- Open System Architecture became part of the acceptance criteria for deliverable project components.
- Everyone was interchangeably trained in all process management and process execution roles.

Iterative Incremental Development:
- All suppliers aligned to 12-week increment, some produced hardware updates in one-week iterations.
- Process maturity employed an experimental "try it before you buy it" approach.

Attentive Situational Awareness:
- Supply chain stability was tracked by a service group to avoid disruption from supplier market exits.
- The Process Team gauged effect and acceptance of the evolving process daily by development teams.

Attentive Decision Making:
- Transition teams charged with awareness and decisions were closely coupled with cross membership.
- The process Implementation Team monitored and provided therapy to developers having difficulty.

Common-Mission Teaming:
- Three days of process training started at the executive level and encompassed 1200 people.
- Initial emphasis on coaching became unnecessary once concepts were assimilated and acculturated.

Shared-Knowledge Management:
- Cross membership in governance and implementation teams facilitated shared knowledge.
- Abandoned Earned Value data was reinstated when passive stakeholders became knowledge blind.

Continual Integration & Test:
- An iterative integration lab used evolving simulations and work-in-process to reveal issues early.
- Process maturation iteratively experimented, tested, and monitored concepts for effectiveness.

Being Agile
- Customer performance reviews were cadence based as opposed to sequential completions based.
- A Scrum/Kanban-like approach evolved process maturation with a two-week sprint cadence.

Adaptable Modular Architectures

Open System Architecture was articulated at the IFG strategic level for intent and value, and became part of the acceptance criteria for deliverable project components. Component focused project teams in the past would develop features specific to their components – a transformation to feature focused teams was made to enable reusable modules for use in multiple components.

Everyone was trained in all of the Process Management and Process Execution roles so each could understand the process strategy and participate in the management as well as execution activities as evolving process and project situations required.

In the start-up years process transformation and evolution was managed by a dedicated team of four full-time people as principal Process Owners within the FGA Governance Team, with another 2-6 part-time people to augment when they functioned as the FGA Implementation Team.

Iterative Incremental Development

Initial cadence was set at six 2 week iterations/sprints in a 12 week increment culminating in a demo. All suppliers were contractually aligned to the FGA 12-week development increment; which many initially

Wrap Up

You don’t need a boxed Agile Engineering Procedure to reap the benefits of agility.
(e.g., Tesla and SpaceX don’t speak about agility or Agile)

BE-ing agile is different than DO-ing Agile.

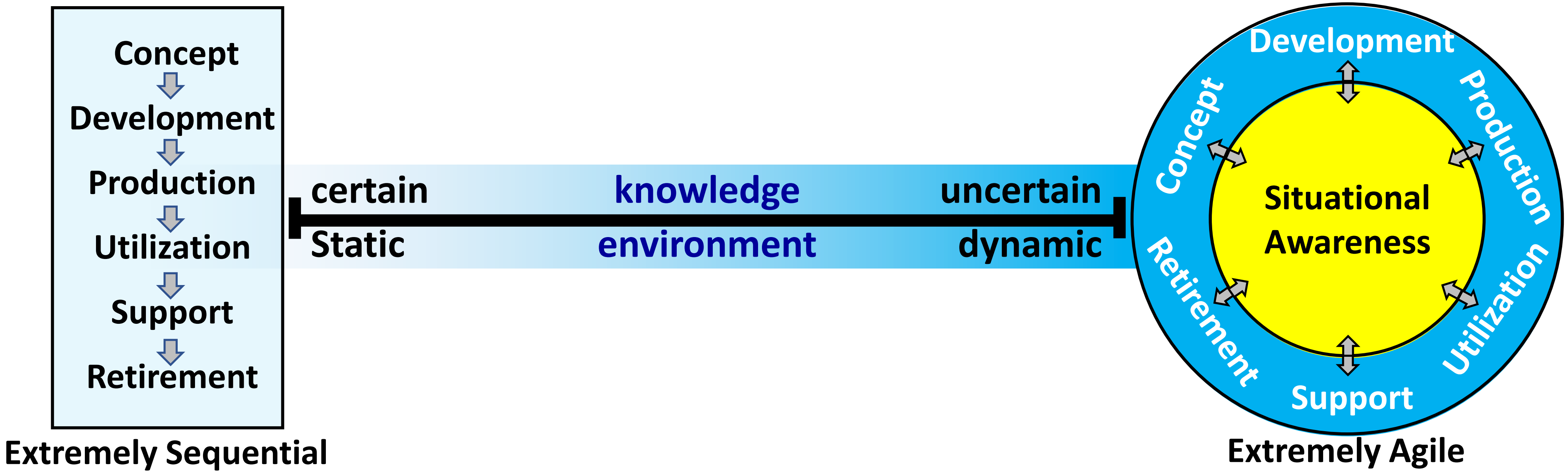
However, tailoring a COTS framework (e.g., SAFe), might be organizationally expedient,
… and more effective if you leverage the 8 Strategic Aspects.

Parting Perspectives

The life cycle spectrum simple shows a variation from required order to no order required in engineering activities, you could distinguish them as being plan driven vs. situation driven.

Sequential engineering is a degenerate case of the fully agile right side.

Agility is a behavior exhibited as responsive interaction with a dynamic situation.



Group Experiential Engineering

xAI's Grok was asked: What would group experiential engineering mean?

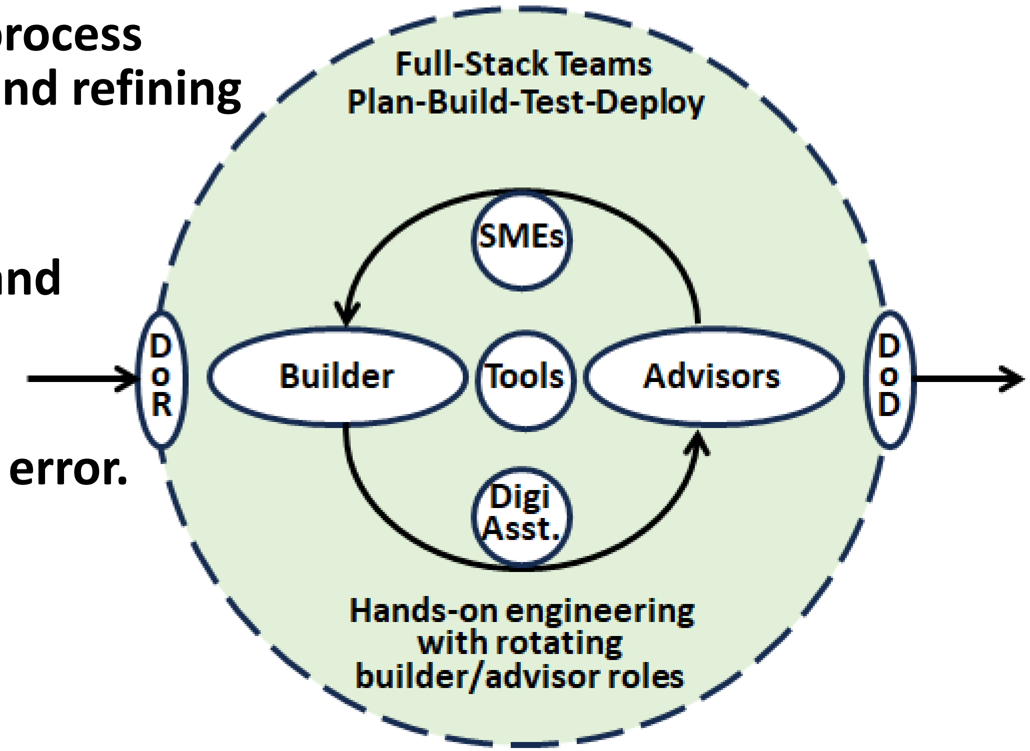
"Group experiential engineering" isn't a widely established term, so let's break it down and reason through what it could mean based on its components.

"Experiential" suggests something rooted in hands-on experience—learning or creating through doing rather than just theorizing. "Engineering" implies designing, building, or problem-solving with a practical outcome in mind. Add "group" into the mix, and it points to a collaborative effort, where multiple people contribute their skills, perspectives, or efforts toward a shared goal.

So, group experiential engineering could mean a collaborative process where a team designs and builds something tangible, learning and refining their approach through direct, hands-on experimentation.

Think of it as a bunch of people tinkering together—say, a team prototyping a robot, testing it in real-world conditions, and tweaking it on the fly based on what they observe.

It's less about following a strict blueprint and more about discovering what works through collective trial and error.



Projects and Points of Contact

Webinars	
– 2012/13/14/15/16/17/18/19/20/21/22/23/24 September – 13 INCOSE Webinars on Agile Systems and SE	Done
– 2015 Jan Town Hall – Agile SE Life Cycle Model Fundamentals Project	Done
– 2015 Apr Webinar – Natural-System Patterns for SEing of Agile Self Organizing Security	Done
– 2015 Jun Webinar – System Engineering for Software Intensive Projects Using Agile Methods	Done
Projects	
– v5 Handbook Revision, POC: Rick Dove	Done
– Maynard's Industrial Engineering Handbook, 6th Edition, POC: Rick Dove	Done
– FuSE Agility Roadmap, POC: Keith Willett	Done
– SEP Exam Questions, POC: Beth Wilson	WIP
– ISO Standard 24748-10 – Systems Engineering Agility, POC: Mike Yokel	WIP
– SEBoK, POC: Phyllis Marbach, Mike Yokell	WIP
INCOSE Products	
– SE Handbook: v4 Section 9.9; v5 Sections 2.2.2., 3.1.3, 4.2.2	Done
– Continuous Iterative Development and Acquisition, TPP-2019-001-02 -0402, POC: Beth Wilson	Done
– Agile Systems Engineering Decision Guidance Method, TPP-2022-136, POC: Ron Lyells	WIP
– Systems Engineering Agility Primer, TPP-2022-141, POC: Rick Dove – Published July 2024	Done
– Systems Engineering Agility Guide, TPP-2024-149, POC: Rick Dove	WIP
Papers, Panels, Tutorials, Workshops	
– Papers: IS14(3),IS15(4),IS16(3),IS17(1),IS18(2),IS19(4),S20(1),IS21(1),IS22(1),IS23(1),IS24(2), …	WIP
– Tutorials: IW15 (1), IS15 (1), IS23 (1), …	WIP
– Panels Led: IS15 (1), IS20 (1), IS23 (1), …	WIP
– Panel Participation: IS13 (1), IS16 (1), …	WIP
Collaborations	
– CAB, Agile SE Priority Team, POC: Rick Dove	WIP
– NDIA Agile SE WG, POC: Larri Rosser	WIP
– NDIA Continuous Iterative Development and Acquisition WG, POC: Larri Rosser, Beth Wilson	WIP
– Systems Security Engineering WG, POC: Rick Dove	WIP
– Complex Systems WG, POC: Larri Rosser	WIP
INSIGHT Publications	
– Theme Issues (5): 2014-Q2, 2016-Q2, 2018-Q2, 2021-Q3, 2023-Q2	Done
– Articles (2): 2015-Q2, 2017-Q3	Done
Tracks and Papers at Non-INCOSE Conferences	
– 2014 Oct, NDIA SE Conference: Domain Independent Agile SE Life Cycle Model Project	Done
– 2015 Jan, ITEA El Paso Conference: INCOSE Project – Agile SE Life Cycle Model Fundamentals	Done
– 2015 Jun 16-19, ICCRTS Symposium Proceedings, Agile C2 Security Track (3 papers)	Done
– 2016 Jul 28, ISSS Plenary presentation: Enabling and Facilitating Engineered Sustainability	Done
– 2017 Apr 24, IEEE SysCon, Montreal, Quebec, ASELCM Case Study Rockwell Collins	Done
– 2023 Oct 16-19, NDIA Systems & Missions, Systems Engineering Agility – Eight Strategic Aspects	Done
Awards	
– INCOSE: 2018 Sustained Performance	Awarded

Questions?

www.parshift.com/t/NEC.pptx

How do I get actively involved?

1) **Contact an in-process project POC.**
2) **Propose a project of your own and we'll help recruit participants.**
3) **Propose to lead a 2-Hr-max collaborative workshop on a topic that needs collective thoughts. We can invite wg members and schedule a virtual session.**

We hold two general meetings a year – hybrid at IW and virtual at mid-year.
Typically speaker slots are 15 minutes. Sometimes we have a ~45 minute workshop.
Working group members are asked for presentation candidates, and all members get an invitation.

Open interests:

- **Case stories about the eight strategic aspects, how they are used, lessons learned, …**
- **INSIGHT Aug 2026 theme issue – call for articles will go out August 2025.**
- **Strategies and actions for moving SE Agility into practice.**
- **Transformation barriers and pain points to overcome.**
- **Using AI to improve Agility.**
- **Wikipedia page on Systems Engineering agility.**
- **…**

Inquiries: agilese@incose.net