

Lean & Agile

Enterprise Frameworks

Using SAFe 4.5 to Manage U.S. Gov't Agencies, Portfolios & Acquisitions

Dr. David F. Rico, PMP, CSEP, FCP, FCT, ACP, CSM, SAFE, DEVOPS

Twitter: [@dr_david_f_rico](https://twitter.com/dr_david_f_rico)

Website: <http://www.davidfrico.com>

LinkedIn: <http://www.linkedin.com/in/davidfrico>

Agile Capabilities: <http://davidfrico.com/rico-capability-agile.pdf>

Agile Cost of Quality: <http://www.davidfrico.com/agile-vs-trad-coq.pdf>

DevOps Return on Investment (ROI): <http://davidfrico.com/rico-devops-roi.pdf>

Dave's NEW Business Agility Video: <http://www.youtube.com/watch?v=hTvtsAkL8xU>

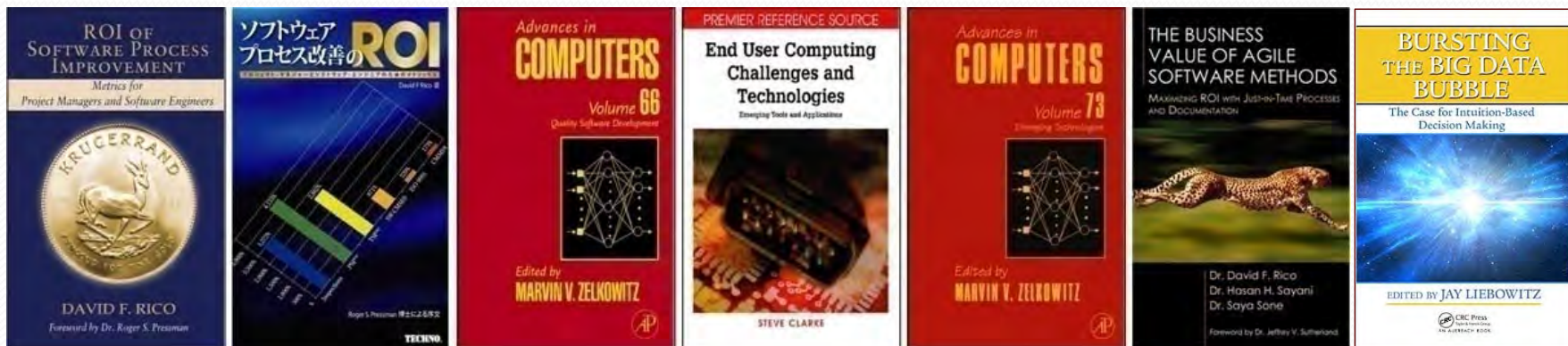
Dave's NEWER Scaled Agile Framework SAFe 4.5 Video: <http://youtu.be/1TAuCRq5a34>

Dave's NEWEST Development Operations Security Video: <http://youtu.be/X22kJAvx44A>

DoD Fighter Jets versus Amazon Web Services: <http://davidfrico.com/dod-agile-principles.pdf>

Author Background

- Gov't contractor with 35+ years of IT experience
- B.S. Comp. Sci., M.S. Soft. Eng., & D.M. Info. Sys.
- ☞ □ Large gov't projects in U.S., Far/Mid-East, & Europe



- Career systems & software engineering methodologist
- Lean-Agile, Six Sigma, CMMI, ISO 9001, DoD 5000
- NASA, USAF, Navy, Army, DISA, & DARPA projects
- Published seven books & numerous journal articles
- Intn'l keynote speaker, 215 talks to 20,900+ people
- Specializes in metrics, models, & cost engineering
- Cloud Computing, SOA, Web Services, FOSS, etc.
- Professor at 7 Washington, DC-area universities

Strategy vs. Tactics — Sun Tzu



***Strategy without tactics
is the slowest route
to victory.***

***Tactics without strategy
is the noise before
defeat.***

- Sun Tzu

Definition of PORTFOLIO MANAGEMENT

- **Portfolio.** Subportfolio, program, project, operations
- **Portfolio Mgt.** Manage these to achieve strategic obj.
- ☞ □ **Objectives.** Includes **efficiency**, **effectiveness**, & **value**

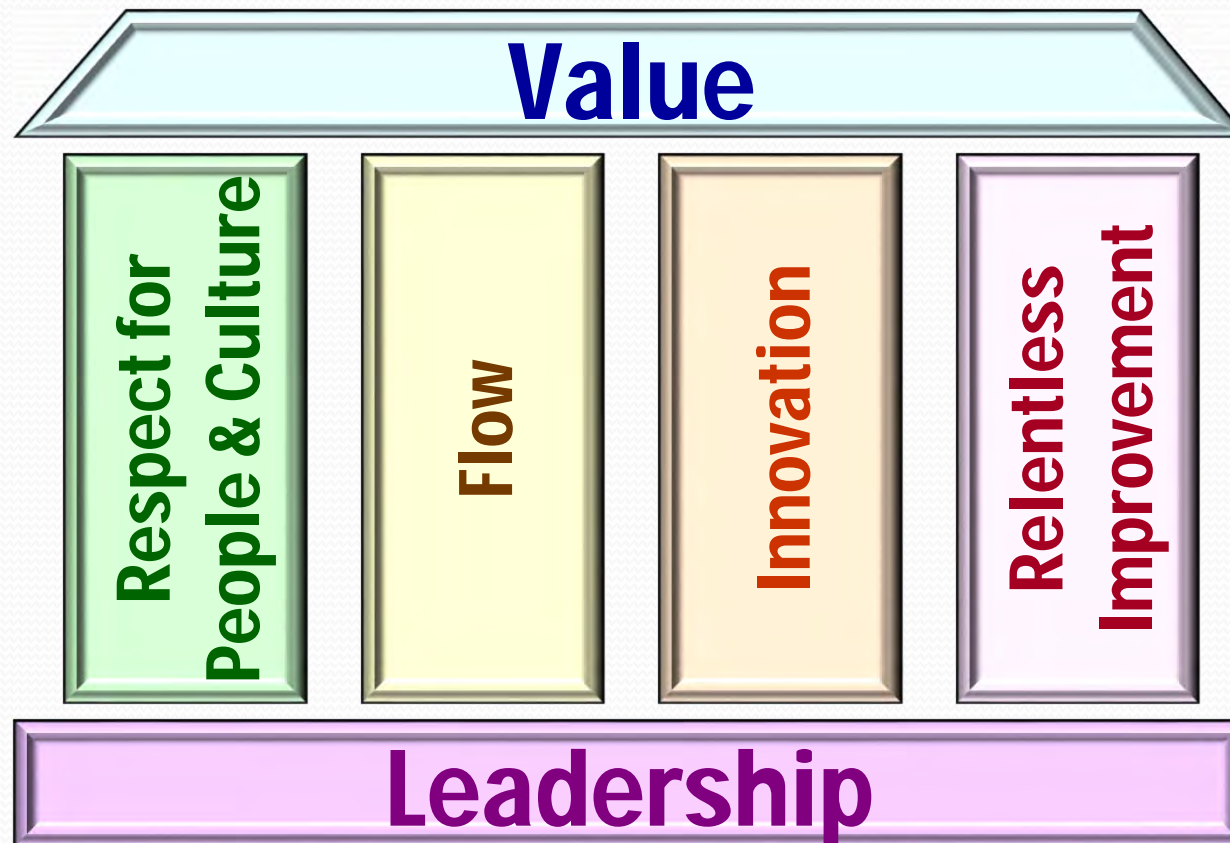


Lean & Agile FRAMEWORK?

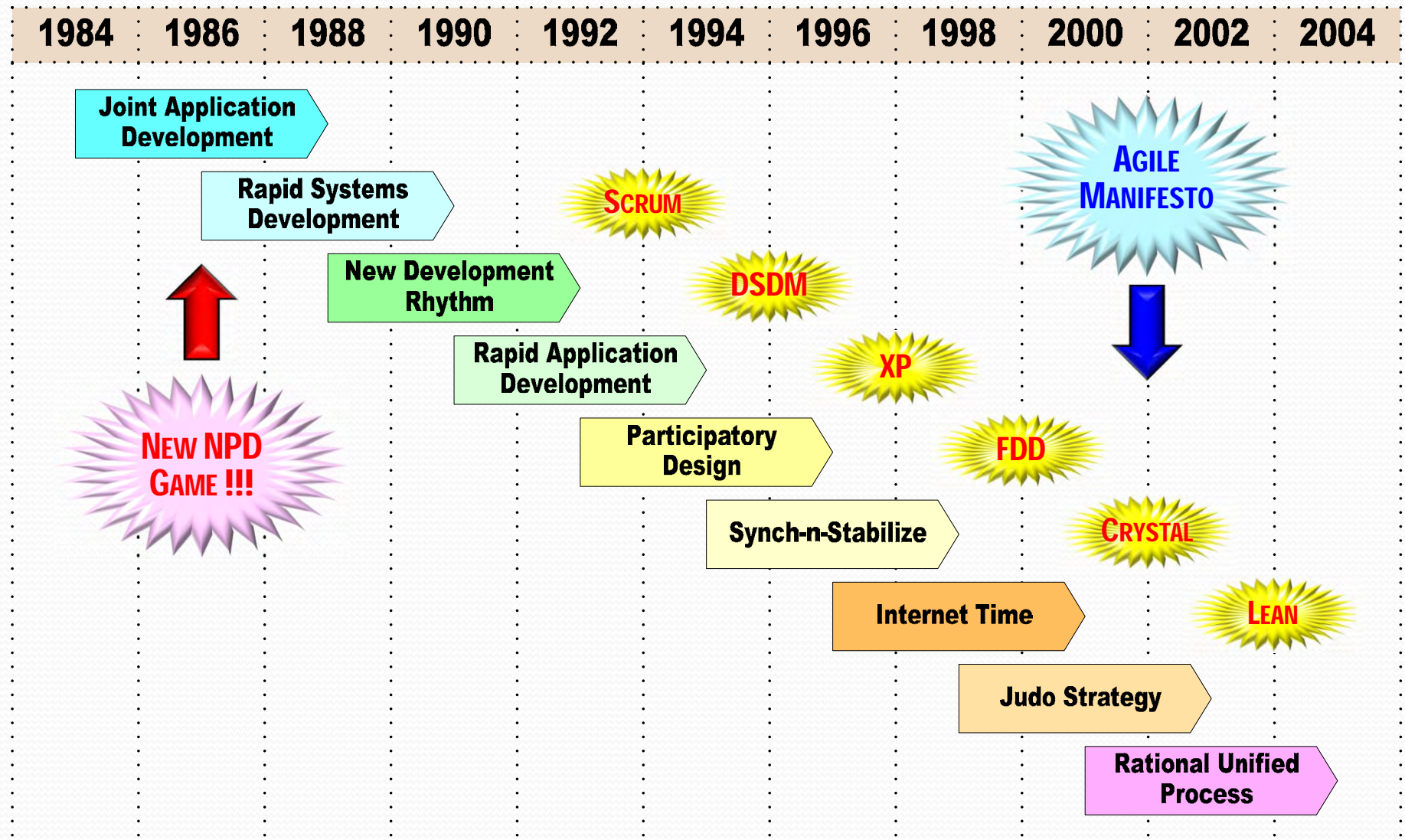
- Frame-work (frām'wûrk') A support structure, skeletal enclosure, or scaffolding platform; Hypothetical model
 - *A multi-tiered framework for using lean & agile methods at the enterprise, portfolio, program, & project levels*
 - *An approach embracing values and principles of lean thinking, product development flow, & agile methods*
 - *Adaptable framework for collaboration, teamwork, iterative development, & responding to change*
 - *Tools for agile scaling, rigorous and disciplined planning & architecture, and a sharp focus on product quality*
 - *Maximizes **BUSINESS VALUE** of organizations, programs, & projects with lean-agile values, principles, & practices*

What are Lean Values?

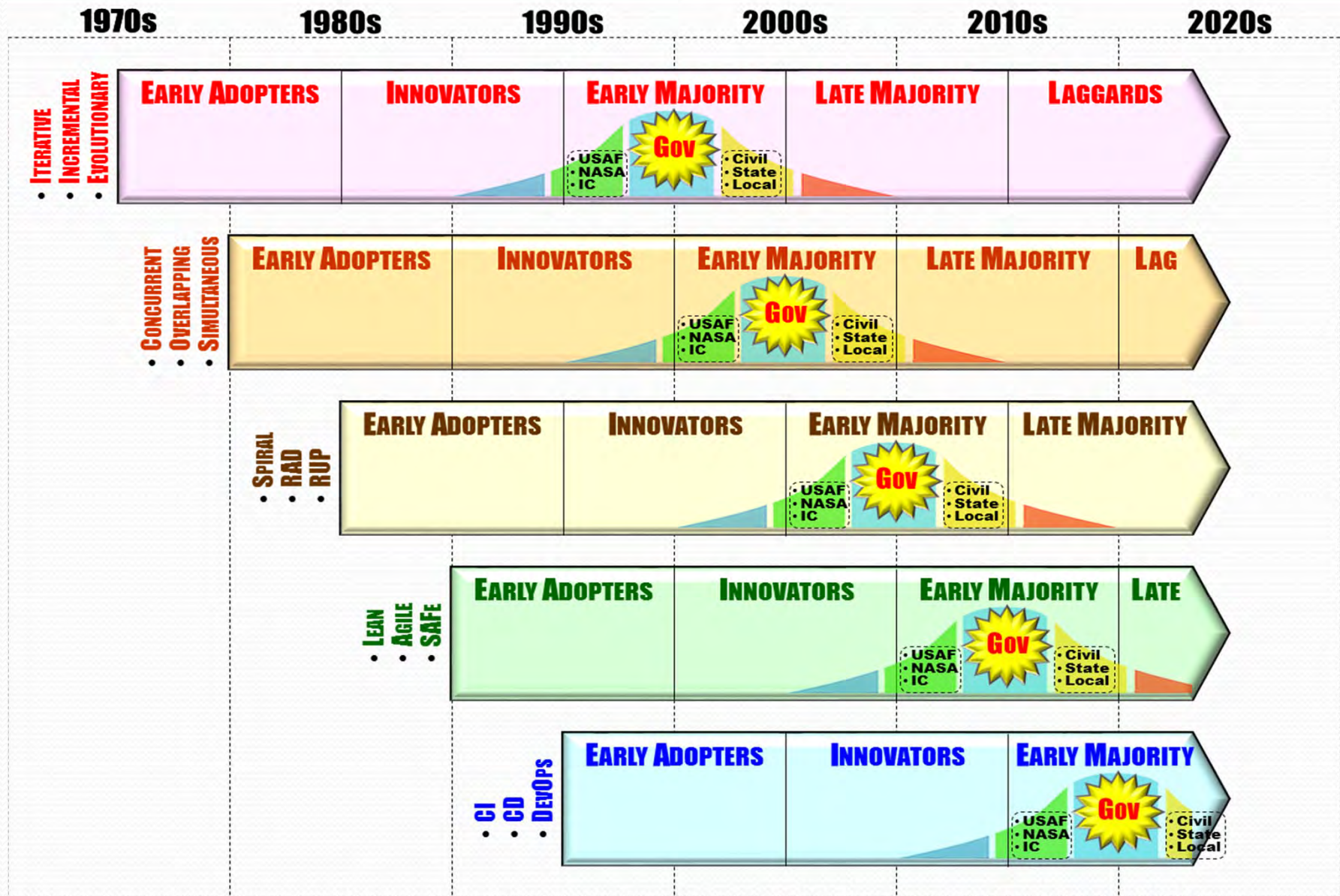
- Time-centric way to compete on speed & time
- Customer-centric model to optimize cost & quality
- ☞ □ Pull-centric alternative to wasteful mass production



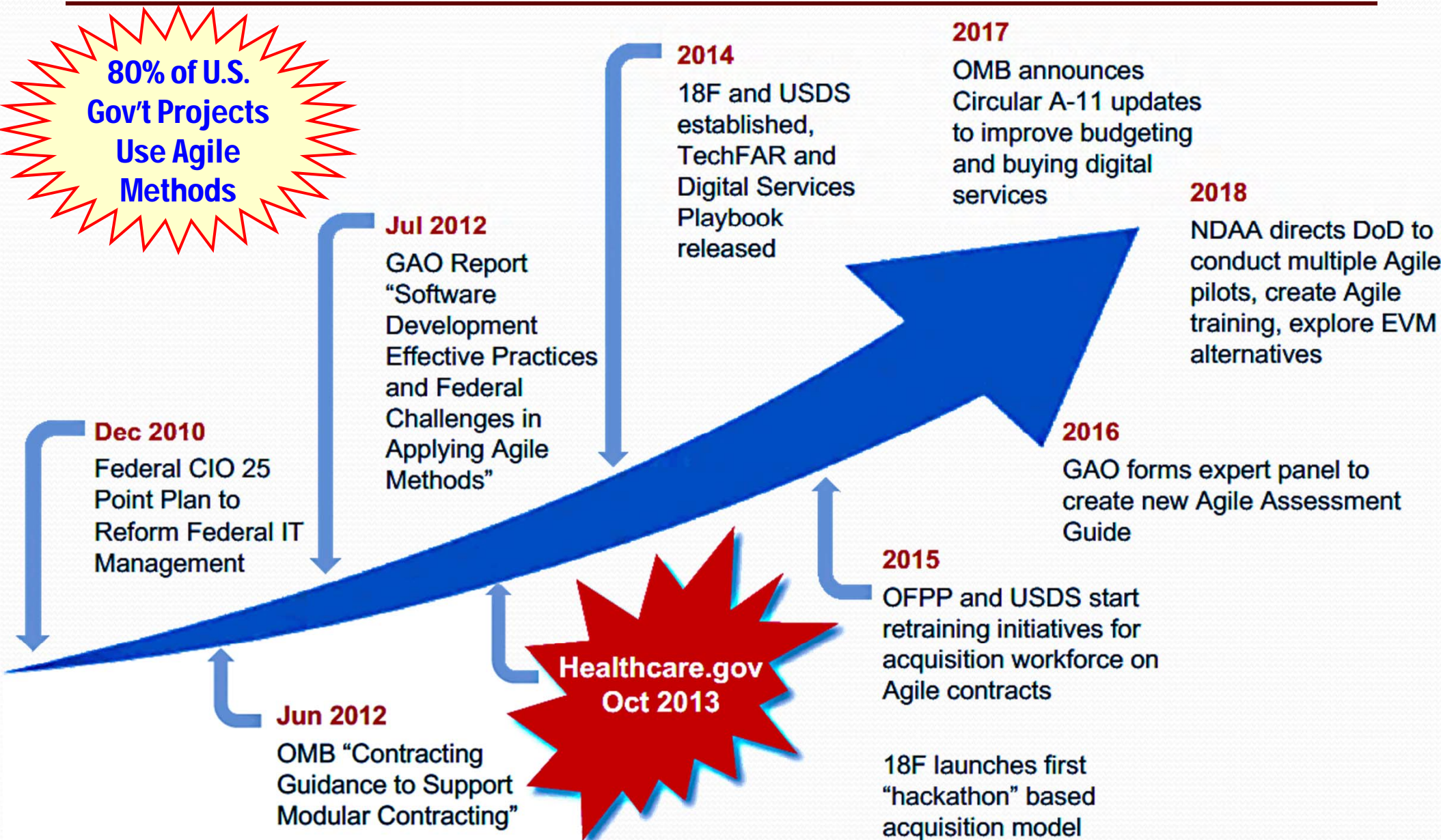
Agile METHODS Timeline



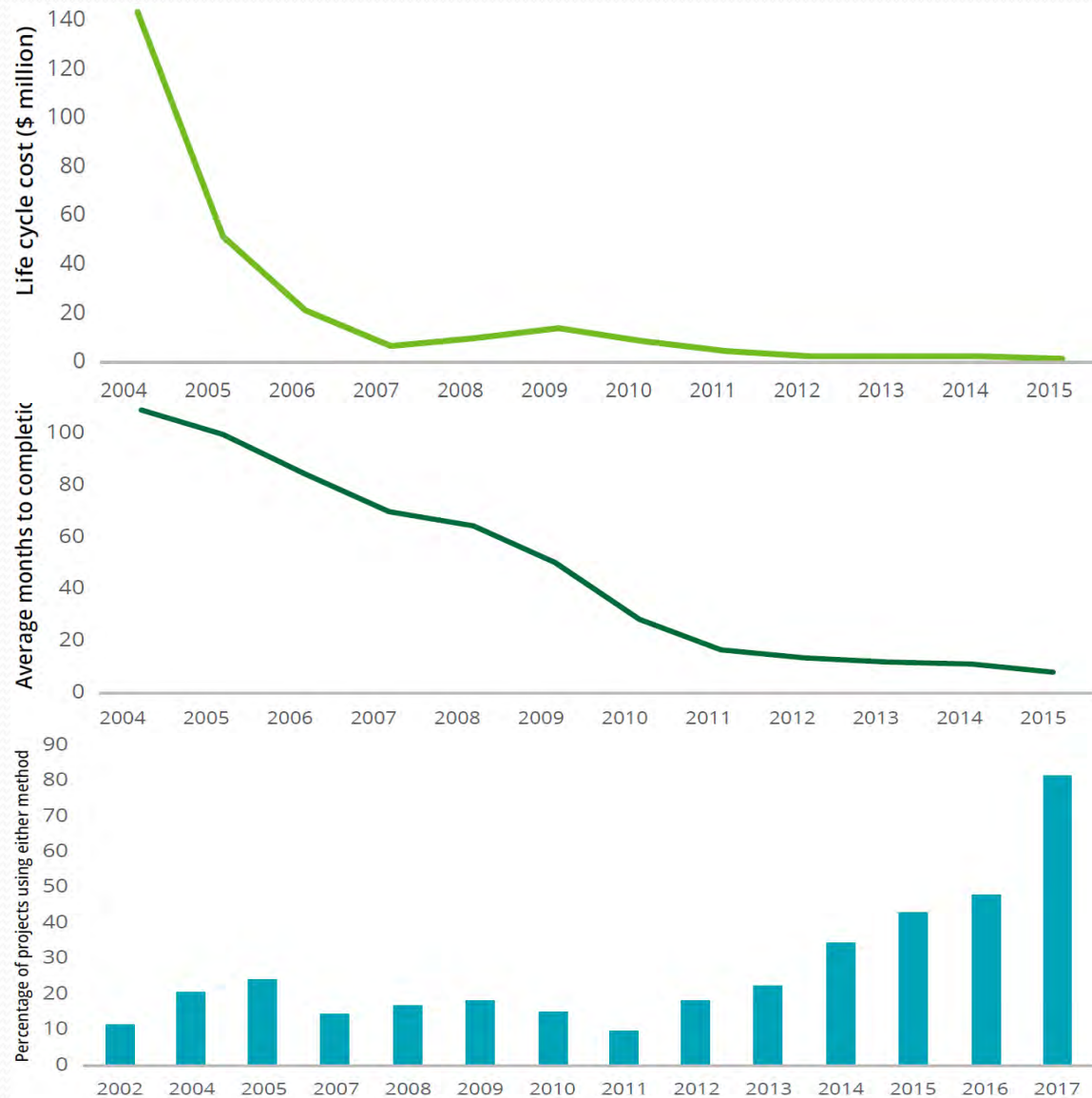
Agile GOVERNMENT Adoption Curve



Agile GOVERNMENT Timeline



Agile GOVERNMENT Adoption



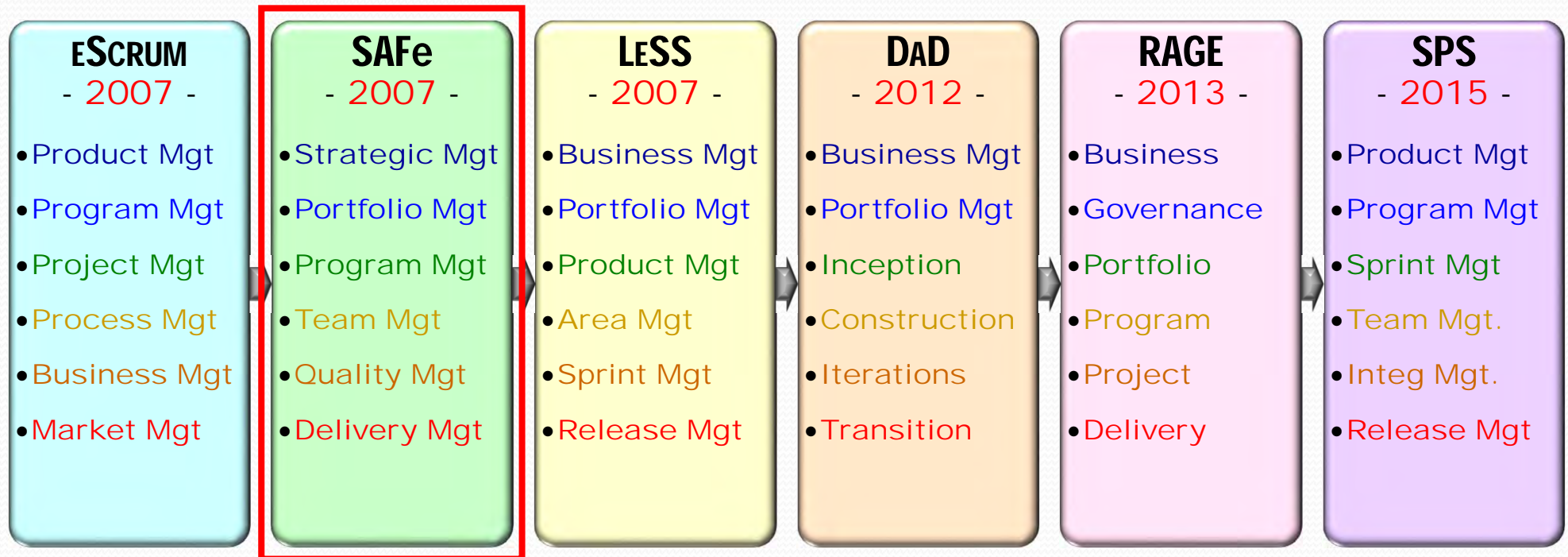
Cost

Length

Agility

Models of AGILE FRAMEWORKS

- Numerous models of agile portfolio mgt. emerging
- Based on lean-kanban, release planning, and Scrum
- ☞ □ Include **organization**, **program**, & **project** management



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Agile Enterprise F/W COMPARISON

- Numerous lean-agile enterprise frameworks emerging
- eScrum & LeSS were 1st (but SAFe & DaD dominate)
- ☞ □ SAFe is the most widely-used (with ample resources)

Factor	eScrum	SAFe	LeSS	DaD	RAGE	SPS
Simple	✓	✓	✓	✓	✓	✓
Well-Defined		✓		✓		✓
Web Portal		✓			✓	
Books	✓	✓	✓	✓		
Measurable		✓				
Results	✓	✓		✓		
Training & Cert		✓				
Consultants		✓				
Tools		✓				
Popularity	✓	✓		✓		
International		✓	✓	✓		
Fortune 500	✓	✓		✓		
Government		✓			✓	
Lean-Kanban		✓	✓			

SAFe GOVERNMENT Adoption



★ **SAFE ADOPTERS**

SAFe GOVERNMENT EXAMPLES

Moving SAFe sped adoption of new system capabilities and avoided \$600 million in expenditures

Wes Haga, Chief, U.S. Air Force Research Lab, Information Directorate, U.S. Air Force, Distributed Common Ground System Program (DCGS)

SAFe at GSA enabled 100% on-time delivery, 25% less cost, 96.7% defect free, and 99.82% data migration

Elizabeth Reed, Techflow, U.S. General Services Administration (GSA), Billing and Accounts Receivable Program

IV&V Testing is completed within SAFe Sprints on the most mature Agile Release Train (ARTs) was a big win for us

Mike O'Shea, Accenture Federal Services, U.S. State Department, Bureau of Consular Affairs Program

We turned around a failing U.S. DoD Warfighter program Within 10 months using the Scaled Agile Framework (SAFe)

Scott Keenan, JLVC PM, Joint Staff, Modeling & Simulation (M&S) Program for Joint Training Exercises

Portfolio Management — Box

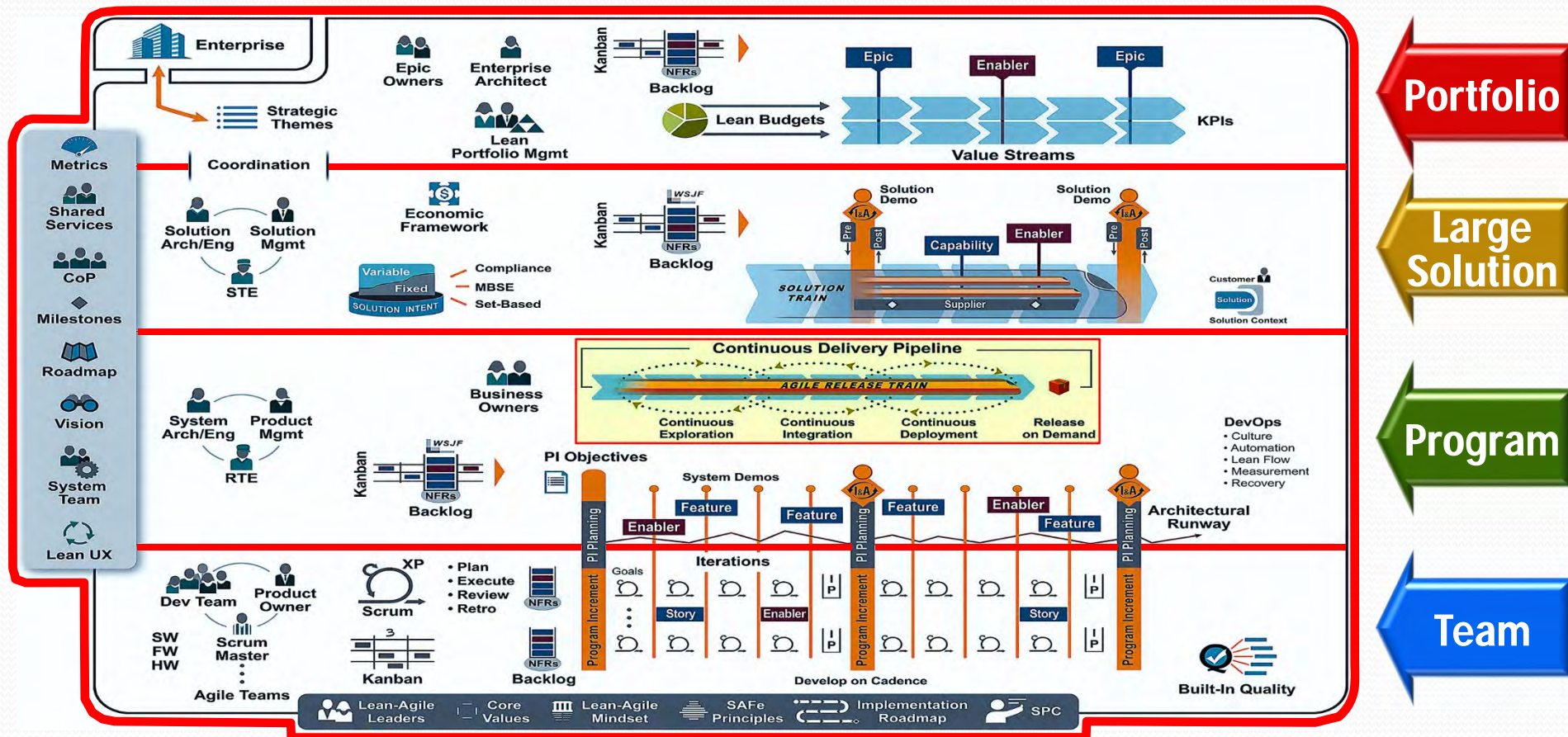
*All models are wrong
but some are useful*



George E.P. Box

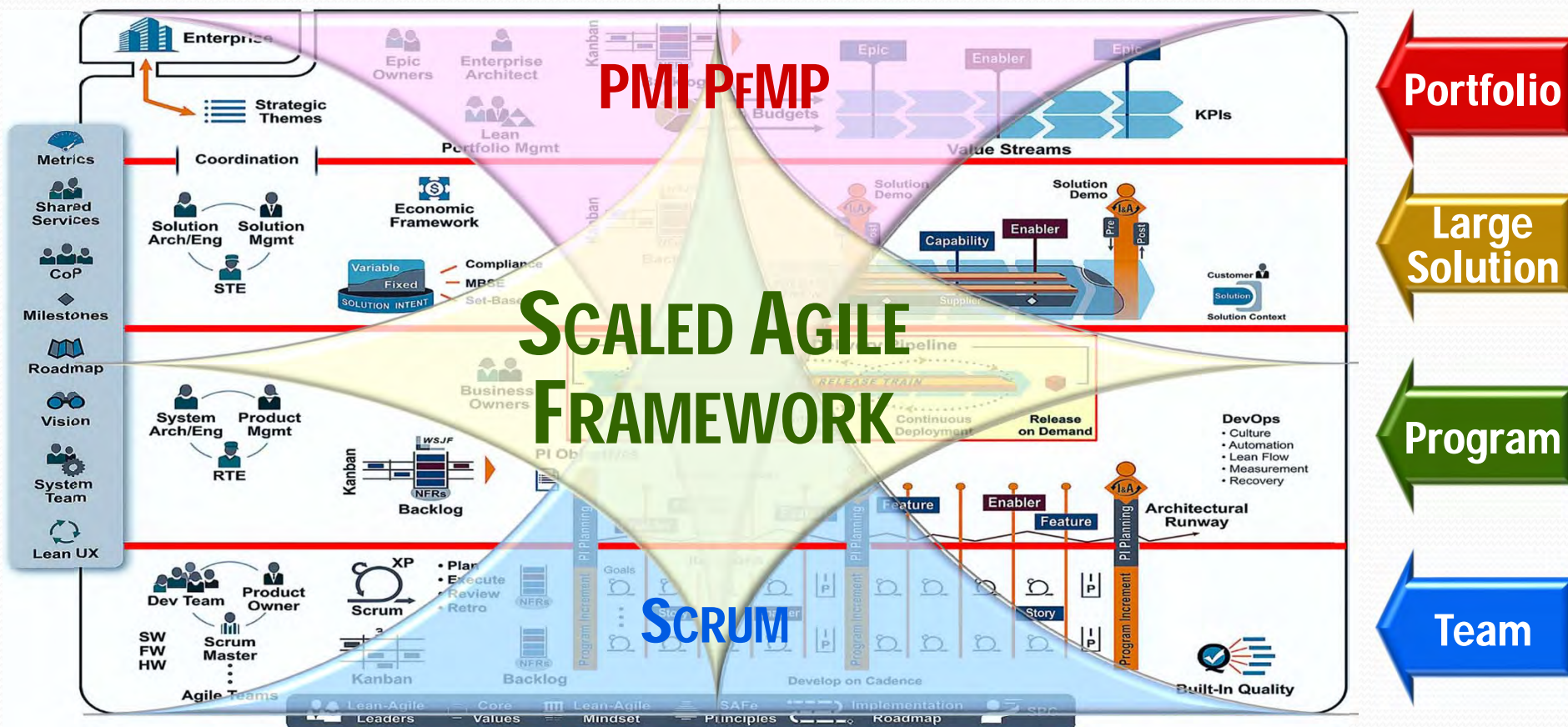
Scaled Agile Framework (SAFe)

- ☐ Proven, public well-defined F/W for scaling Lean-Agile
- ☐ Synchronizes alignment, collaboration, and deliveries
- ☐ Quality, execution, alignment, & transparency focus



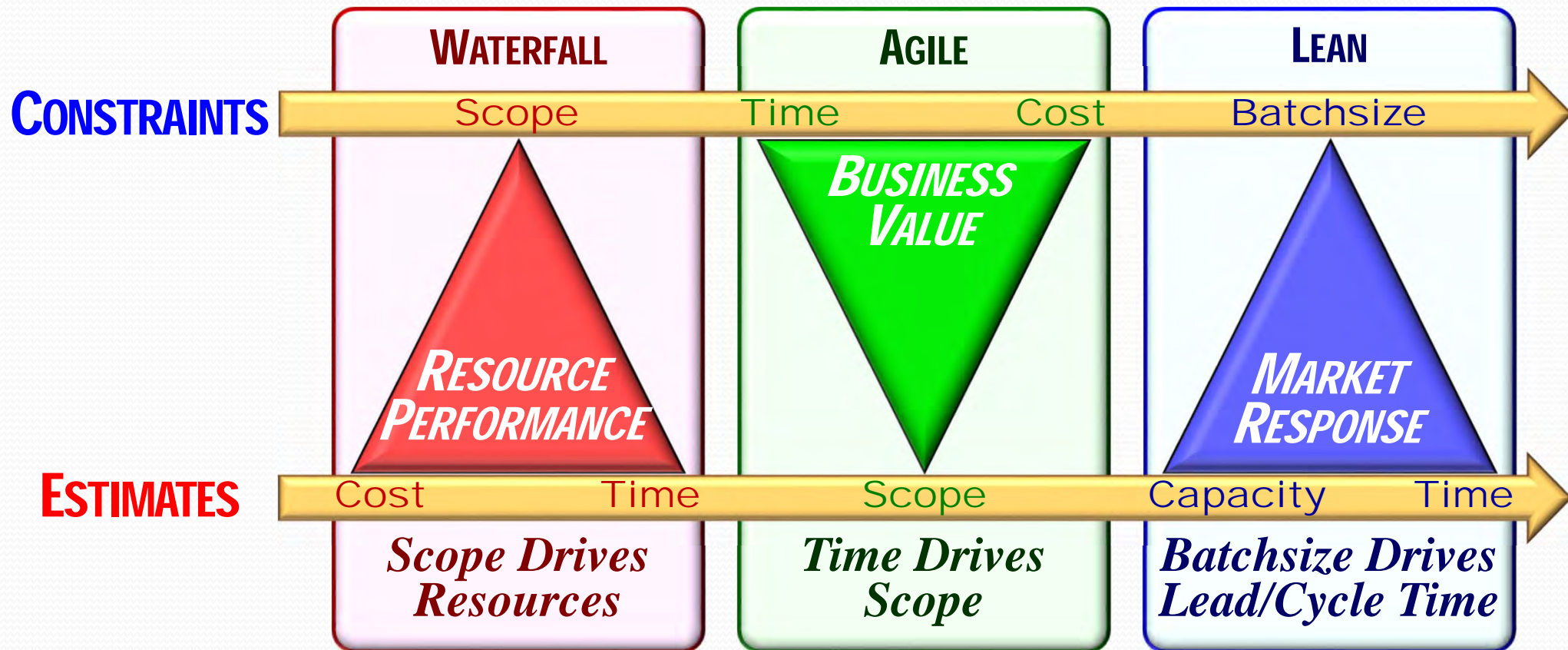
PfMP vs. SAFe vs. Scrum

- Scrum created to address Agile team mgt.
- SAFe created to address Agile program mgt.
- ☞ □ PfMp created to address Portfolio management



SAFe GOLDILOCKS Zone

- ❑ Traditional project management is scope-based
- ❑ Agile project management is primarily time-based
- ☞ ❑ Batchsize, capacity, & time key to market response



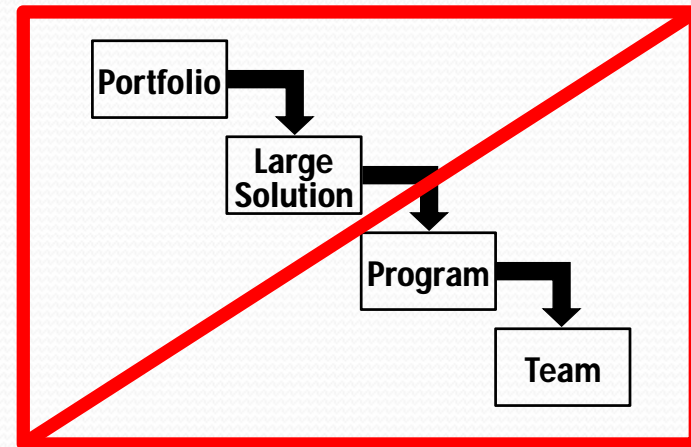
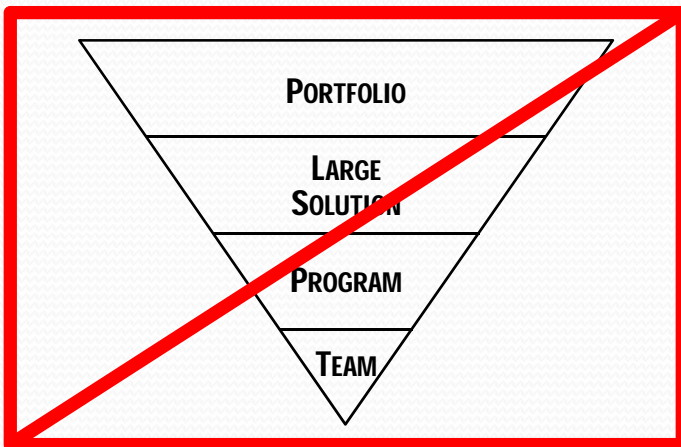
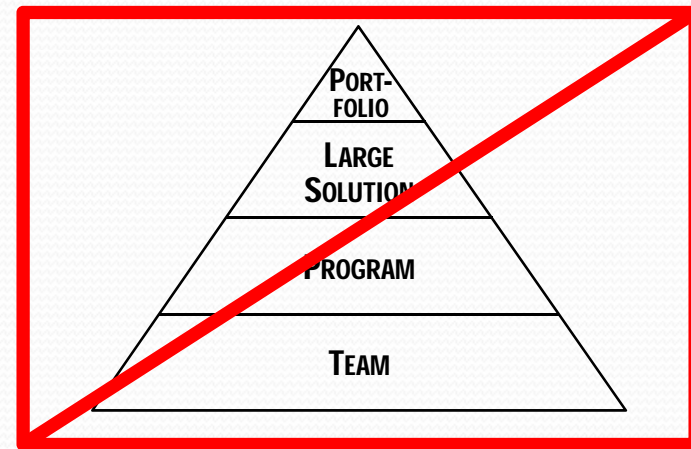
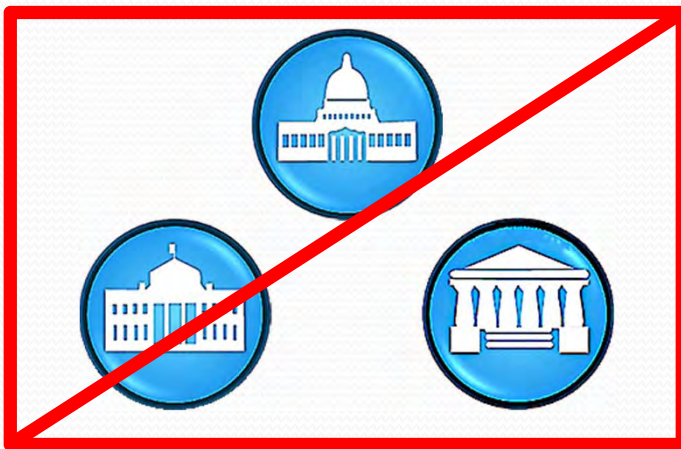
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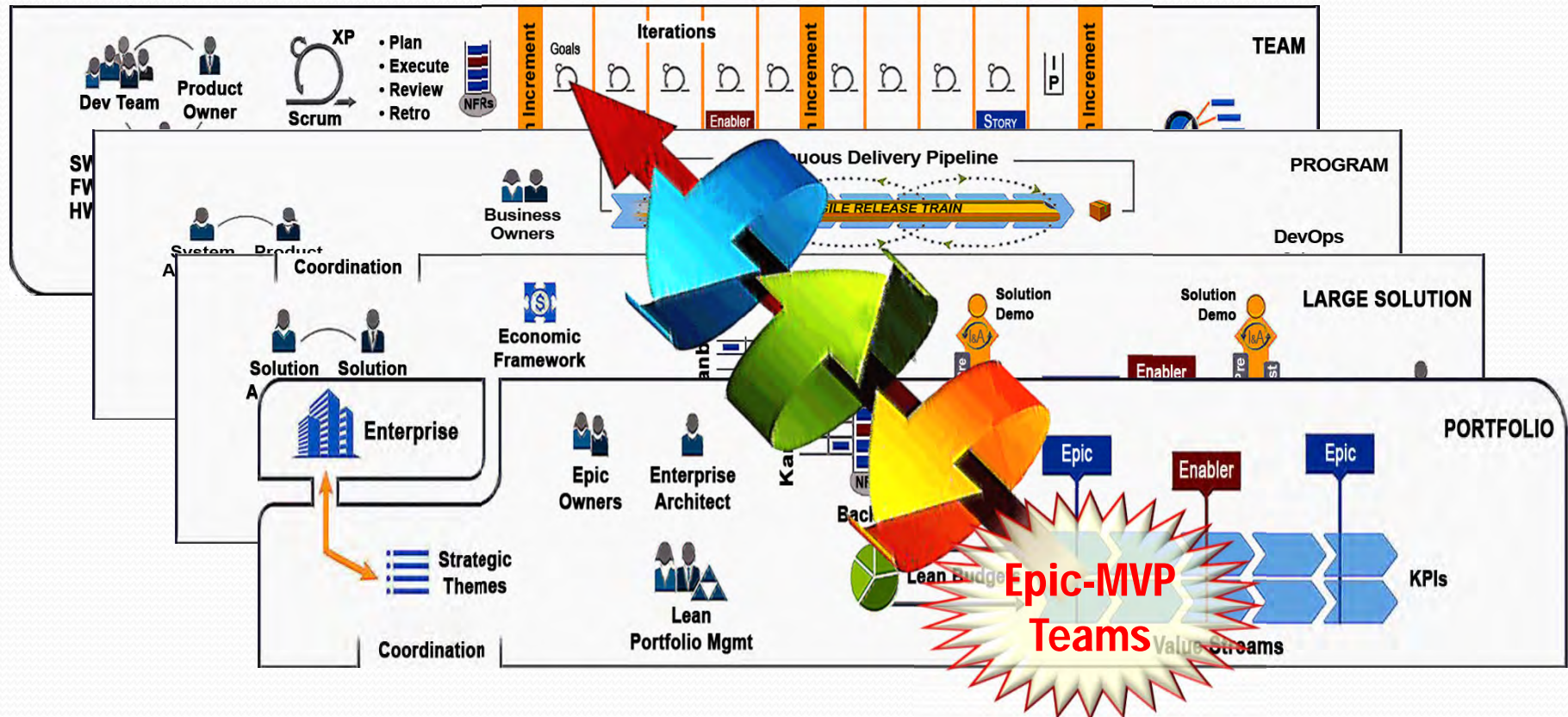
SAFe ANTI-PATTERNS

- ❑ SAFe is NOT a U.S. Government Hierarchy
- ❑ SAFe is NOT a Contract Hierarchy/Bureaucracy
- ❑ **SAFe** is **DEFINITELY NOT** a **Waterfall Life Cycle**



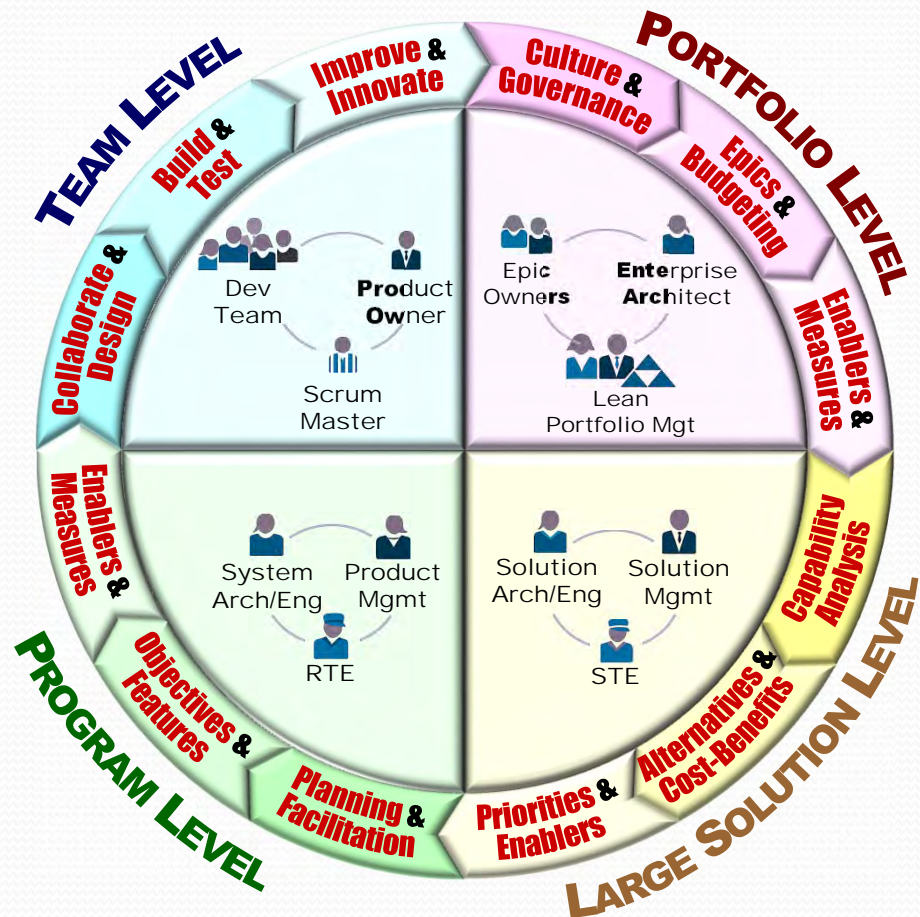
SAFe EPIC-MVP Teams

- SAFe cross functional teams cut across levels
- Inc. portfolio, solution, program, & team functions
- ☞ □ Purpose is to shepherd epics through value streams



SAFe CROSS FUNCTIONAL Teams

- SAFe Epic-MVP teams consist of diverse personnel
- Teams range from Epic owners through development
- ☞ □ Include scoping, analysis, planning, & implementation

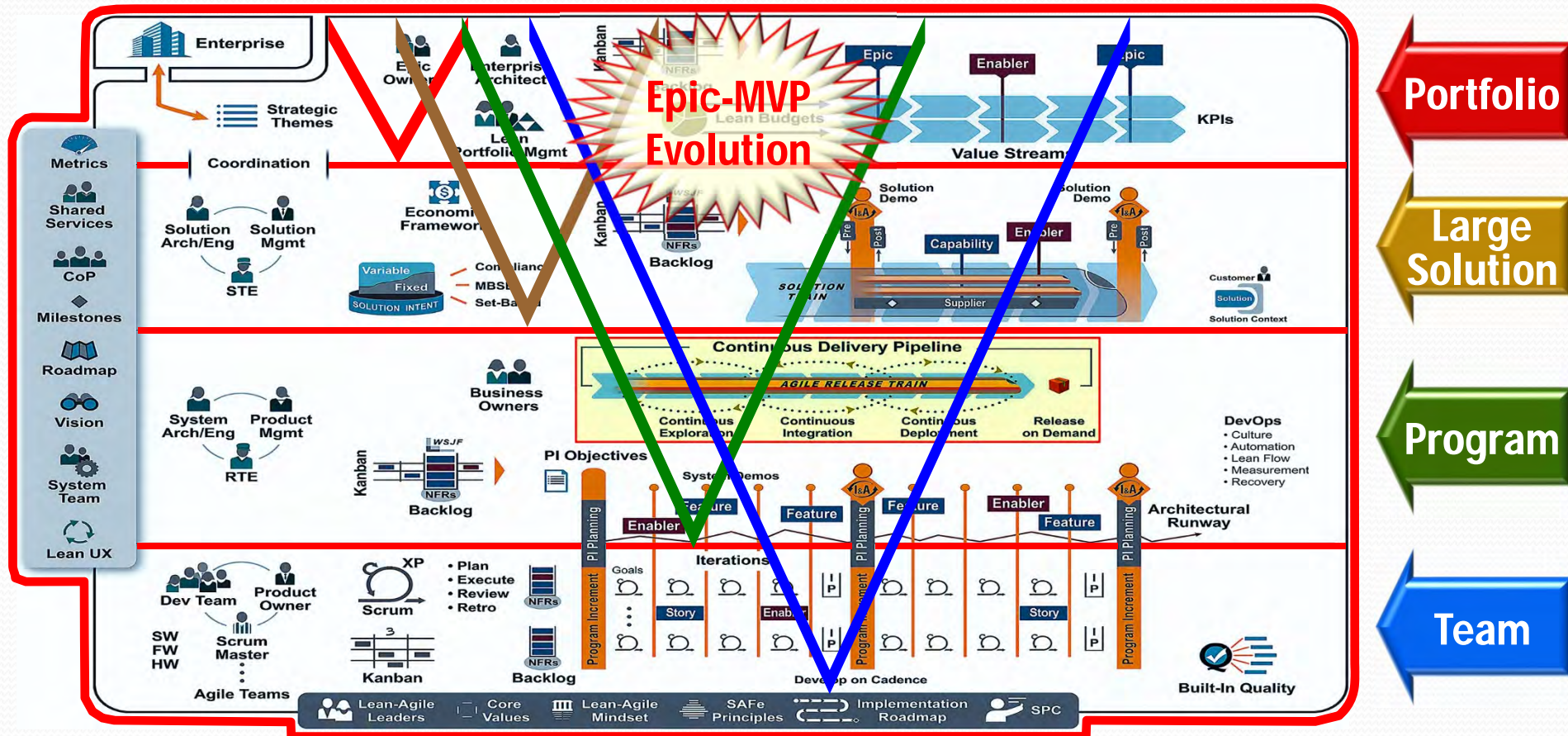


- ONE TEAM VS. HIERARCHY
- ALIGNMENT OF WHOLE TEAM
- BOTTOM UP DECISION MAKING
- ★ PREFERRED BY U.S. GOVERNMENT
- LEAN, JUST-IN-TIME, FRICTION-FREE
- CODIFIES LEAN-AGILE BEST PRACTICES
- FULL TRANSPARENCY & COMMUNICATION

- ★ USAF, USA, CDC, CIA, CMS, USC, USCG, DOD, DFAS, DHS, FAA, FBI, GSA, HHS, DOJ, USMC, NASA, NGA, NIH, NNSA, NRO, NSA, USN, SSA, DOS, USPTO, USPS, VA, ETC.

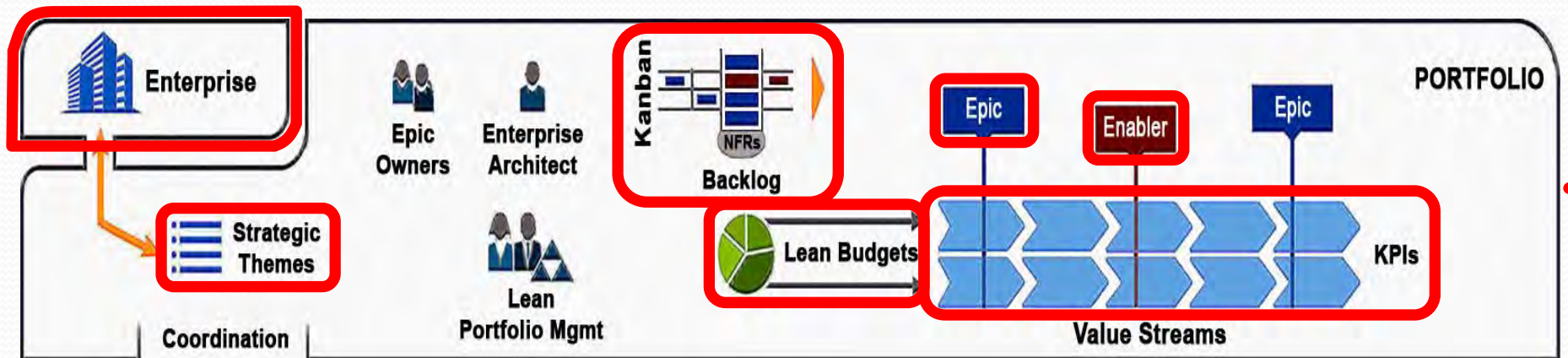
SAFe EPIC Evolution

- ☞ ☐ Portfolio & program epics begin at top levels
- ☞ ☐ Epics scoped, analyzed, & split by tech. architects
- ☞ ☐ Narrow epics are **built**, **tested**, **deployed**, & **evaluated**



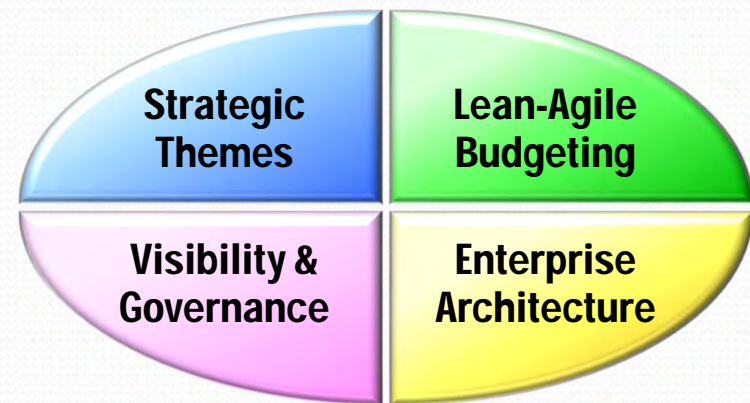
SAFe PORTFOLIO Level

- ❑ Business objectives mapped to strategic themes
- ❑ Enterprise architecture, Kanban, & economic cases
- ❑ Value delivery via epics, enablers, and solution trains



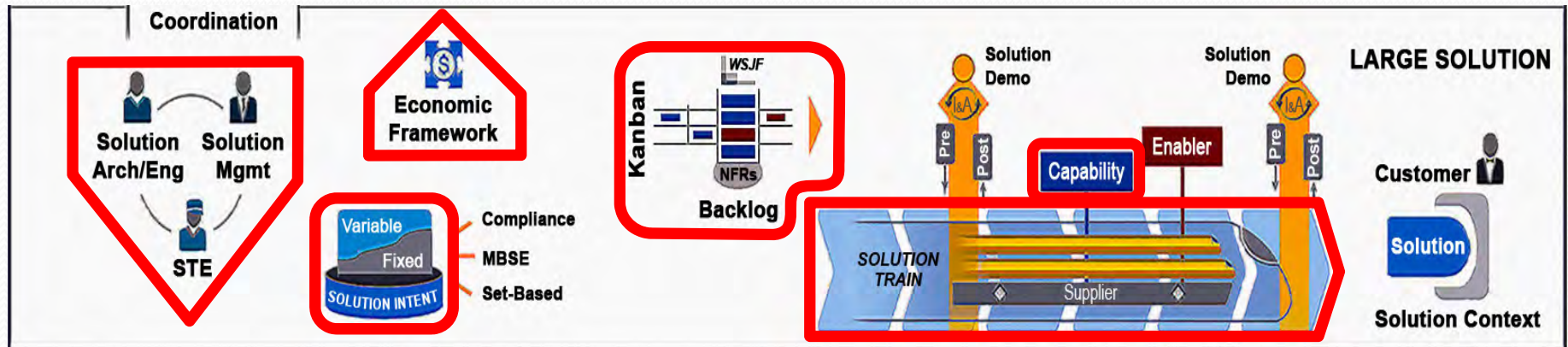
AGILE PORTFOLIO MANAGEMENT

- Organize around solution trains
- Communicate strategic themes
- Empower decision makers
- Provide visibility and governance
- Guide technology decisions
- Apply enterprise architecture



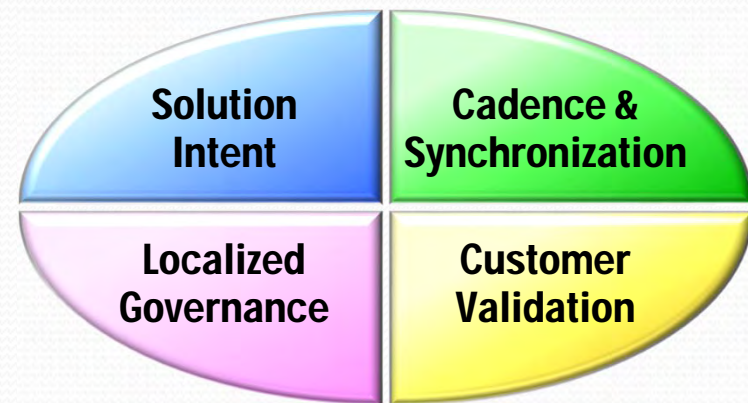
SAFe LARGE SOLUTION Level

- ❑ Economic framework and solution train budgeting
- ❑ Agile architecture, solution train engineer & Kanban
- ❑ Solution deliveries via capabilities and release trains



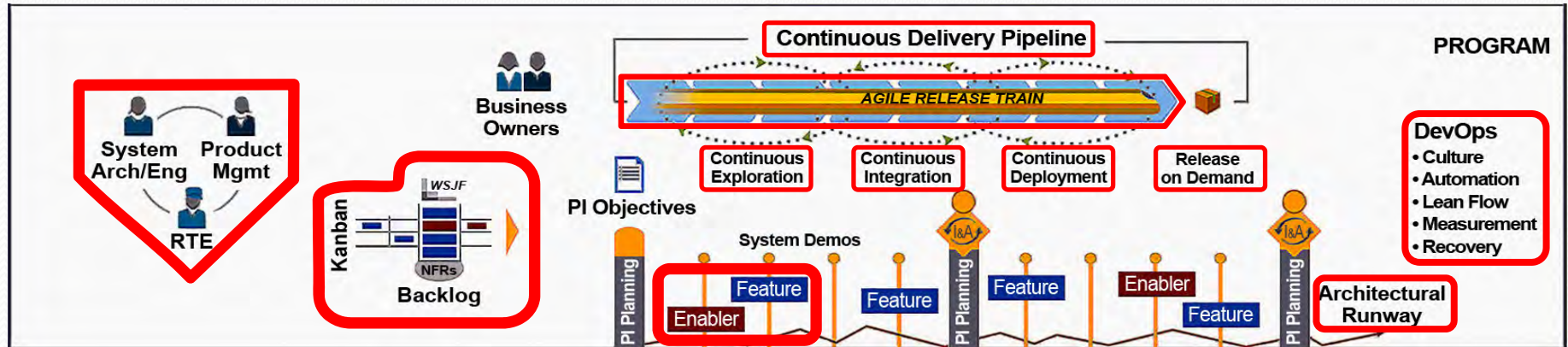
AGILE SOLUTION TRAIN MANAGEMENT

- Cadence and centralization
- Local solution train governance
- Solution train roles and budgeting
- Fixed and variable solution intent
- Capability flow with Kanban
- Frequently integrate to validate



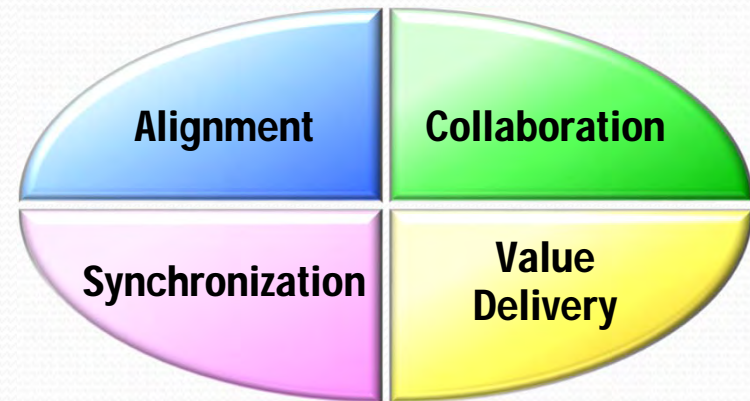
SAFe PROGRAM Level

- ❑ Product and release management team-of-team
- ❑ Common mission, backlog, estimates, and sprints
- ❑ Value delivery via program-level enablers & features



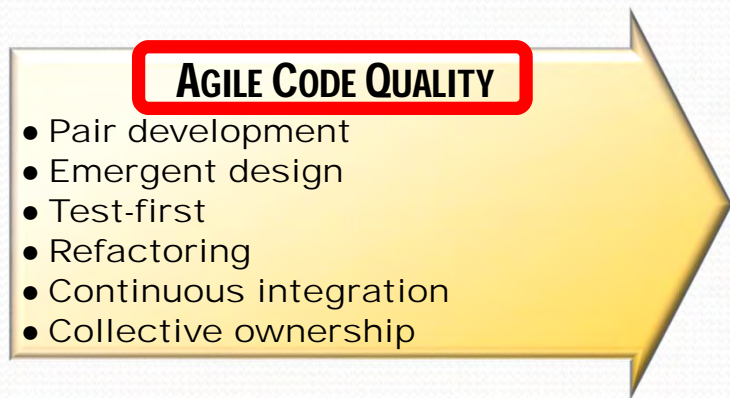
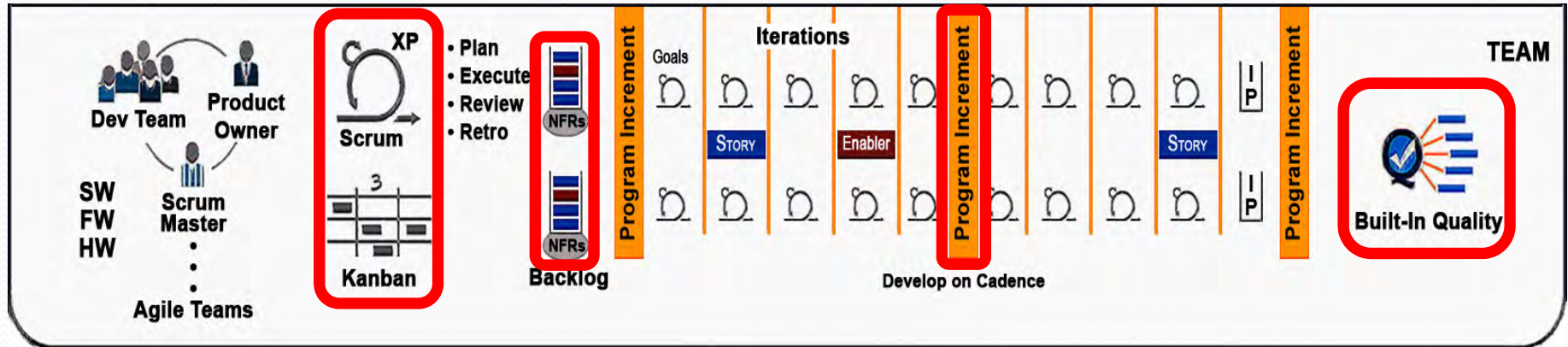
AGILE RELEASE TRAINS

- Driven by vision and roadmap
- Cross functional collaboration
- Apply cadence and synchronization
- Measure progress with milestones
- Frequent, early customer feedback
- Inspect, adapt, and improve



SAFe TEAM Level

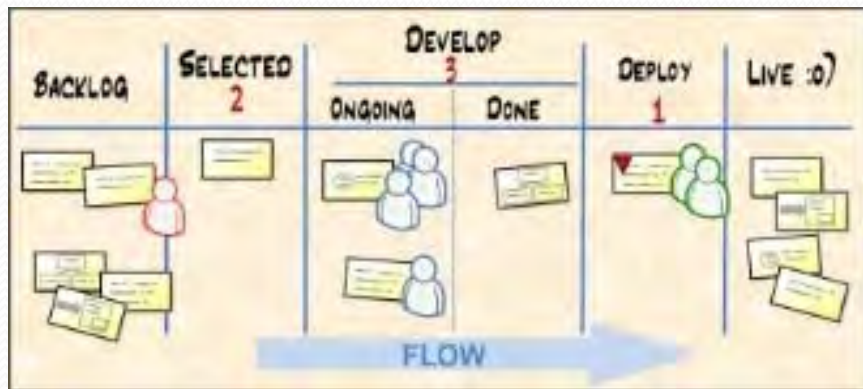
- Empowered, self-organizing cross-functional teams
- Hybrid of Scrum PM & XP technical best practices
- ☞ □ Value delivery via empowerment, quality, and CI



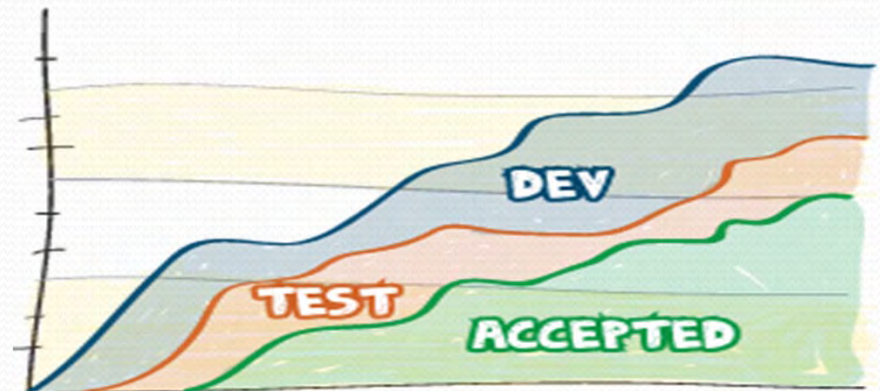
SAFe METRICS

- ❑ Late big bang integration increases WIP backlog
- ❑ Agile testing early and often reduces WIP backlog
- ☞ CI/CD/DevOps lower WIP, Cycle Time, & Lead Time

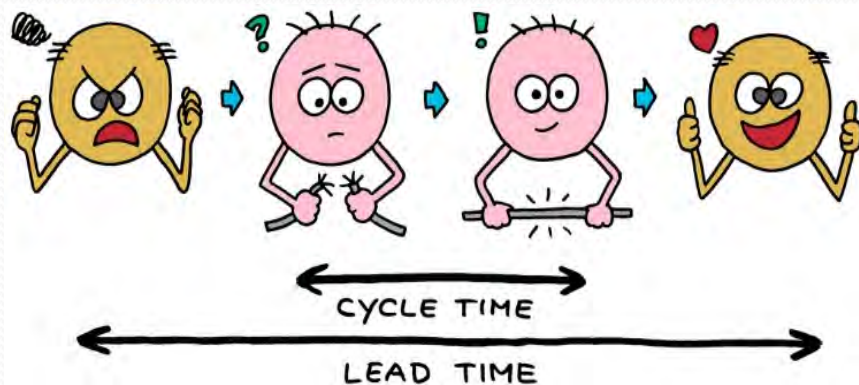
KANBAN BOARD



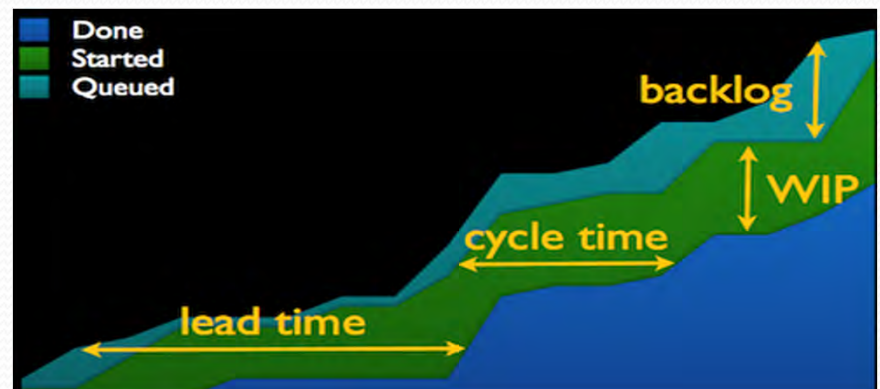
CUMULATIVE FLOW DIAGRAM



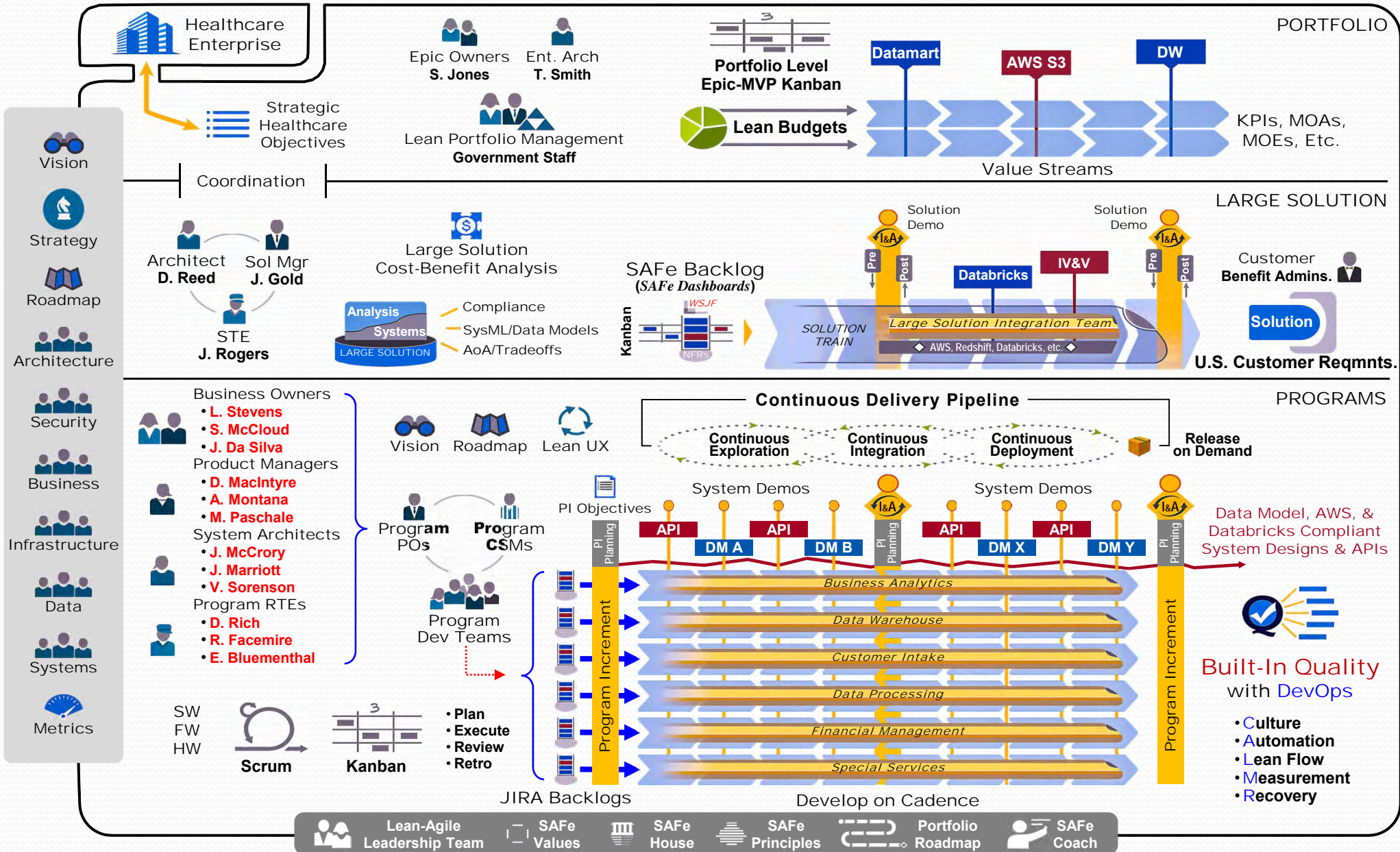
LEAD TIME & CYCLE TIME



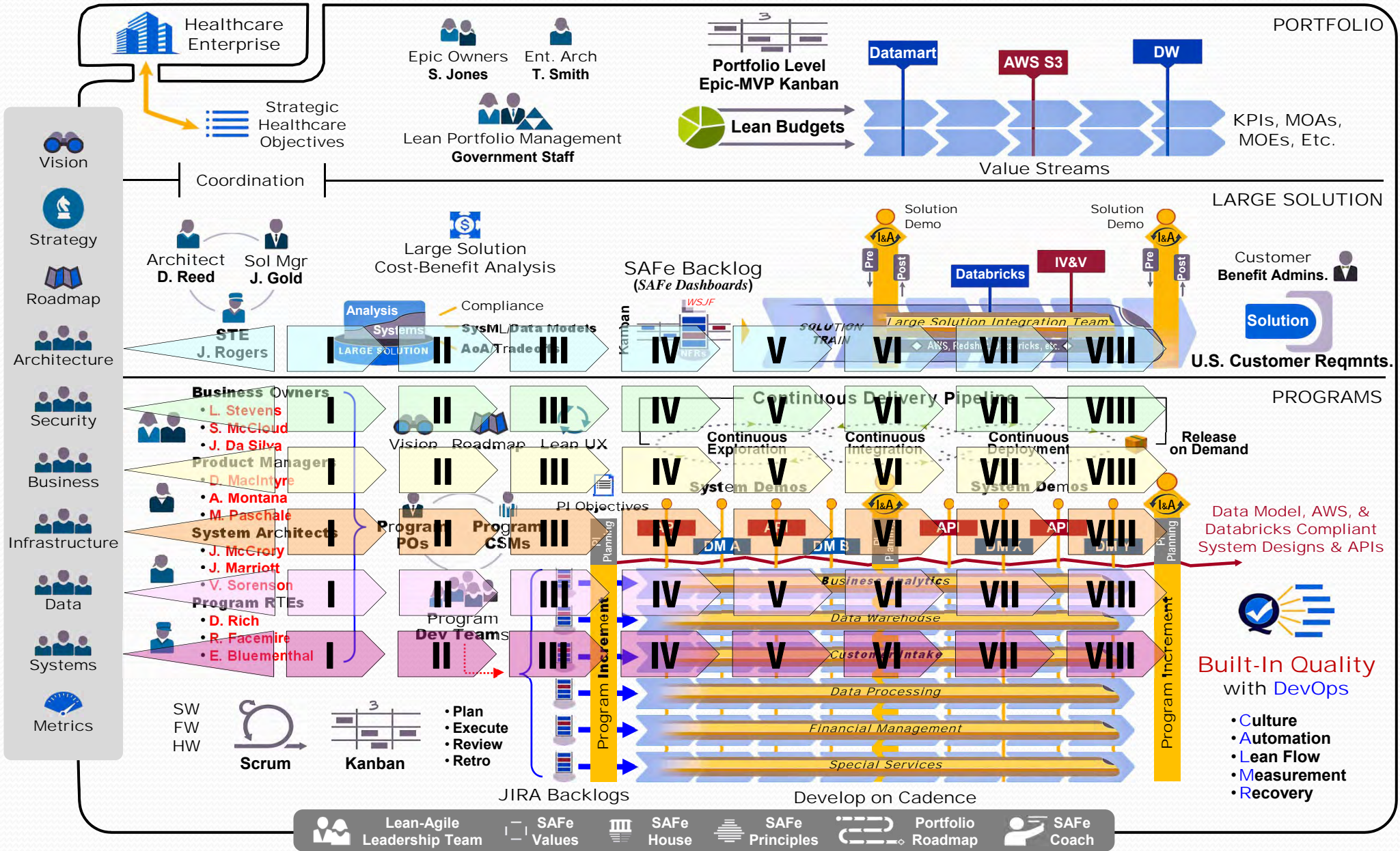
PUTTING IT ALL TOGETHER



SAFe CASE STUDY



SAFe CASE STUDY Governance



SAFe CASE STUDY Impact

- *Trained and certified team on SAFe principles.*
- *Rigorously follow daily lean and agile ceremonies.*
- *Rolled out SAFe Program Increment Planning (twice).*
- *Implemented SAFe on state-of-the-art ALM Workflow tool.*
- *Practice essential SAFe for managing portfolio deliverables.*
- *Established, measure, and track Lean-Agile performance metrics.*
- *Implemented analytics for automated reporting of the performance.*
- *Began agile assessments of large solutions within overall portfolio.*
- *Positive impacts on overall portfolio lean-agile thought-leadership.*
- *Rapidly transforming culture from traditional to lean-agile thinking.*

SAFe CASE STUDY Lessons Learned

- ❑ Must consider factors critical to SAFe success
- ❑ SAFe culture changes begins with bold leadership
- 👉 ❑ Leadership, contracts, experience, & coaching are key

SUCCESS FACTOR	SUCCESS ELEMENTS	SCORE
BUYER ENTERPRISE	VISIONS, STRATEGIES, POLICIES & GUIDELINES	😊 - ✓
👉 BUYER LEADERSHIP	KNOWLEDGE, TRAINING, EXPERIENCE, & SUPPORT	😐 - ↔
BUYER TEAM LEADS	KNOWLEDGE, TRAINING, EXPERIENCE, & SUPPORT	😊 - ✓
👉 SUPPLIER AGREEMENTS	OC, VALUES, PRINCIPLES, PRACTICES, & TOOLS	😐 - ↔
SUPPLIER ENTERPRISE	VISIONS, STRATEGIES, POLICIES & GUIDELINES	😞 - ✗
👉 SUPPLIER LEADERSHIP	KNOWLEDGE, TRAINING, EXPERIENCE, & SUPPORT	😊 - ✓
SUPPLIER TEAM LEADS	KNOWLEDGE, TRAINING, EXPERIENCE, & SUPPORT	😐 - ↔
👉 SUPPLIER EXPERIENCE	OC, VALUES, PRINCIPLES, PRACTICES, & TOOLS	😞 - ✗
SUPPLIER ALM TOOLS	MANAGEMENT, DOCUMENTS, REPORTS, & DELIVERY	😞 - ✗
👉 SUPPLIER COACHING	OC, VALUES, PRINCIPLES, PRACTICES, & TOOLS	😊 - ✓

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SAFe BUSINESS VALUE Drivers

SAFe is a de facto international standard multi-tiered reference model, skeletal framework, and scaffolding platform for applying Lean & Agile principles to large Information Technology (IT) portfolios, programs, and projects (in Fortune 500 firms, Government Agencies, and Europe)

NEW SAFe INNOVATION ENGINE

Hypothesis driven Continuous Exploration, Integration, Deployment, and Release on Demand to rapidly cycle through automated experimental microservices designs to quickly yield profitable innovations ...

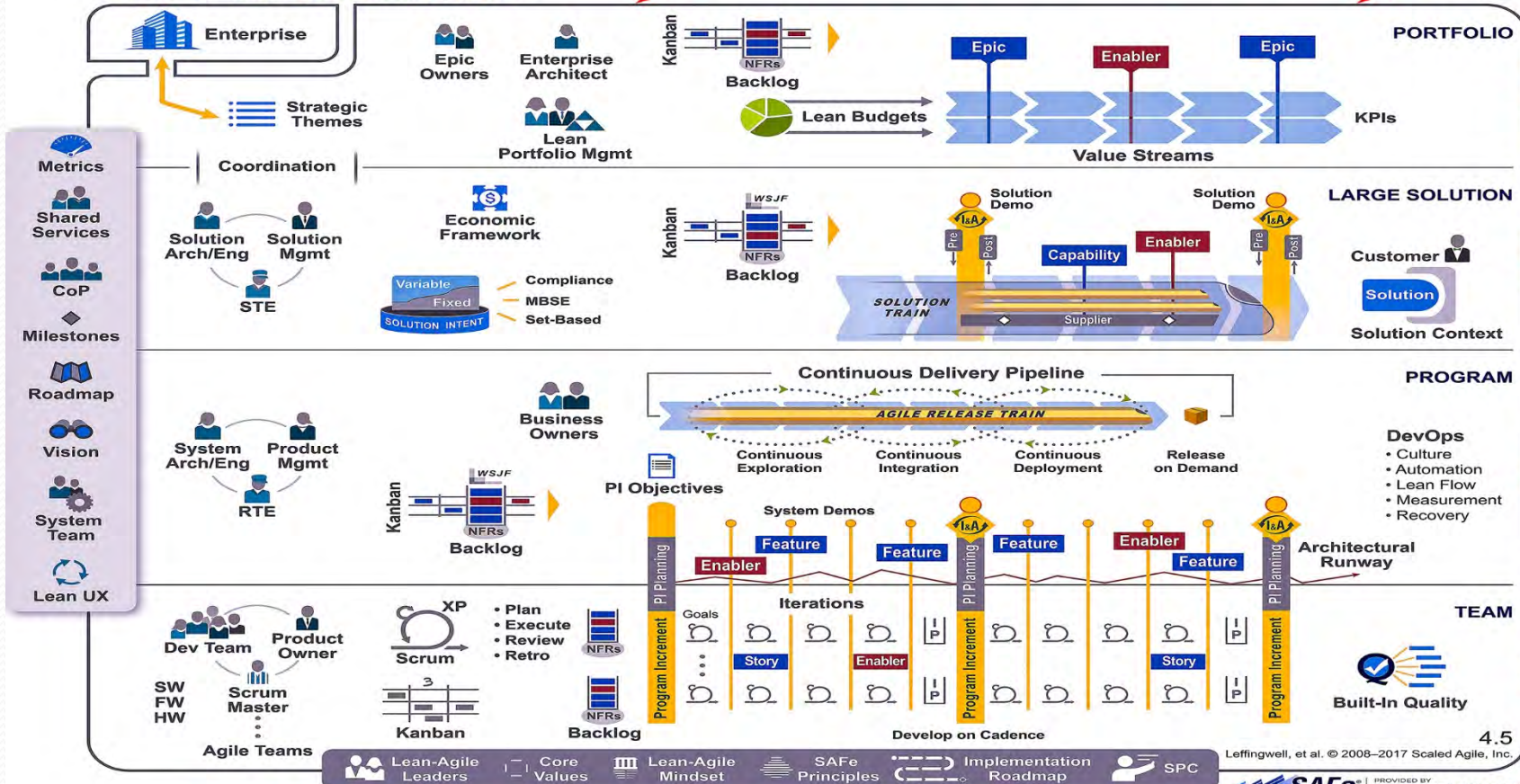
OVERARCHING SAFe PRINCIPLES

- Hiring extremely smart and highly motivated people
- Establishing top-level stretch goals and operating boundaries
- Engaging people in forming a unified vision and operating plan
- Encouraging them to select simple, powerful, and flexible solutions
- Empowering people to unleash their creative energy to get the job done
- Getting out of their way, removing barriers and obstacles, and letting them succeed
- Not hindering success with back-breaking bureaucracy, red-tape, and merciless overlords

OVERARCHING SAFe PRINCIPLES OF LEAN THINKING

- Small batches of simple modularized MVP designs
- Severe workload constraints to free queue congestion
- Fast lead and cycle times by eliminating unneeded bureaucracy
- Pull-based just-in-time demand Kanbans based on priority and job size
- Small highly-motivated teams based on collaboration, communication, and trust
- Maximum process and product visualization and transparency for optimal workflow
- Decentralized bottoms-up decision-making, empowerment, and continuous improvement

SAFe® for Lean Enterprises



PORTFOLIO KANBAN
for Lean, demand and pull-based just-in-time **TASK ORDER** planning and tracking

SOLUTION KANBAN
for Lean, demand and pull-based just-in-time **ARCHITECTURE** planning and tracking

PROGRAM KANBAN
based on bottoms-up **BIG-ROOM PLANNING** of system vision, roadmap, release objectives, and features

TEAM KANBANS
of small lean and agile **SCRUM GROUPS** coding, working tested operational software at regular intervals

SAFe is a framework to help large businesses, enterprises, organizations, government agencies, portfolios, and programs apply and realize the benefits of Lean and Agile principles (i.e., enable complex entities to think, act, and be small, fast, innovative, and adapt to changing market conditions)

SAFe BENEFITS

- Cycle time and quality are most notable improvement
- Productivity on par with Scrum at 10X above normal
- ☞ □ Data shows SAFe scales to teams of 1,000+ people

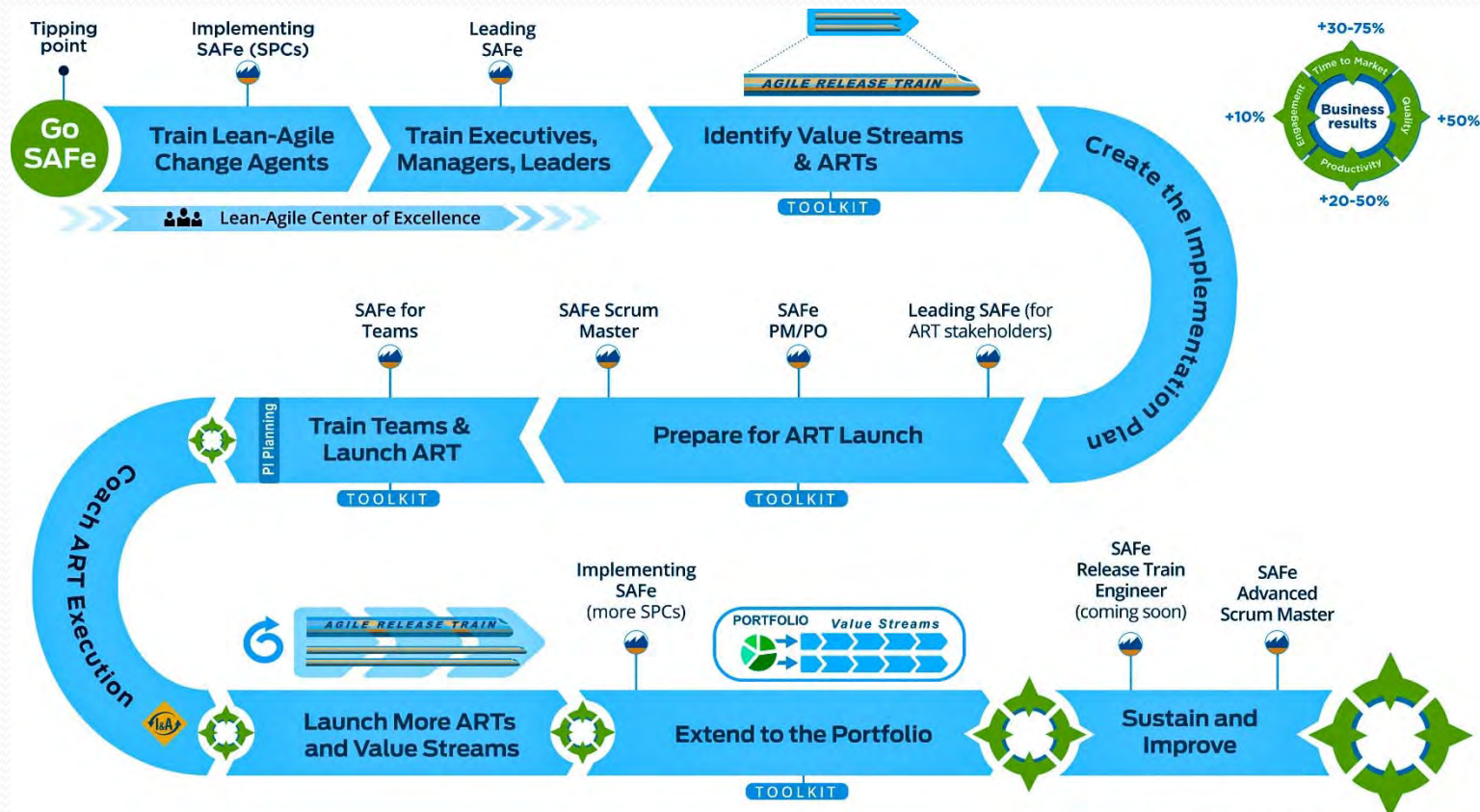
Benefit	Nokia	SEI	Telstra	BMC	Trade Station	Discount Tire	Valpak	Mitchell	John Deere	Spotify	Comcast	Average
App	Maps	Trading	DW	IT	Trading	Retail	Market	Insurance	Agricult.	Cable	PoS	
Weeks	95.3	2		52				52	52		52	51
People	520	400	75	300	100		90	300	800	150	120	286
Teams	66	30	9	10	10		9	60	80	15	12	30
Satis		25%	29%					15%				23%
Costs			50%								10%	28%
Product				2000%		25%					10%	678%
Quality			95%					44%	50%		50%	60%
Cycle			600%	600%				300%	50%	300%		370%
ROI				2500%	200%							1350%
Morale			43%					63%	10%			39%

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SAFe ROADMAP—Top-Down (*Big Bang*)

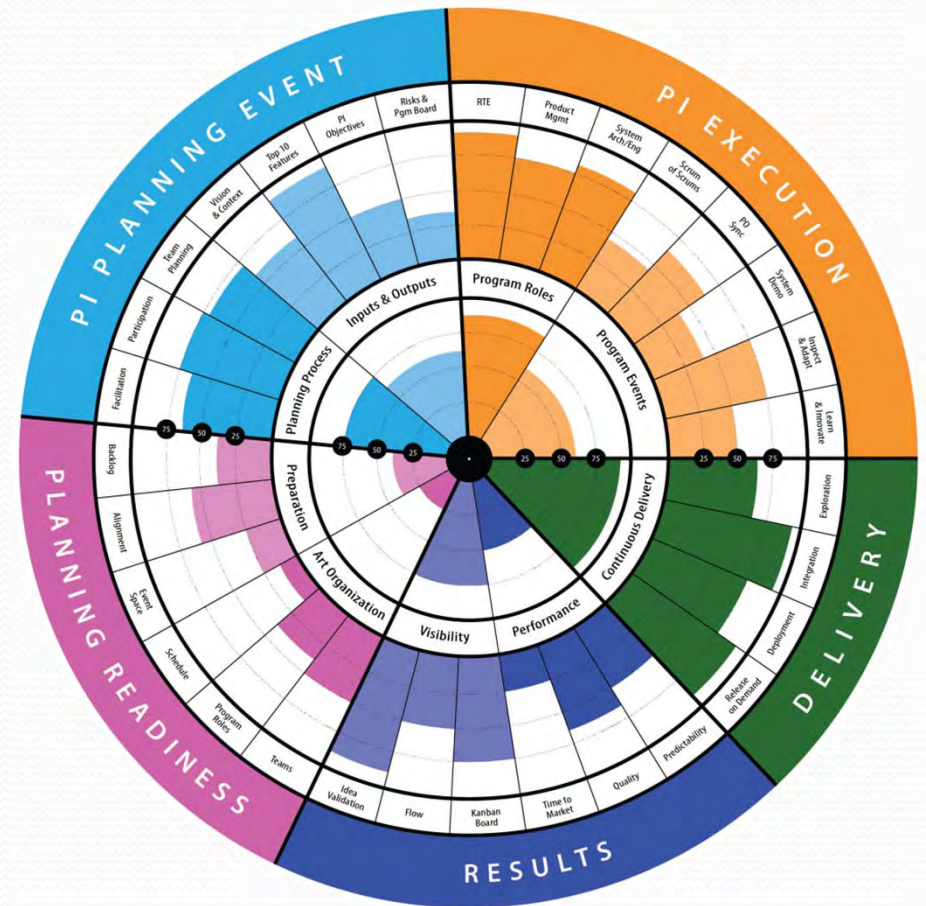
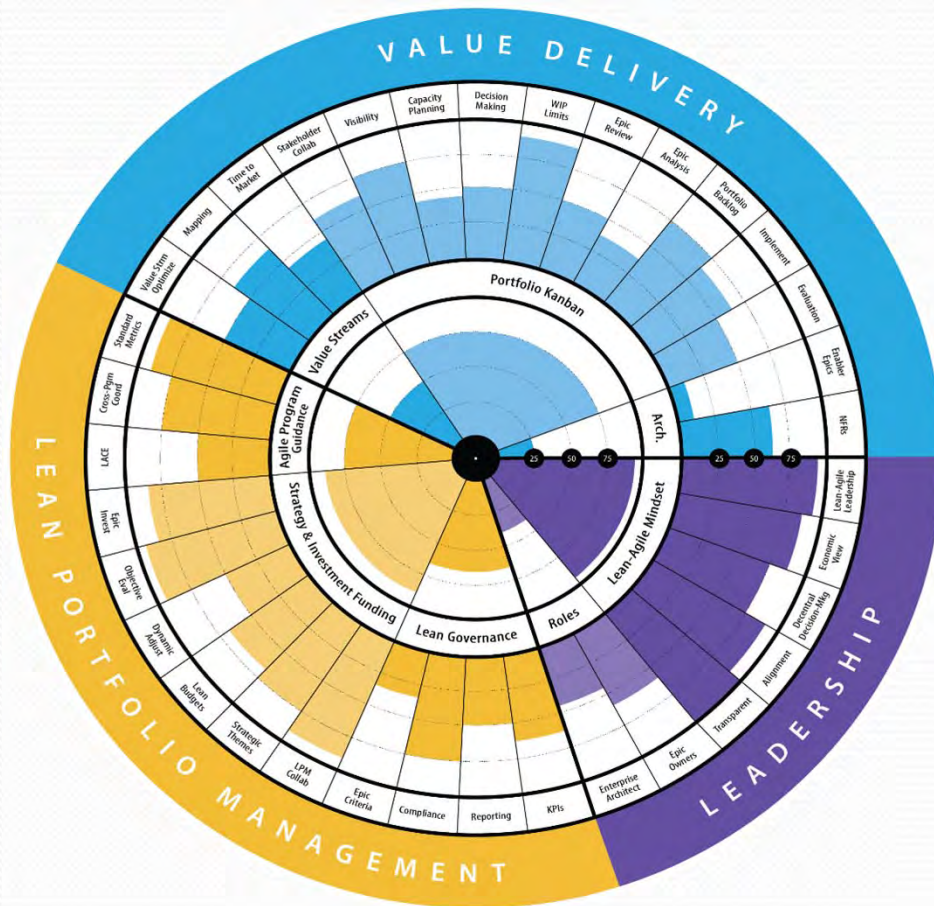
- Roadmap necessary for successful SAFe introduction
- Traditional big-bang—*story maps* & *incrementalism okay*
- ☞ □ Keys are top-down commitment, training, & resources



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SAFe Assessments

- ❑ SAFe health radar tools rapidly emerging
- ❑ Captures most SAFe dimensions and variables
- ❑ Includes portfolio, solution, program, & team level



SAFe ADOPTION

- ❑ Over **200,000** SAFe professionals globally (& growing)
- ❑ Over **70%** of U.S. firms have SAFe certified people
- ☞ ❑ **50%** prefer SAFe for scaling lean-agile principles

<p>★ 200,000 SAFe certified professionals in 100+ countries</p> 	<p>130  Scaled Agile Partners in 35 countries</p>	<p>SAFe is a framework of mindset, principles, and practices for scaling Lean-Agile development throughout the enterprise</p>	<p>Freely Available SAFe's body of knowledge is freely available at scaledagileframework.com</p>
<p>70% US <i>Fortune</i> 100 enterprises have SAFe certified professionals</p> 	<p>Configurable SAFe is able to accommodate enterprises of all sizes and industries</p>		
<p>1.7 million Annual visitors to SAFe and Scaled Agile websites</p>	<p>Pledged 1%  Scaled Agile stock equity & employee time to Pledge 1% campaign</p>	<p>Annual Gathering SAFe SUMMIT</p>	<p>Fastest Growing Method 11th Annual State of Agile Survey by VersionOne 50% ★ 28% cite SAFe as preferred method for scaling Agile, making it the most popular method vs Scrum and Scrum of Scrums</p>

★ **200,000 SAFe CERTIFIED PROFESSIONALS IN 2018**

★ **50% ACCORDING TO NEW CPRIME SURVEY**

Irani, Z. (2017). *Scaling agile report: The first annual edition*. Foster City, CA: CPrime, Inc.

Leffingwell, D. (2017). *Foundations of the scaled agile framework (SAFe)*. Retrieved March 1, 2017 from <http://www.scaledagileframework.com>

SAFe POINT vs. COUNTERPOINT

- SAFe is not a method of putting lipstick on a pig
- SAFe is a 21st century portfolio management model
- ☞ □ SAFe based on smaller **batches**, **bottlenecks**, & **delays**

WHAT SAFe IS NOT ...

- **Way to bootstrap lean-agile onto traditional methods**
- **Slow process of activities, documents, & stage gates**
- **Codification of legislative, executive, & judicial branch**
- Way to embed lean-agile deep within gov't waterfalls
- Top-down, hierarchical command-n-control gov. model
- Heavyweight bureaucracy of waste, WIP, and red-tape
- Traditional push-based requirements generation meth.
- Lipstick on traditional sequential, linear, & waterfall pig
- Manual step-by-step prescriptive straightjacket
- Traditional manufacturing era portfolio management
- Sprint Waterfalling, Scrummerfalling, or SAFeFalling
- Way to swallow whole elephant & choke productivity
- Means to build over-scoped & overregulated systems
- Way to flowdown bad planning decisions on dev teams
- Method to enslave, control, and silence programmers
- Way to capture ideas from armies of middle managers

What SAFe is ...

- **Approach to implement lean-agile on large projects**
- **Speed up with smaller batches, bottlenecks, & delays**
- **Solve big problems with light cross-functional teams**
- Alternative to ineffective/inefficient waterfall standards
- Lean-agile governance model for large programs
- Minimal set of proven lean & agile best practices
- Pull-based, just-in-time Kanban system for key epics
- Pull-based DevOps pipeline to quickly implement epics
- Way to manage commercial cloud-based tech stack
- New method of 21st century portfolio management
- Iterative, incremental, agile, & evolutionary paradigm
- A method to eat a large elephant one bite at a time
- A way to build big systems with smaller scale initiatives
- Bottoms up way to collect insights from technologists
- Method of empowerment, ownership, & craftsmanship
- Method to efficiently implement high priority initiatives

SAFe VALUES & PRINCIPLES

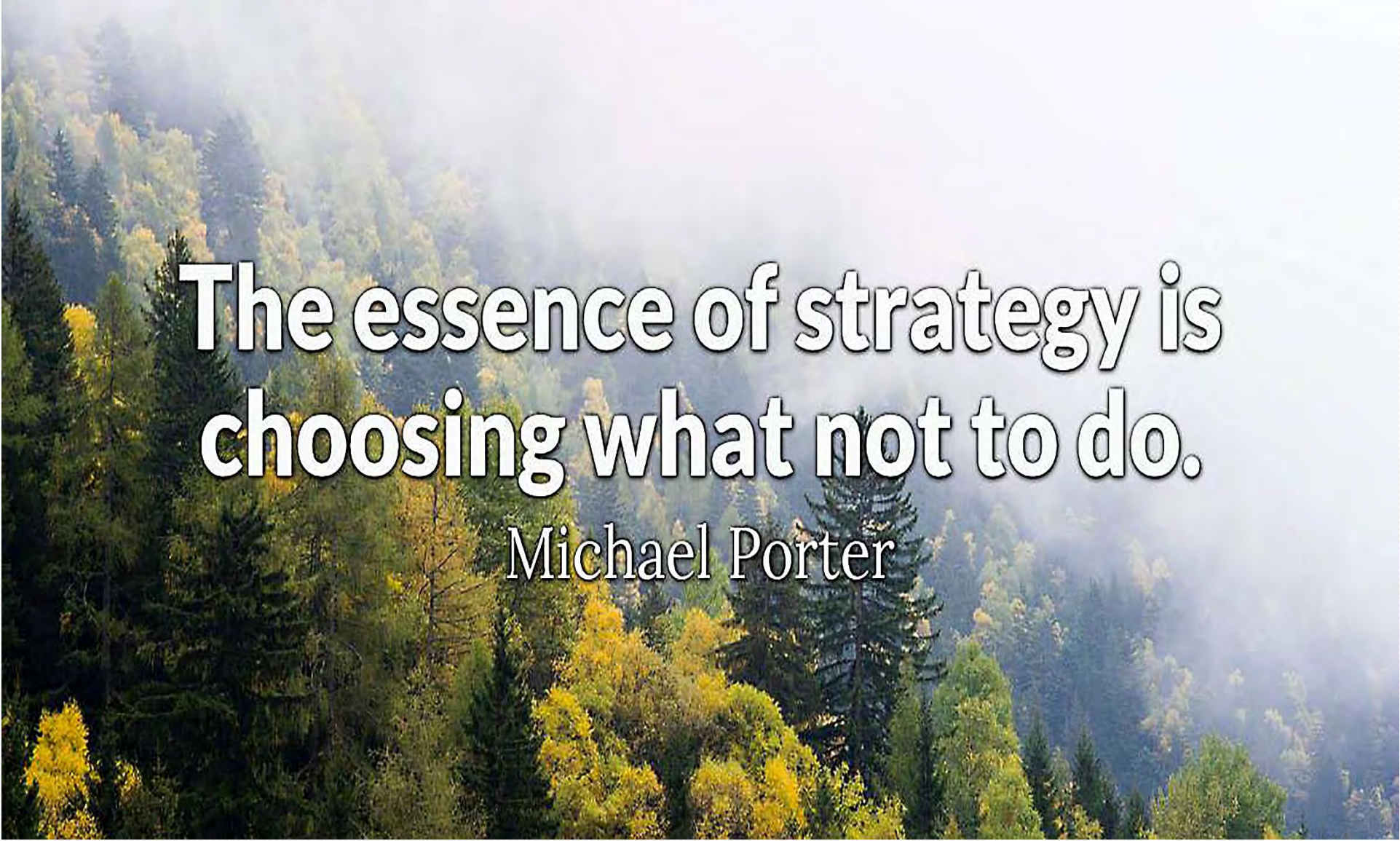
- SAFe is a values and principles-based reference model
- People try to turn SAFe into a set of physics equations
- ☞ □ SAFe offers a continuum **abstract, process, & science**

- **VALUES** - SAFe is an aggregate set of Lean AND Agile values and principles (in its PUREST form).
- **PRINCIPLES** - SAFe is PRINCIPLES-based like the U.S. Digital Services Playbook or Agile Manifesto.
- **BEGINNERS** - Beginners RUSH into a set RIGID TANGIBLE PRACTICES that support SAFe model.
- **PRACTICES** - These practices include rigid requirement hierarchies, PI planning, Scrum, Kanban, etc.
- **REMINDER** - SAFe practitioners should FIRST stop to pay HOMAGE to SAFe's values and principles.
- **FUNDAMENTALS** - Emphasize EVERYTHING must BEGIN and END with SAFe's values and principles.
- **TENDENCIES** - Human beings are un-NATURALLY left-brained analytical and mathematical creatures.
- **MISTAKES** - We RUSH into hard practices, processes, tools, artifacts, contracts, plans, metrics, etc.
- **TRAINERS** - Trainers pummel SAFe students with its equations, processes, artifacts, and ceremonies.
- **MANIFESTO** - SAFe supports Agile Manifesto (collaboration, teamwork, working SW, & adaptability).
- **SOFT-SKILLS** - SAFe supports SOFT concepts like conversation, visualization, emotional intelligence, servant leadership, empowerment, simplicity, flexibility, informality, and continuous improvement.
- **CONTINUUM** - SAFe SUPPORTS a CONTINUUM or range of IDEAS (abstract, procedural, scientific).
- **LEAN-FOCUS** - SAFe is skewed towards LEAN principles such as Kanban, so it's not SAFe vs. Kanban.
- **ADAPTABILITY** - Don't get wed to one set of principles, because the 21st century is moving at lightspeed.

SAFe SUMMARY

- *SAFe is overarching framework for Lean-Agile thinking*
- *SAFe like US Digital Service Playbook/Agile Manifesto*
- *SAFe used by over 200,000 people in 70% of IT firms*
- *SAFe is preferred approach for U.S. gov't IT contracts*
- *SAFe supports CI, CD, DevOps, AppSec, UX, and DoE*
- *SAFe is extremely well-defined in books and Internet*
- *SAFe has ample training, certification, consulting, etc.*
- *SAFe leads to increased productivity and quality*
- *SAFe supported by dozens of automated ALM tools*
- *SAFe based on soft-skills—visualization, conversation, cooperation, collaboration, transparency, trust, etc.*

Portfolio Management — Porter

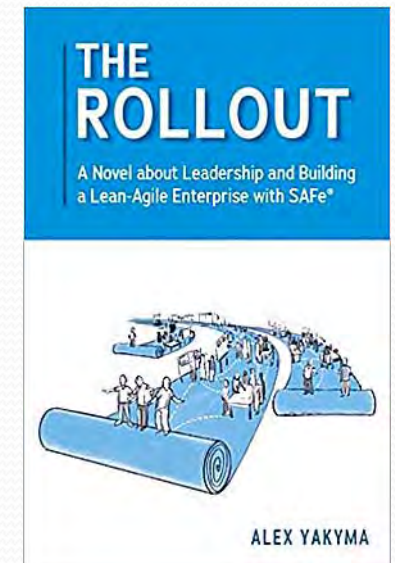
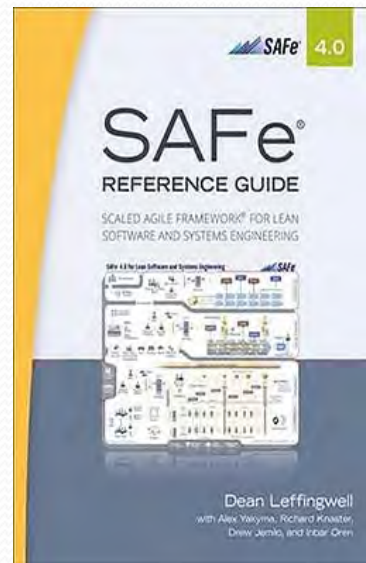
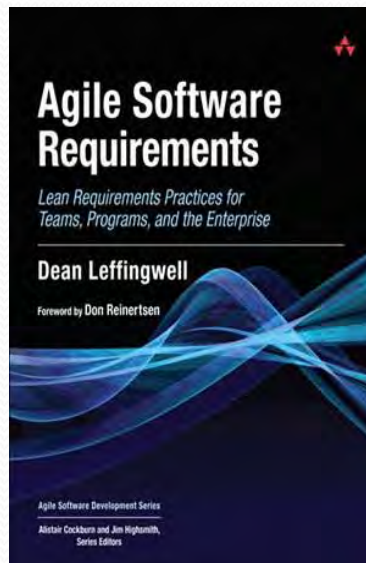
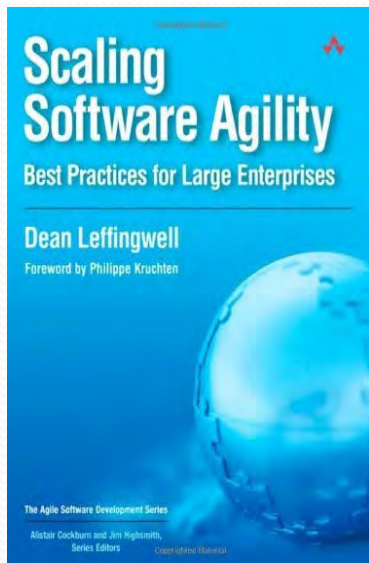
A scenic view of a forest with misty mountains in the background. The foreground is filled with dense evergreen trees, some with yellow foliage. The background shows rolling hills and mountains shrouded in a light mist or fog, creating a sense of depth and atmosphere.

**The essence of strategy is
choosing what not to do.**

Michael Porter

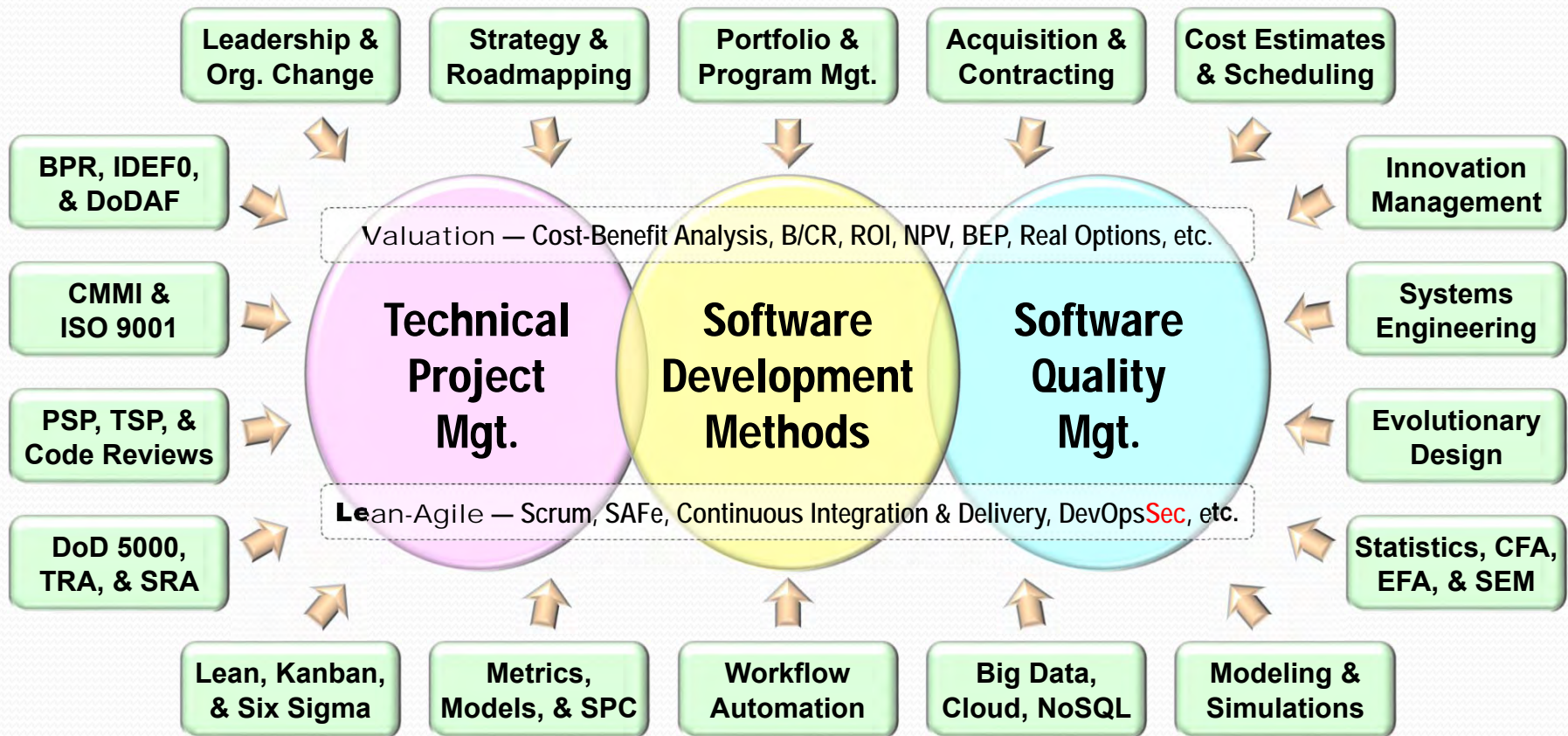
SAFe RESOURCES

- Guides to lean systems & software development
- Illustrates key principles, concepts, and practices
- ☞ □ Keys to applying lean ideas systems development



- Leffingwell, D. (2007). *Scaling software agility: Best practices for large enterprises*. Boston, MA: Pearson Education.
- Leffingwell, D. (2011). *Agile software requirements: Lean requirements practices for teams, programs, and the enterprise*. Boston, MA: Pearson Education.
- Leffingwell, D. (2017). *SAFe reference guide: Scaled agile framework for lean software and systems engineering*. Boston, MA: Pearson Education.
- Knaster, R., & Leffingwell, D. (2017). *SAFe distilled: Applying the scaled agile framework for lean software and systems engineering*. Boston, MA: Pearson Education.
- Yakyma, A. (2016). *The rollout: A novel about leadership and building a lean-agile enterprise with safe*. Boulder, CO: Yakyma Press.

Dave's PROFESSIONAL CAPABILITIES



STRENGTHS – Communicating Complex Ideas • Brownbags & Webinars • Datasheets & Whitepapers • Reviews & Audits • Comparisons & Tradeoffs • Brainstorming & Ideation • Data Mining & Business Cases • Metrics & Models • Tiger Teams & Shortfuse Tasks • Strategy, Roadmaps, & Plans • Concept Frameworks & Multi-Attribute Models • Etc.



- **Data mining.** Metrics, benchmarks, & performance.
- **Simplification.** Refactoring, refinement, & streamlining.
- **Assessments.** Audits, reviews, appraisals, & risk analysis.
- **Coaching.** Diagnosing, debugging, & restarting stalled projects.
- **Business cases.** Cost, benefit, & return-on-investment (ROI) analysis.
- **Communications.** Executive summaries, white papers, & lightning talks.
- **Strategy & tactics.** Program, project, task, & activity scoping, charters, & plans.

