Comparison of Scaled Agile Framework

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Abstract

Scaled Agile Framework SAFe, is a knowledge base that allows you to apply lean-agile practices at the enterprise level. Nowadays, with the development of new products and services getting larger and more complex, organizations continuously investigate and explore frameworks that will ensure initial business value, secure time and cost, and lower its delivery risk. This framework set down the guidelines, techniques, and processes, roles and artifacts which ensure that working with hundreds of practitioners, remains coordinated and easy to manage. This and few other things, we have tried to collate in this paper, which explains SAFe and it nuances. This paper is structured in a form to take you to the evolution of SAFe and explain why it was introduced, how it was used, and how it is used today. All the industry types which uses SAFe, and why it is so important, so we wrote a whole paper for this framework. The major question it answers is, how agility is important in teams to comfortably adopt scaling agile method, so as to deal with the potential problems such as cross-team dependencies, or scheduling of release coordination for deliverables and more. We have tried to provide all the basic understanding, types, and implementation of this framework with respect to today's fast paced change in technology.

Introduction

Before anything, let's learn what Agile is? In a layman language, it means to move quickly, and so is what happening with technology and life. Everything is fast paced, and if we don't move with the same pace or more, we will fall behind. And no one likes people, or industries who lags. Therefore, Agile was born, it allows teams to deliver a prototype and improve it with every cycle. Agile supports regular and collaborative troubleshooting. It helps teams and individuals to prioritize features and work in general. It is the competitive advantage of the digital world and the world which is running at fast paced. This is a tool used to accelerate your process and the environment more effective and efficient. It is an innovation method have revolutionized information technology. There are many frameworks which comes under Agile, one of them is, Scaled Agile Framework, or SAFe, it is an agile framework for development teams built on three pillars: Team, Program, and Portfolio. SAFe is designed to give a team flexibility and to help manage some of the challenges larger organizations have when practicing agile. It is designed as a broad knowledge base of proven best practices that real teams have used to deliver successful software products. SAFe is most popular among enterprise organizations as many of its facets focus on eliminating the common challenges teams face when scaling agile.

If your company is just beginning to transition to agile, SAFe might be a viable option to bridge that gap because of its more prescriptive approach than, say, Disciplined Agile (DA), which offers more flexibility and customization but also requires an organization fully understand the agile philosophy already.

It is worth noting, however, that SAFe's top-down approach to decision making and project management can undermine some of the core agile principles—such as collective ownership, adaptiveness, and less fixed roles—that might have attracted your team to agile in the first place. It is relatively easy for organizations to transition to, SaFe is also prescriptive – it tells organizations exactly what to do. SAFe gives solution to the added complexity in the organizational work culture and process.

To introduce, Agile is a mindset, a way of working; while SAFe is a scaling framework that implements it at an enterprise level.

History

History of Agile?
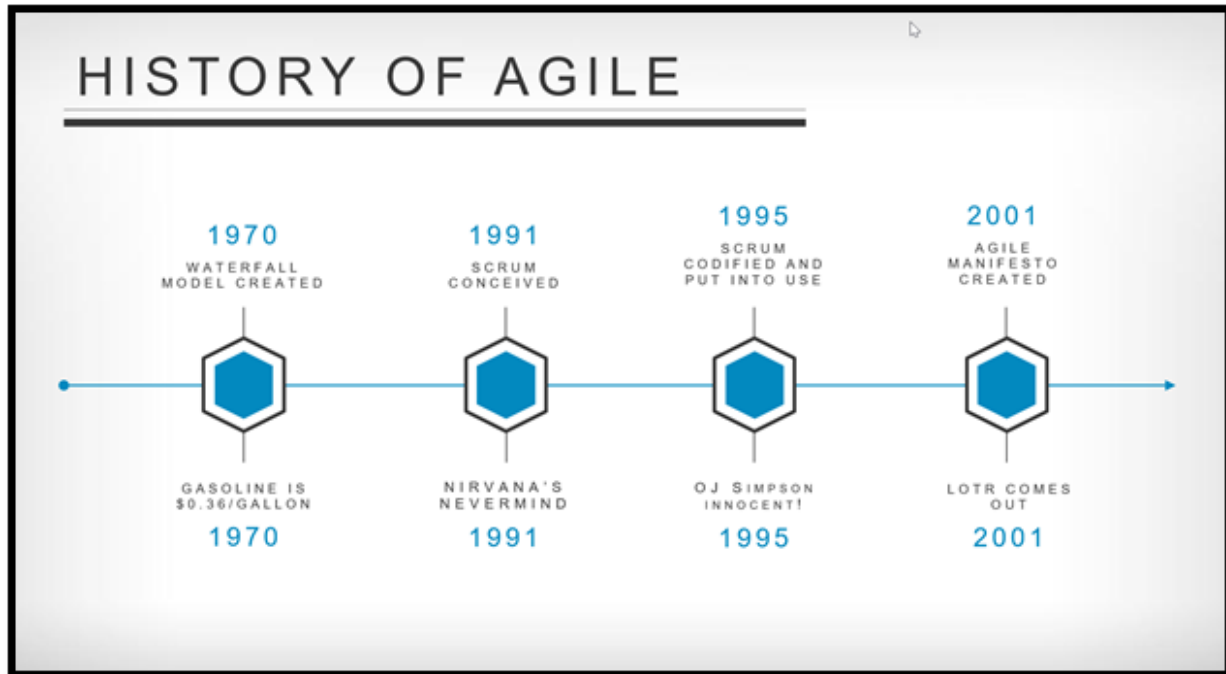
Agile came into the picture in the late 1970s as a response to traditional approaches to project development. In 1970, Dr. William Royce published a paper that outlined the idea of project development analogous to a product on the assembly line.
The idea needed that all developers need to put all requirements together as well as to complete all of its architecture and designs. The inventor of the agile method believed that if developers studied the process, they find the most appropriate solution to software development.
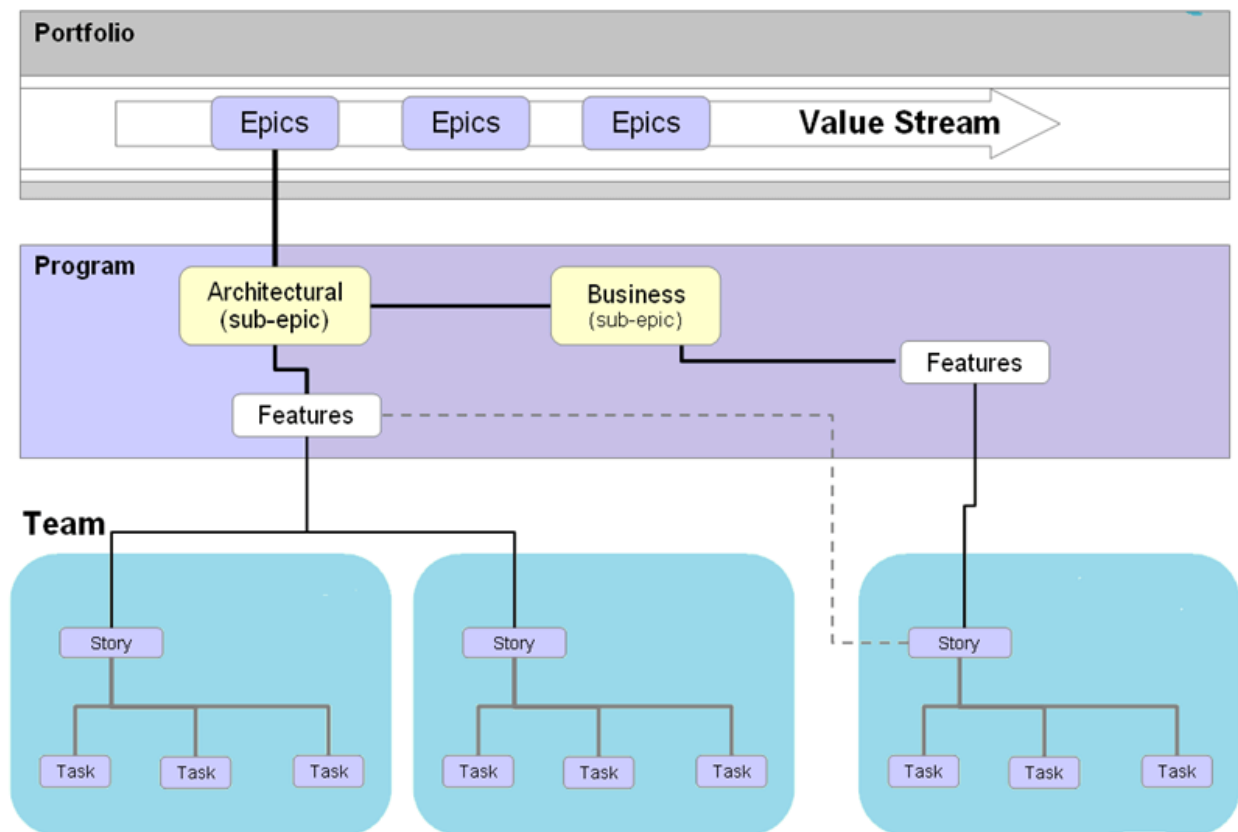
Why use Agile Frameworks?

- Simpler and lightweight
- Handle needs of the large and complex team development process
- Benefits include:
- Productivity improvement
- Quality improvement
- Faster time to market
- Employee engagement and job satisfaction

How Agile works?

Epics are high-level business requirement which is further broken down into smaller features which are also sometimes termed as sub-epics. Those features are again broken down into User stories which define a specific requirement in terms of a customer with the format of :
"As a, I want to, So that ." These user stories are again broken down into acceptance criteria which helps in doing sanity checks at the end of product development whether all objectives are met or not.

Following image explains how agile works in its entirety:

Overview of Scaled Agile Framework
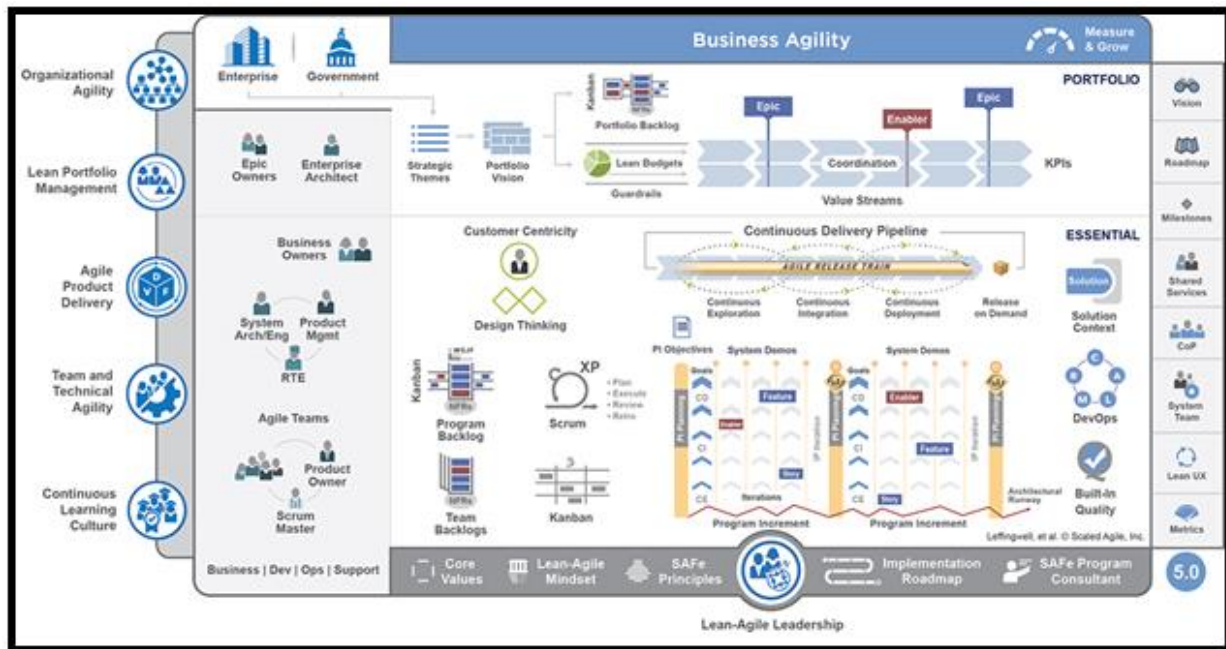
The Scaled Agile Framework (abbreviated as SAFe), created by Dean Leffingwell, is an interactive software framework allowing you to apply Lean-Agile and Scrum practices at large companies. SAFe is defined as an interactive knowledge base for applying agile practices on a company scale and provides a lot of guidance and covers a broad range including financing and business architecture.

When we can use a Scaled Agile Framework?

- When a team wants to implement an agile approach across a larger and multi-team program
- When a team wants work on features and products independently
- When you need to scale agile across the organization but not much understanding of new roles needed as well as how existing roles can be changed
- When you want to implement agile across the organization but struggle to align with end goal or strategy across different business domains from portfolio to program and team levels
- When product development needs to be improved with lead tome and to do competitor analysis with how other companies are succeeding in scaling

Foundation of scaled Agile frameworks:
1. Lean-Agile Principles
2. Core Values,
3. Lean-Agile Leadership
4. Lean-Agile Mindset,
5. Communities of Practice (Group of people constantly working on SAFe practices)
6. Implementing 1-2-3

Lean-Agile principles:
Basic principles and practices need to be imbibed, exhibited, and continued to get desired results.
1. Strong focus on system design
2. Incremental build with fast learning cycles
3. Apply system thinking
4. Unlock the intrinsic motivation of knowledge workers
5. Decentralize decision making

SAFe Agile Core Values
- Alignment: Strategic themes in the product backlog, move down to vision, team backlogs
- Built-in quality: ensuring that every delivery passes quality standards
- Transparency: transparency at portfolio backlog, program backlog and team backlog for each team with a clear understanding of PI goals
- Program execution: great focus on business outcomes Through working systems

Lean agile Leaders:
Leaders need to lead teams to build better systems through understanding and exhibiting the Lean-Agile SAFe Principles.
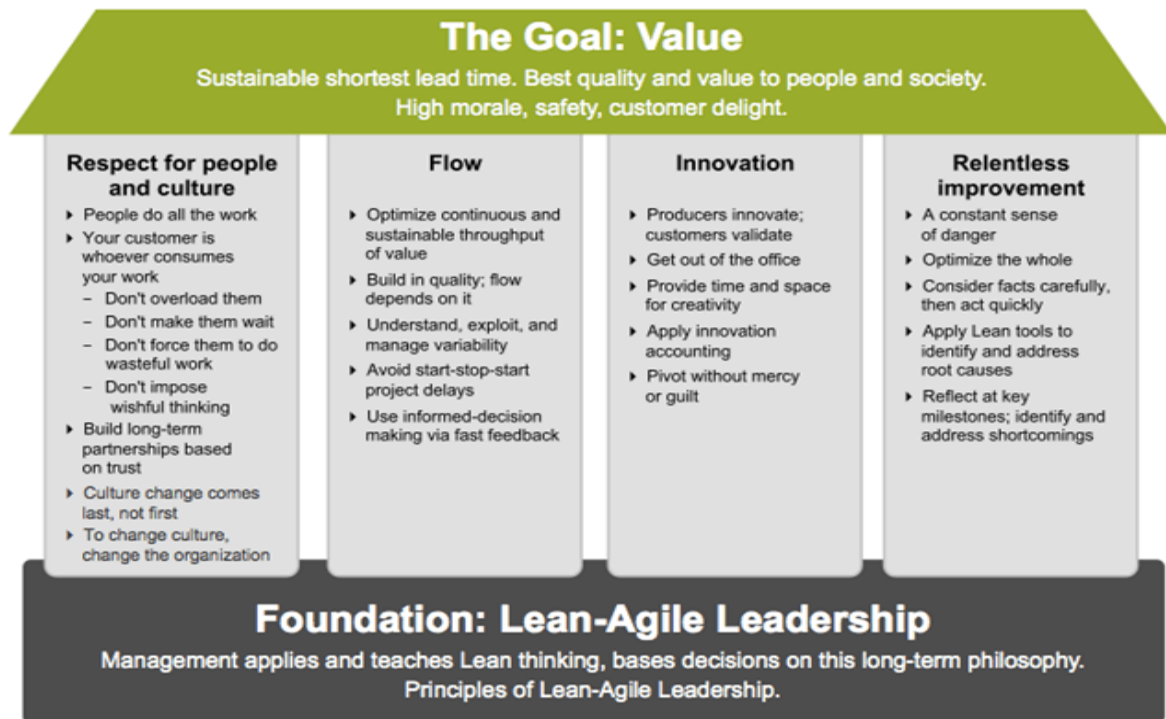
Principles of agile leaders:
- Lead change
- Develop people
- Decentralize decision making
- Emphasize on lifelong learning

Lean-Agile mindset :
Lean-Agile mindset is represented in two things:
1.   The SAFe House of Lean
2.   Agile Manifesto

SAFe is derived from Lean manufacturing principles and practices. Based on these factors SAFe presents the "SAFe House of Lean". It is inspired by the "house" of lean Toyota.

The Goal: Value
Sustainable shortest lead time. Best quality and value to people and society.
High morale, safety, customer delight.

Respect for people and culture
- People do all the work
- Your customer is whoever consumes your work
  - Don't overload them
  - Don't make them wait
  - Don't force them to do wasteful work
  - Don't impose wishful thinking
- Build long-term partnerships based on trust
- Culture change comes last, not first
- To change culture, change the organization

Flow
- Optimize continuous and sustainable throughput of value
- Build in quality; flow depends on it
- Understand, exploit, and manage variability
- Avoid start-stop-start project delays
- Use informed-decision making via fast feedback

Innovation
- Producers innovate; customers validate
- Get out of the office
- Provide time and space for creativity
- Apply innovation accounting
- Pivot without mercy or guilt

Relentless improvement
- A constant sense of danger
- Optimize the whole
- Consider facts carefully, then act quickly
- Apply Lean tools to identify and address root causes
- Reflect at key milestones; identify and address shortcomings

Foundation: Lean-Agile Leadership
Management applies and teaches Lean thinking, bases decisions on this long-term philosophy.
Principles of Lean-Agile Leadership.

Agile Manifesto:

|		
Individuals & interactions	*over*	processes and tools
Working software	*over*	comprehensive documentation
Customer collaboration	*over*	contract negotiation
Responding to change	*over*	following a plan

Results

The biggest advantage of adopting SAFe is the opportunity to tap into a relatively lightweight framework that creates software development efficiency while maintaining the necessary centralized decision-making at the enterprise level. In essence, SAFe extends the idea of agile beyond the front lines of software development to software leaders who have to answer strategic higher-level questions.

Specifically, since SAFe has been designed to maintain a large picture view of software development, it can handle a coordinated strategy for large-scale and complex projects with hundreds of teams. However, it is more effective than conventional software development methods, since it is rooted in agile and lean concepts.

SAFe® Implementation Roadmap
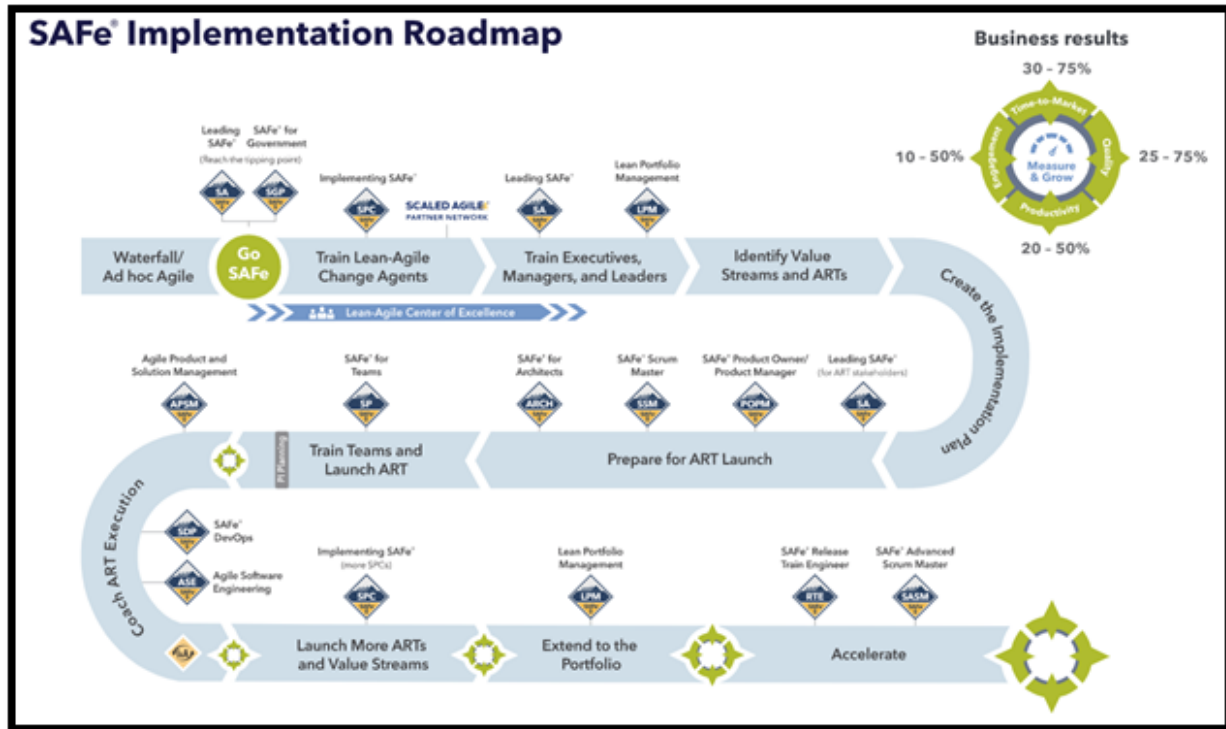
SAFe is of particular benefit to organizations that need to work across teams, as its centralization allows for multi-team coordination. It allows standardized processes across teams in this scenario, and helps to avoid obstacles and delays that may arise when different teams need to work together.

Another notable benefit of SAFe is the ability to help teams remain consistent with company goals. In agile environments that take more of a bottom-up approach, this balance can sometimes get lost, as developers and testers may often lose sight of bigger picture business goals.

By comparison, the top-down coordination and centralized decision-making of SAFe helps ensure that strategic priorities remain paramount and that all decisions are taken in support of those priorities.

Discussion

Organizations continuously investigate and explore various frameworks for development of new products and services. As the development is becoming a tedious task with larger and complex tasks, they need something that is cost effective, secures time, and ensures value to the business. Agile frameworks are extremely popular in the market due to superiority accommodating in fast changes and innovations along with the value they produce. Agile Framework is simple, lightweight and can handle large value and complex system development.

Benefits of using Agile includes:

- Increase in productivity by 20-50%
- Increase in Quality by more than 50%
- Faster market time by 35-70%

The leading frameworks are Large-Scale Scrum (LeSS), Scaled Agile Framework (SAFe), Nexus and Disciplined Agile (DA). However, there are certain maturity requirements for teams to minimize the risk and complexity on an enterprise scale, these are:

- Teams should be structured (cross-functional and self-organizing)
- Slicing the requirements into small increments
- Continuous integration and regression testing
- Deployable product at the end of each sprint

Nexus

Enterprises like Asian Airline and Net Health have implemented Nexus. Nexus is a simple framework which is used to deliver single integrated product scaling across multiple teams. It can be applied to 3-9 scrum teams having minimal dependencies. This framework only requires knowledge of scrum and no change in the existing structure is needed. Nexus ensures continuous improvement and transparency.

Roles in Nexus:

- Team of 5-12 members
- Scrum Master and Product Owner
- Nexus team which is made by 1-2 members from each scrum team
- Nexus Integration Team for keeping successful integration

The product owner comes up with a product backlog which consists of stories, tasks, business initiatives, and epics. New requirements can also be added. Nexus team conducts a sprint planning session to plan the bigger picture and teams can collaborate during the same. Teams can select the tasks from the product backlog provided by the product owner. At the end of the sprint, Nexus Sprint review is held to review the integrated increment and discuss any challenges faced and how those can be improved.
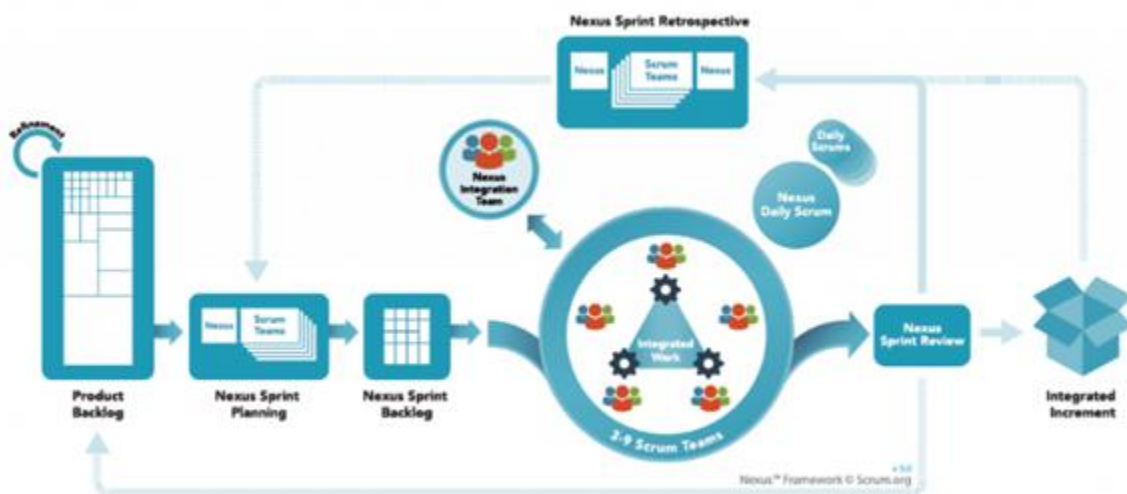
SAFe (Scaled Agile Framework)

Organizations use SAFe to produce high quality products in the shortest sustainable time. This framework can be used to scale the scrum to enterprise level and according to business needs. Organizations like Cisco, DHL, HP have implemented SAFe. This framework can be scaled to hundreds and thousands of team members.

Roles in SAFe:

- Agile teams consisting of 5-12 members.
- Product owner to prepare team backlog prioritized on features.
- Scrum masters for discussing and clarification on problems that the teams are working on
- Product Manager who prioritizes the features that are to be included on product backlog
- Release Train Engineer, who is leader of agile release
- Solution Engineer with duties of more than one agile release
- Enterprise Architect for providing strategic, technical and adaptable design direction
- Epic Owner who creates the epics
- Business Owner who is the key stakeholder
- Lean-Agile Leaders to educate and coach the team on SAFe framework
- Lean Portfolio Management for decision making for portfolio operations and governance of SAFe

SAFe is a collection of sprints that lasts up to 8-12 weeks including sub-sprints of around 2-4 weeks. Program increment date is scheduled in advance. A system demo is held once a week to show the features that are implemented to the stakeholders for their feedback.

There are four levels of implementation in SAFe:

- Portfolio level: Strategies and planning of budget is done on this level organizing the lean-agile enterprise into delivering solutions.
- Program level: Continuous delivery of solution to the customer, planning, committing, executing, and inspecting takes place in this level.
- Team level: Critical for defining the roles of agile teams. Coordination amongst multiple teams is ensured here.
- Large Solution level: This is an optional level required when there are thousands of practitioners and collaboration among them is required.

To adopt SAFe, one needs to change the existing organizational structure.

LeSS (Large Scaled Scrum):

LeSS is a multi-team framework which can be applied to hundreds or even thousands of individuals working for a specific shared product. Minimalistic framework used to create large or small size products with less enforcements of roles, rules and artifacts. LeSS is highly customer centric as teams directly interact with customers.

There are two types of LeSS:

- Basic LeSS: 2-8 teams
- LeSS Huge: more than 8 teams

Roles in LeSS:

- Teams or feature teams
- Scrum master for the guidance on LeSS
- Product Owner for product backlog management
- Area Product owner when LeSS huge is into the picture focusing on specific area requirements

Sprints in LeSS can last for 1-4 weeks with a deliverable product in every sprint. Customers and the teams discuss how the existing requirements can be improved during the product refinement session. Teams coordinate with each other while sharing the code base with other teams. For an organization to adopt LeSS they may need to abandon the current structure and change the development techniques.

Disciplined Agile (DA):

Disciplined Agile is more enterprise ready when compared to Nexus or LeSS. DA works closely with enterprise stakeholders and leadership. Disciplined Agile is useful for both small, co-located and large distributed teams. Adopting DA leads to decreased time to market, higher quality and more flexibility. DA is subdivided into Disciplined Agile Delivery (DAD), Disciplined DevOps, Disciplined Agile IT, and Disciplined Agile enterprise.
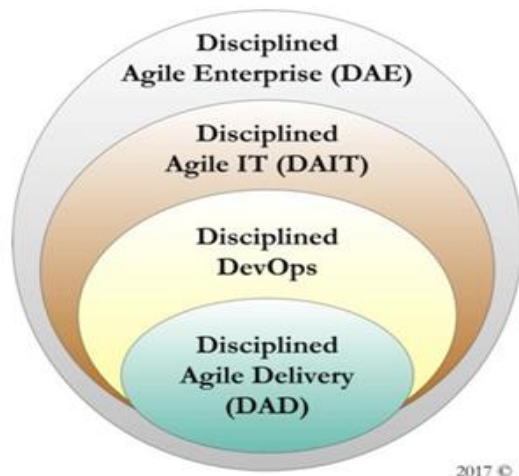
DAD is the core of Disciplined Agile, all the IT solutions are defined here from end to end. From modelling, planning, setting up the team and financing to continuous architecture, testing and monitoring till end of lifecycle. Disciplined DevOps and Agile IT focus more on coordination of Organizations IT. The Disciplined Agile Enterprise is the result of all the above segments.

What to choose?

Scaled Agile frameworks don't have one size fits all approach. Requirements and constraints are to be analyzed before deciding which development model works best in that specific case.

Depending on the needs, we can say:

- A small scaled agile team can have LeSS or Nexus as best option
- A mid-size company can have light weighed management of LeSS
- An enterprise-scale teams can try SAFe or LeSS Huge

Framework that is selected on basis of current and future requirements to accommodate any change.

Conclusion

The need to extend Agile outside the context within which Agile approaches were originally built, in recent years several frameworks have been developed to scale agile. We extracted a list of its core processes to explain parallels between the frameworks. These frameworks claim to have exactly the same objective: to build the best customer-centered product possible. Although within all these structures there are excellent pieces, none should be seen as the aim of an organization. That is because there is a particular organization; there is no "one size fits all" solution. Rather, view each system as a collection of tools to construct a model that is truly relevant to your organization. Effective and sustainable business agility strategy that leads to people gaining the skills they need to continuously adapt and develop their work and performance. Individuals and teams also gain insight for their group's position in the larger organization, moving emphasis from a specific focus to a broader focus on the product.