AGILE ARCHITECTURE @ SCALE

GENERAL INFORMATION

Description

Agile Architecture @ Scale (AA@S) develops the practice of growing teams of teams using agile practices and using architecture to help address difficulties in large agile implementations. Agility at scale permeates areas of the business that were untouched by team-based agile practices. For example, business strategy, portfolio management, budgeting, procurement, innovation, and enterprise demand management. In large complex environments, organizations struggle to manage the overall architecture and roadmap or tie the delivered customer value to the achievement of business objectives.

This course provides guidance on the role of architects and architecture in agile environments and teaches the role an architect plays in any scaled agile environment regardless of framework. It also provides guidance on organizational changes needed to shift to a digital enterprise using agile methodologies, and the company-wide tools the architect team must put in place for the company to remain competitive and support the distributed delivery and operation of products and value streams.

After this course, you will be able to:

- Describe the key concepts behind digital enterprise, digital product delivery, and agile delivery and operations.
- Understand key agile scaling frameworks and their differences
- Create a strategy for effecting changes to leadership styles, organizational culture, organizational structure, and business process a company must make to successfully deliver digital products using agile delivery and operations methods.
- Recommend and implement a common set of tools, principles, and processes that all product teams use to maintain alignment between providing customer value and achieving business objectives.
- Recommend a group of tools, processes, principles, and reference materials that product teams can use to operationalize and increase velocity for product and feature delivery of their product.
- Collaborate with product development teams to ensure implementation is coordinated across the enterprise with limited risk to the business and minimized accumulation of technical debt.

The Iasa Agile Architecture @ Scale course brings together the larger frameworks into a structure for architects that far exceeds framework scope for architecture integration into an agile enterprise and agile product delivery. The focus of the course is spread across 4 differing themes:

- Agile Enterprise: using agility at scale requires working at the full enterprise scope which has deep impacts on the organization of resources, finances, business models and capabilities.
- Agile Processes: Agile Architecture @ Scale requires deep commitment to process modifications in how demand is generated through business architecture, how solutions are delivered in solution

architecture and how the team interacts throughout the enterprise environment. Many changes to process, tools, documents, and models are required.

- Agile Approach to Stakeholders: the AA@S method used by Iasa redefines traditional stakeholder approaches and creates an ongoing team-based stakeholder management approach which serves as a communication and decision-making function in large agile environments
- Agile Technology Structure: agility at scale drastically changes the technology landscape and requires significant investment in pipelines, services, decoupling, resiliency, cloud, mobile and other technology design considerations.

BACKGROUND

Where do architects fit in large organizations that introduce agile concepts? Many delivery teams that start using agile practices suggest the architect role and architecture have only slow velocity and increase friction, practicing architecture using antiquated, command-and-control methods.

In every business, there is a demand to achieve business objectives that is supplied by or through the limited people and resources skilled in delivery and operation of digital capability. What do architects do in an agile environment, at scale?

From Agile at Scale in the Harvard Business Review https://hbr.org/2018/05/agile-at-scale, the article suggests that "Leadership teams need to instill agile values throughout the entire enterprise." Architects are the role that provides that glue across business lines and technical staff supporting those lines. SAFe, DAD, Nexus, SOS, and other frameworks and methodologies have emerged as organizations grapple with scaling agile. But they are tools in a toolkit. This course helps architects understand their role, how they engage, and what they need to do to make the jump to a digital enterprise using agile delivery and operation techniques successful.

Target Audience

The ITA (Iasa Topic Area) Agile Architecture course is for architects, managers, senior technical and delivery staff who wish to get a full life-cycle view of working and deliverable architectures within agile delivery frameworks. They are expected to have completed CITA-Foundation certification or the Iasa Core training course. Students of the class have included CTO's, Senior Development teams, architects of all types, and business managers with technical skills.

COURSE MATERIALS

The course instructor will guide participants through both the demand and supply sides of agile practice. Participants' progress through evaluating current business processes and practices across the organization and forming recommendations to transition to a fully operational agile delivery environment with a focus on maximizing customer value through digital products, services, and features.

The Agile Architecture @ Scale course is offered online several times throughout the year. For onsite training or customized delivery curriculum a minimum of 10 students are required.

COURSE MODULES

MODULE 1 ARCHITECTURE AND DIGITAL ADVANTAGE

Module 1 focuses on providing the participants with a common framework and language for practicing architecture in a business environment that creates digital products using agile techniques. The day starts by providing an understanding of what makes a company a digital enterprise and the terms and organizational structure needed for the company to operate. The module focuses on digital business models, customer journeys and other elements of the architect lifecycle which allow the team to function as leaders in gaining digital advantage.

The second half of the module focuses on providing the participants with a common understanding of what architecture and architects are, and what they do to enable digital enterprises with agile product teams to maintain a connection between business objectives and product delivery. The ITABoK is introduced as the toolkit architects use to guide the operation of the company and maintain alignment between the delivery across all the business lines and business investment and achievement of the company's business objectives. The participants are given a scenario and broken into groups to fill out a set of canvases that capture the business operating environment and product development for one of more lines of business.

Learning Objectives
• Understand what a digital enterprise is, and terms used to describe it
• Understand the organization-wide endorsements, business process changes, organizational structure changes, and company culture shifts required to enable a digital enterprise.
• Understand the relationship between customer value and business objectives.
• Understand how IT architecture and the ITABoK are used to align and relate product delivery, customer value, and business objective achievement.
Lessons
• **Course Orientation** provides a common vision and vocabulary for describing a digital enterprise, agile delivery, and architecture, and how the three interact.
• **Digital Business** discussion on the phenomena that is a digital-first business mindset and the terms used to describe a digital enterprise and product.
• **Customer Thinking** covers creating strategy based on customer value delivered and the alignment between customer value and achieving business objectives.
• **Agile architecture** review the Iasa description and skill set of an architect, and introduce the ITABoK, Iasa's toolkit for architects
Workshops and Discussions
• Workshop – create working definitions of enterprise agility, architecture, and agile product development
• Workshop – Identify structured canvases and how they relate to current tools in the class participants' company or enterprise.
• Classroom discussion about the ideal organization structure for agile delivery of digital products, the changes to company culture and management styles, business process for all aspects of business operation, and well as placement and reporting structure of technical

assets (talent), and guidance (constraints and freedoms) that must be common throughout all business lines and value chains. Discuss mitigation strategies for overcoming less-than-ideal org structures and business processes.
• Workshop - Evaluate current corporate business structure and process and have participants identify sources of friction and potential risk to the company with the current structure and processes. trace the current path from measurement of customer value to measurable achievement of business objective.
• Workshop – create a customer journey and describe how it would be used to identify value for customers in the ecosystem

Tools (Canvases, Spreadsheets, Demos, Prototypes)

• What is architecture [46 ARCHITECTURE DEFINITION]
 • What is agile
 • Introduction to canvas approach
     o (here we display 6-8 canvases for discussion (OKRs to Benefits)
     o Structured Canvas Maps
 • Business Model Canvas [4 BUSINESS MODEL CANVAS]
 • Customer Experience/Empathy Map (Module 2 Arch demand slide 85-92)
 • Customer Journey Map [9 CUSTOMER JOURNEY MAP]
 • Stakeholder Maps [108 STAKEHOLDER ENGAGEMENT MAP]

Further reading: Learning shots: References:

MODULE 2 AGILE ENTERPRISES

In Module 2 we focus on the anatomy of an agile enterprise and the changes needed to process and culture. We describe the tools that must be common across the entire organization, and the methods that enable agile methods to scale to complex business environments with multiple products or lines of business. Then, we explore the linkage that ties agile product delivery, customer value, and achievement of business objectives together. The participates are given a scenario and break into groups to discuss how the company trying to scale agile delivery across a complex environment should be structured, and the changes needed to business process, tools and practices the teams use, budgeting and employee measurement and incentive for the company to be successful with the transformation. We compare concepts from existing scaled agile frameworks and relate them to the architecture practice that allow the team to work through a first stage engagement model. Techniques used to optimize agile roll outs while maintaining a focus on capabilities, value streams and lean business cases. Finally, we map value delivery and planning, and describe how architects guide an agile investment process.

Learning Objectives
• Understanding the Agile Enterprise and scaled agile approaches.   • Understand what agile at scale is, what the different frameworks focus on, and the terms used to describe it.   • Understand organization structures which describe agile enterprises.   • Map the structures of an organization to continuous value delivery

- Understand agile, product-focused product team delivery lifecycles and techniques for budgeting and management.
- Understand how to create an architectural engagement model with business leaders, product delivery teams, and leaders of supporting business functions.
- Understand what architectural principles, governance, common repositories, reference implementations and patterns, and other guardrails are available to provide freedom and empowerment to the products teams with guardrails that minimize risk to the business.
- Understand what deliverables an architect can product to a product team that enables the team to move forward as new information is discovered while maintaining the intent of the architecture and business objective/customer value achievement.

Lessons

- **The Agile Enterprise** describes the major functions and interactions of an agile enterprise that is taking a digital-first approach or investing in new focus on digital products.
- **Scaled Agile Methods** introduces tools and techniques to maintain synchronization and collaboration across a complex organization with self-empowered and distributed teams.
- **Agile Engagement Model** details the interactions between architects, distributed product delivery teams, and supporting business function teams to maintain a cohesive yet empowered, collaborative working team model.
- **Value Streams and Capability** covers techniques to quantify and measure customer value and tie the value back to the organization's journey to achieving measurable business objectives.

Workshops and Discussions

- Workshop discussion about implementation of concepts in Agile Manifesto and wrapping architectural principles into organizational principles to get adoption by agile product teams at Tinkleman, as well as recommended changes to talent distribution and reporting in the organization, with approaches to maintaining like-skills community mechanisms that map into the organizational structure.
- Workshop – Create Value Streams for Tinkleman or your organization, describe team layout and structures
- Workshop – Agile Investment, understanding and creating budget and investment methods in the Agile Enterprise
- Classroom discussion about implementing the tools and discipline necessary to enable a self-service environment with trust between teams and roles across Tinkleman, and the collaborative interaction needed between architects, product managers, and development teams.
- Workshop – Create recommendations for the changes needed to procurement and HR around titles and incentives that enable individuals to have access to the tools they need, ability to take risks within boundaries that do not jeopardize their review or career and sets spending limits by role and level in role.

Tools (Canvases, Spreadsheets, Demos, Prototypes)

- Architecture Team Context Canvas [70 ARCHITECTS ENGAGEMENT TOUCHPOINTS]
  - Operational team canvas, Architect Capability Canvas
- Organizational Chart Canvas
- Value Streams
- Capabilities
- Agile Investment Tools – Lean Business Case, Investment Community
- Product Team Kickoff Canvas
- Engagement Model Canvas [engagement model planning]
- Business Function Canvas

| Further reading: |
| Learning shots: |
| References: |

MODULE 3 AGILE DELIVERY

Module 3 focuses on delivering relevant information to the delivery team that empowers them to be self-directed and still maintain alignment with the rest of the organization and with the business objectives the leadership desire. We explore the mechanics, tools, and frameworks that agile product teams use to deliver and operate products and features. Key areas where product development teams are effective are covered, and areas where there is often ambiguity and friction that slows velocity are covered.

IT architecture tools and techniques are introduced that help provide common understanding across multiple delivery teams, and the robust set of organization-wide tools, guidance, updated business processes in supporting business functions that remove friction and increase velocity. Additionally, we will cover techniques for role creation and measurement, and tradeoff decisions required to enable community and collaboration in a safe environment with respectful tension and common approach to measuring, incenting, and growing employees.

In module 3 we will also describe and develop architectural epics and stories, align these with product and architectural roadmaps, as well as structure the architect team to enable active architect engagement across all the product teams. Agile documentation and communication are covered, and techniques to maintain healthy team layouts. Agile design techniques as well as architectural analysis of large-scale agile projects will be covered in detail.

Learning Objectives
• Create a set of boundaries and principles that govern and guide how product delivery teams safely use their team's empowerment in planning and executing product and feature delivery, customer value measurement, and customer feedback elicitation.
• Understand what healthy tension is between roles and create an approach to defines roles and overlap to maintain collaboration and tension.
• Understand what ITABoK canvases must be provided to delivery teams to provide the flexibility to change the plan without losing the intent of the architecture.
• Understand how to create a repository of reference architectures, styles, and patterns, software patterns, and reference implementations.
• Understand how to create and maintain a set of reference materials, training, and tools product delivery teams will use to discover, design, and deliver products.
• Understand how to provide tools, references, and guiding principles that enable integration between development teams for a product and across product lines.
• Understand how to integrate common tools with the delivery and operations tools and approaches agile product teams implement.
Lessons
• **Architects and Teams** details approaches for creating a healthy tension between the architecture team and the product delivery teams and setting boundaries that clearly define swim lanes and responsibilities between the various stakeholders.
• **Agile Architecture Processes** covers tools and techniques the architecture team use to define and provide guidance that enable and frees delivery teams to move forward with maximize

velocity, mitigating issues as new information is uncovered without losing the intent of the architecture.
- **Agile Architecture Design** focuses of gathering the information needed to align business objectives with customer value and providing the guidance to delivery teams that enable them to act on their own to deliver products and services while maintaining the business objective to customer value alignment.
- **Principles and Guardrails** focuses on automating the delivery pipeline to enforce corporate governance, quality attribute attainment, pattern usage, and security standards, as well as harvest as-built implementation diagrams and data models, and that information and integration information available across the enterprise.

Workshops and Discussions
- Classroom discussion about what ITABoK canvases are used with delivery teams to provide them the information they need as well as the freedom to shift directions as new information is discovered without losing the intent of the architecture, the red thread from customer value to achievement of business objectives, and the ability for customers and other product team to easily discover and integrate with their product and features.
- Workshop – Create a set of deliverables for product teams in Tinkleman that empower them to deliver on customer value while achieving the Tinkleman business objectives, and create an expandable, product and feature set that provide automated integration capability.

Tools (Canvases, Spreadsheets, Demos, Prototypes)
- Business (product/service) Roadmap to EPICs mapping canvas
  - Layered and planning roadmaps
- PI Planning (Epic to User Story)
- Architecture Demand Management
- ARS – ARE??? (Arch Epics)
- Context Views

DAY 4 AGILE OPERATIONS

In the end, a mindset of employee empowerment and self-service, frictionless process automation and outside-in focus on customer value first must be put in place. Product delivery team members must be responsive to their external customers and to other teams and people in their company. They must help others or creating digital products in an agile environment will never work. Day 4 focuses on business automation, team automation, and the people skills that lead to friction-free integration across teams and microservices. Technology patterns that provide tried and tested approaches to achieving goals through product and service delivery are covered. Finally, we introduce ITABoK tools that help with understanding people and managing communications. In the end, the architect's job is removing friction to communications across the entire organization, giving actionable guidance to delivery teams, and keeping everyone connected, involved, and informed.

Learning Objectives
- Structural requirements for agile at scale. Translating capabilities and, API, services into architecture styles, design patterns, infrastructure and operations.
- Working with DevOps and continuous integration and delivery.

- Complexity, domain driven design and Quality Attributes
- Stakeholder Driven Architecture
- Build Pipelines and Tools
- Agile Architecture Transformation (1/2 day)
  - Making it Real
  - Stakeholder, Challenger
  - Transformation roadblocks
  - Timelines and people

Lessons

- **Business Automation** covers the tools and techniques used to automate and remove friction from business process and enable efficient communications and support between supporting business functions.
- **Team Automation** covers the tools and techniques used to automate and remove friction from product definition, prioritization, delivery, and operation mechanisms product delivery teams use.
- **Technology Patterns** covers the patterns and styles needed to deliver digital products that have the required reliability and resilience required, with characteristics that enable evolutions that matches the speed of technology innovation.
- **Integrations** covers the human aspects of architecture, product delivery, microservices integration, and the communications, empathy, and human behavioral understanding needed to open and maintain communications across distributed teams.

Workshops and Discussions

Classroom discussion about the tough sell of these ideas and transitions and how you get buy-in from the business side versus how you get buy-in from the product delivery side, as well managing the collateral damage to supporting business functions such as HR, procurement, legal, security, sales, marketing. Discussion of Challenger approach, story-telling (with numbers) and use of change management techniques that might be useful in pushing an agenda out to both audiences.

Workshop – Define a change management plan for Tinkleman with stakeholder communication, timeline or relational dependency order-of-change approach of transitioning to a digital product focused organization using agile approaches to product delivery and management, and tooling requirements to enable and manage the environment across product lines and teams, and reduce risk to the business through customer exposure or abandonment, customer (internal and external) trust issues, as well as placement of personal and team goals above customer value and achieve of overall business objectives.

Tools (Canvases, Spreadsheets, Demos, Prototypes)

- Automated pipeline and Repository Canvas
- Time value of money, fail-fast, JFDI
- Change planning and Change execution (suggest ADKAR)
- Self-awareness, bias, decision making
- Scenario thinking
- Stories & Themes
- Challenger profile

EXAM INFORMATION

There is not a specific exam covering agile architecture at scale. However, the Topic Area Certification in Agile Architecture (ITAC-AA) credential is awarded to those who qualify based on a combination of criteria including education, experience, and test-based examination of professional knowledge of architectural skills and management.

The ITAC-AA credential is awarded by achieving a 70% or higher on the ITAC-AA examination. The exam consists of 75 multiple-choice/true/false questions.

The ITAC-AA exam is available online, anytime, via Iasa's Learning Management System. If attending an onsite course, the exam is proctored on the last day. If attending an online course, access is given on the last day of the course as well. Students will be given 2.5 hours each to complete the exam.