Agile Operations Foundation

A Paragon Delta Product

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Lessons

- Agile Operations as an Operating Model
- Adaptive Agility
- Integrated Improvement Framework
- Workload Placement
- Enterprise Agile Integration Maturity Model

Logistics

- Course engagement times
- Breaks
- Facilities
- Technology requirements

Lesson 1

Agile Operations as an Operating Model

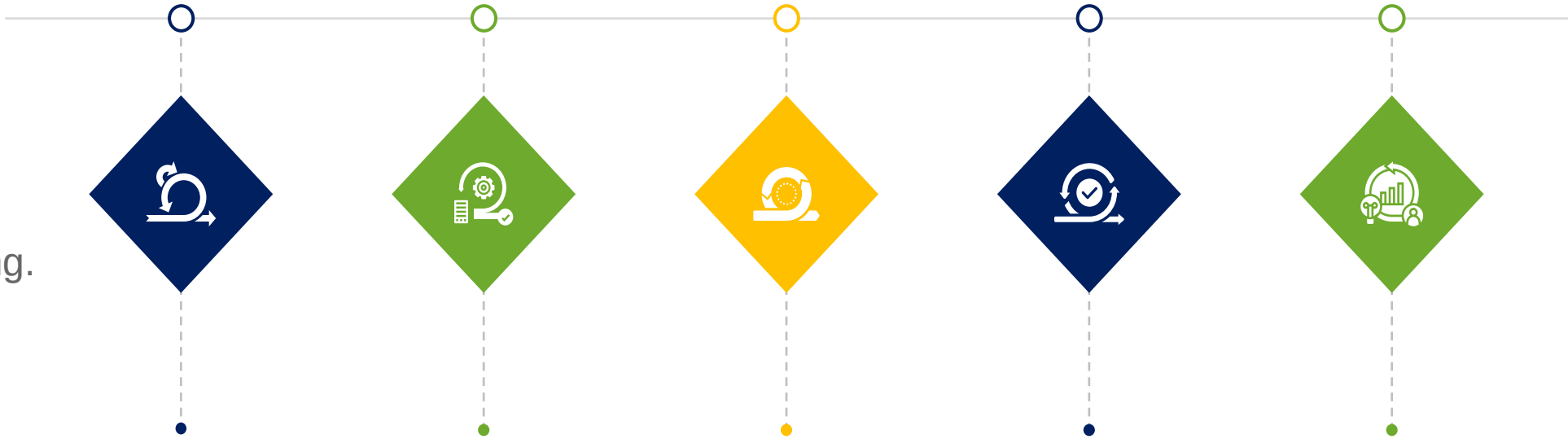
1.1 Infrastructure & Operations and digital services and applications
1.2 Planning Technology
1.3 Continuous Integration and Functional and Non-Functional Controls
1.4 Product and Process Improvement

What is Agile Operations?

Agile Operations (AgileOps) is a business operating model that enables systems to continuously adapt to changing and uncertain environments. It's rooted in Agile methodologies and DevOps techniques with principles that help organizations achieve Adaptive Agility.

Agile Organizations must continually question the status quo.

Things can always be done better. Never stop improving.



Enhance the ability to continuously adapt to a changing and uncertain environment by introducing Adaptive Agility techniques into organizational culture and future operating models

Establish a 'Culture of the Willing' mindset. Identify skillsets, processes, products and services that require updating, streamlining, refactoring or retooling. Encourage those that are willing learn new things and enable them to see themselves in any change.

Optimize the processes, development value streams and operational values streams within multiple departments, using a bimodal approach, leading to higher quality value iteration and customer satisfaction.

Incubate innovative and transformational initiatives in existing environments through pilot programs. Lay out the costs involved in the various transformation efforts and monitor the same with dashboards and cost benefit analysis tables.

Measure and report on the improved performance areas and continue to tune those areas for increased optimization.

Agile is a set of Values and Principles

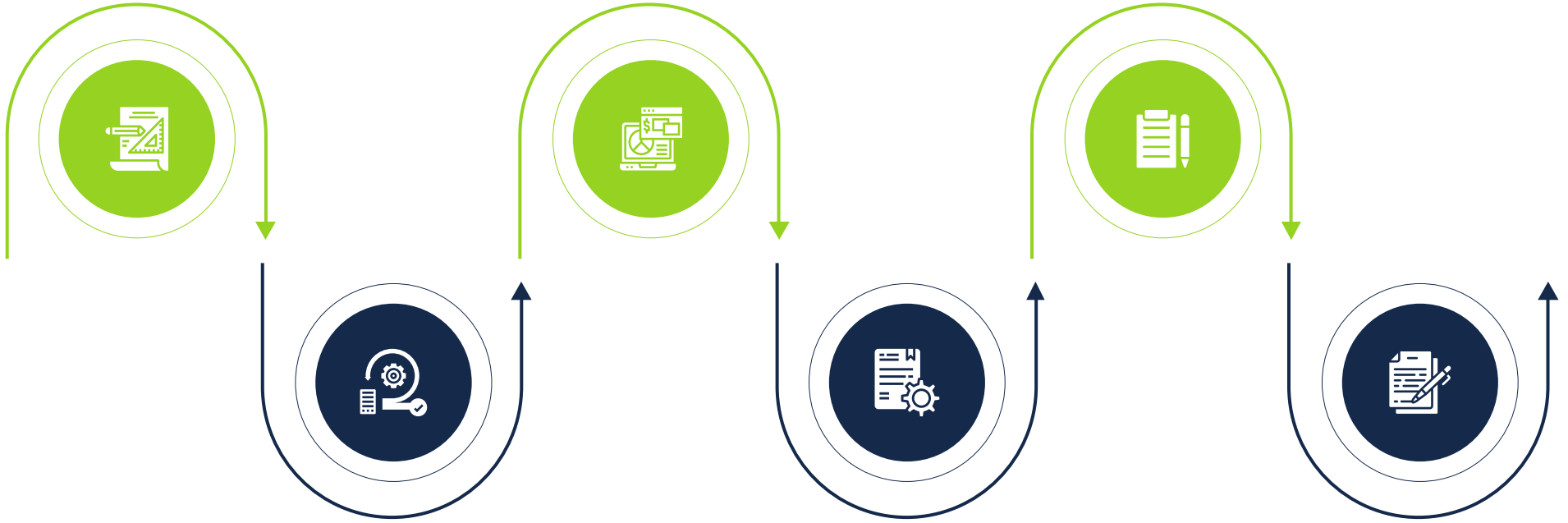
Agile is **not:**

- A Methodology
- A Specific Way of Developing Software
- A Framework or Process

According to agile modeling, large and small business needs are captured in a product backlog as user stories and planned into short iterations of development and delivery

Each iteration is time boxed for 1 to 2 weeks. Small pieces of value for the overall feature are delivered to consumers at this cadence

Each iteration comprises of – backlog grooming, planning, development, deployment, release, review and teamwork throughout the development process.

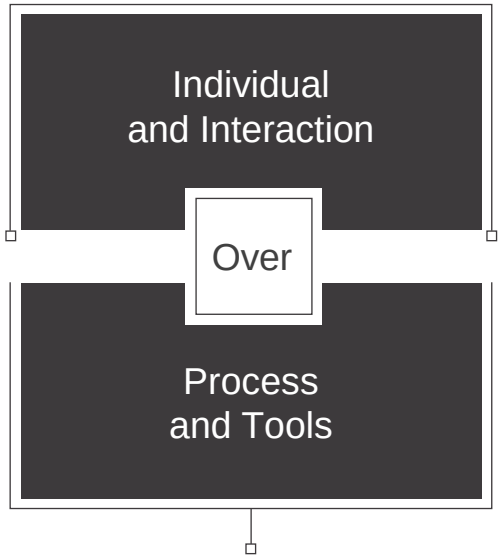


Objective of agile modeling – limiting risk as well as time frame for project completion and implementing flexible approach to change

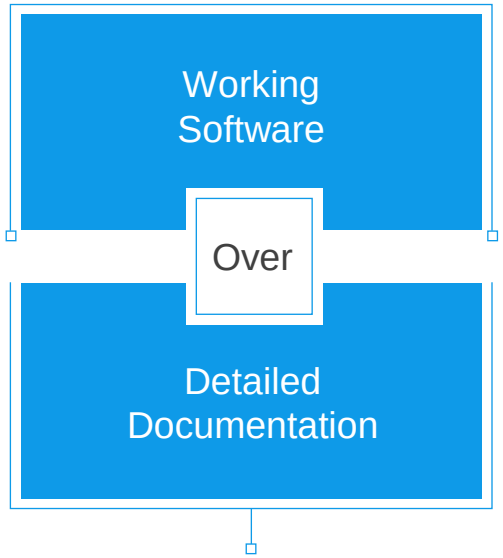
All stakeholders required to deliver the value are engaged/informed from the start

Work can be iterated at a singe Product level or cross-functionally across a program

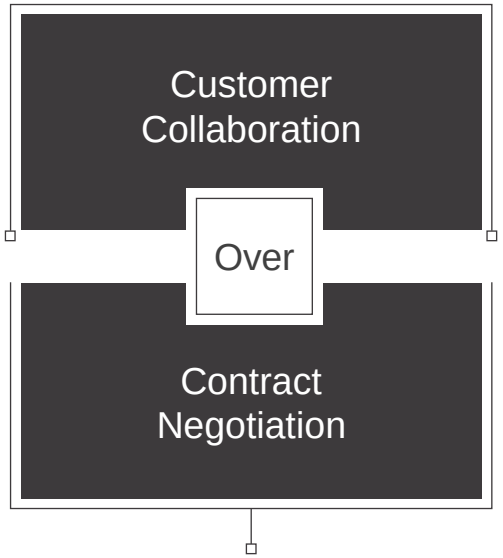
The Agile Manifesto



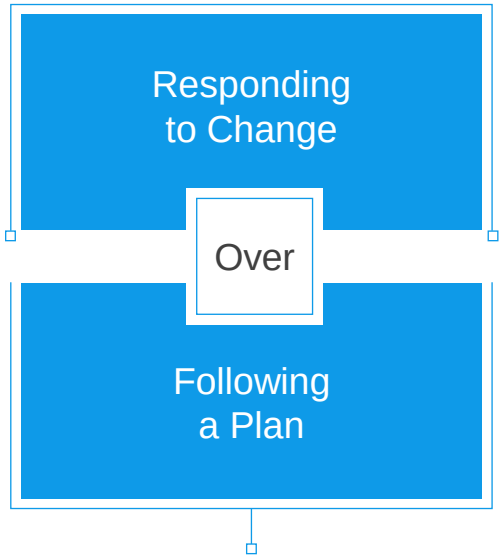
- Stresses on teamwork and communication
- We must recognize that software development is a human activity in which the quality of interpersonal contact is critical
- Tools are vital in software development, but excellent software requires much cooperation regardless of the tools used



- Documentation has its purpose, and it may serve as a valuable resource or reference for both users and coworkers
- However, rather than detailed documentation, the primary purpose of software development is to create software that provides economic advantages



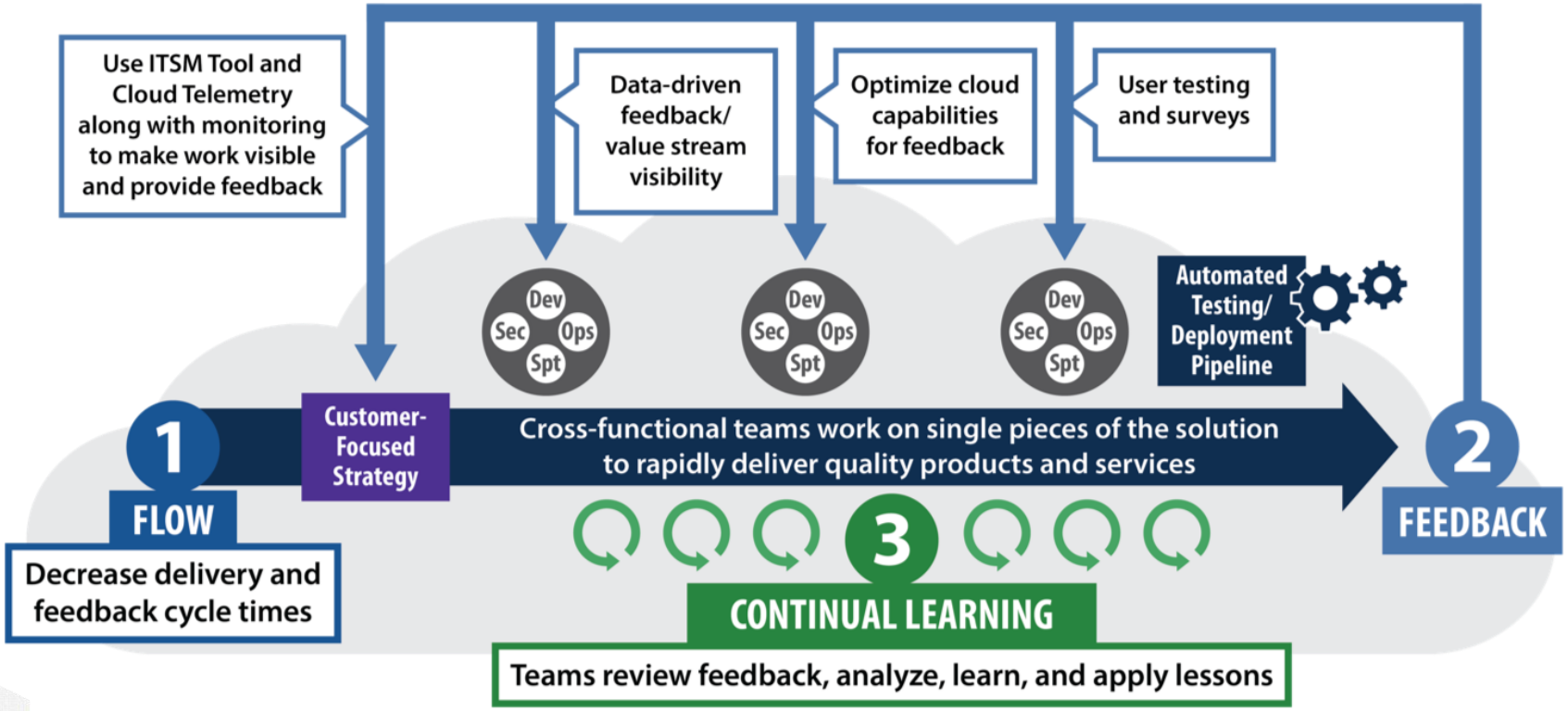
- Development teams must collaborate closely with their clients and contact them regularly
- Teams will better understand what all stakeholders genuinely desire by listening to and receiving feedback



- In software development, changes are unavoidable, and your software process should reflect this fact
- Project strategy must be adaptable to changing circumstances

What is DevOps?

The DevOps process applies an Agile mindset to both the development and operations departments with a particular focus on communication, collaboration, integration, and automation.

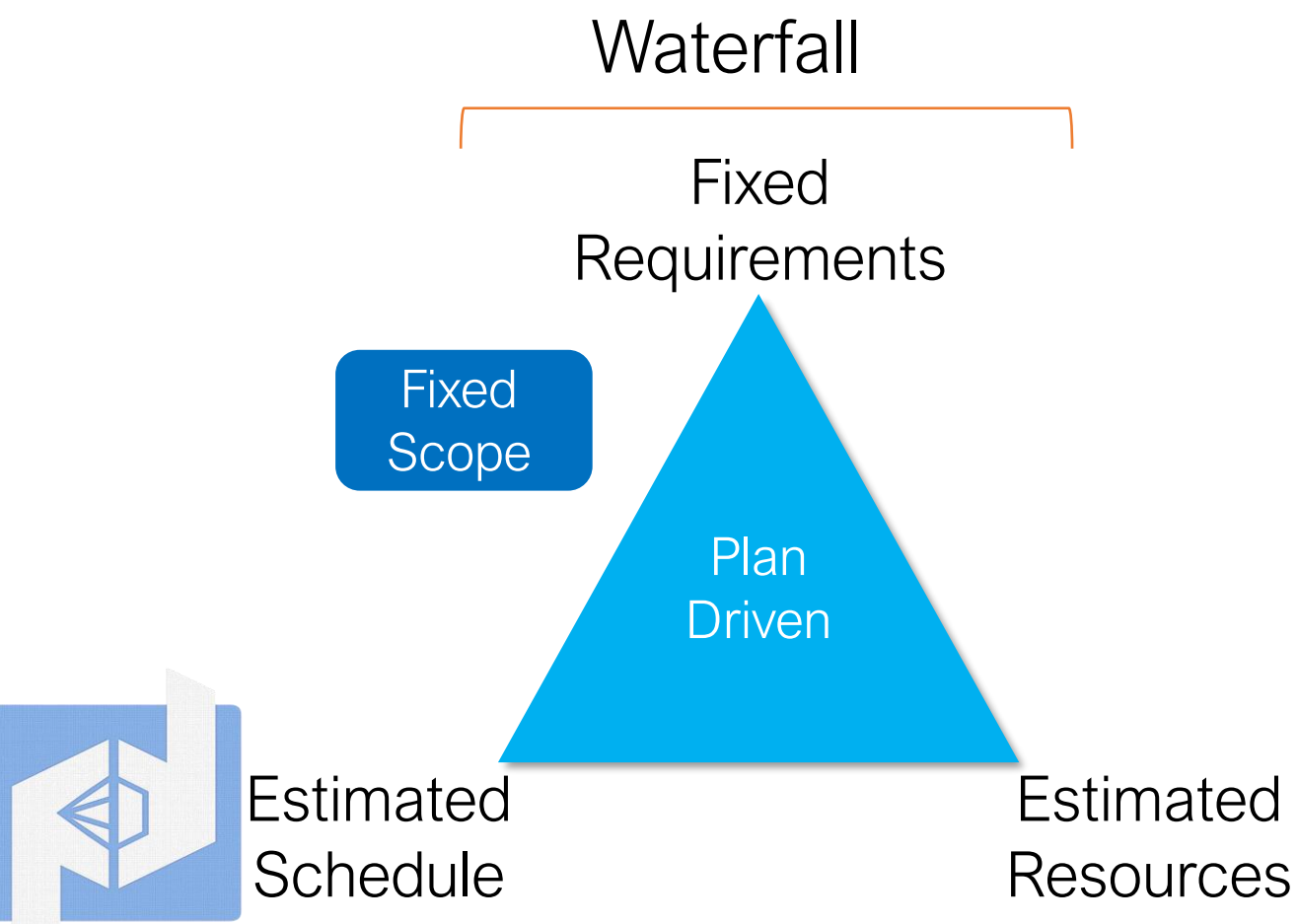


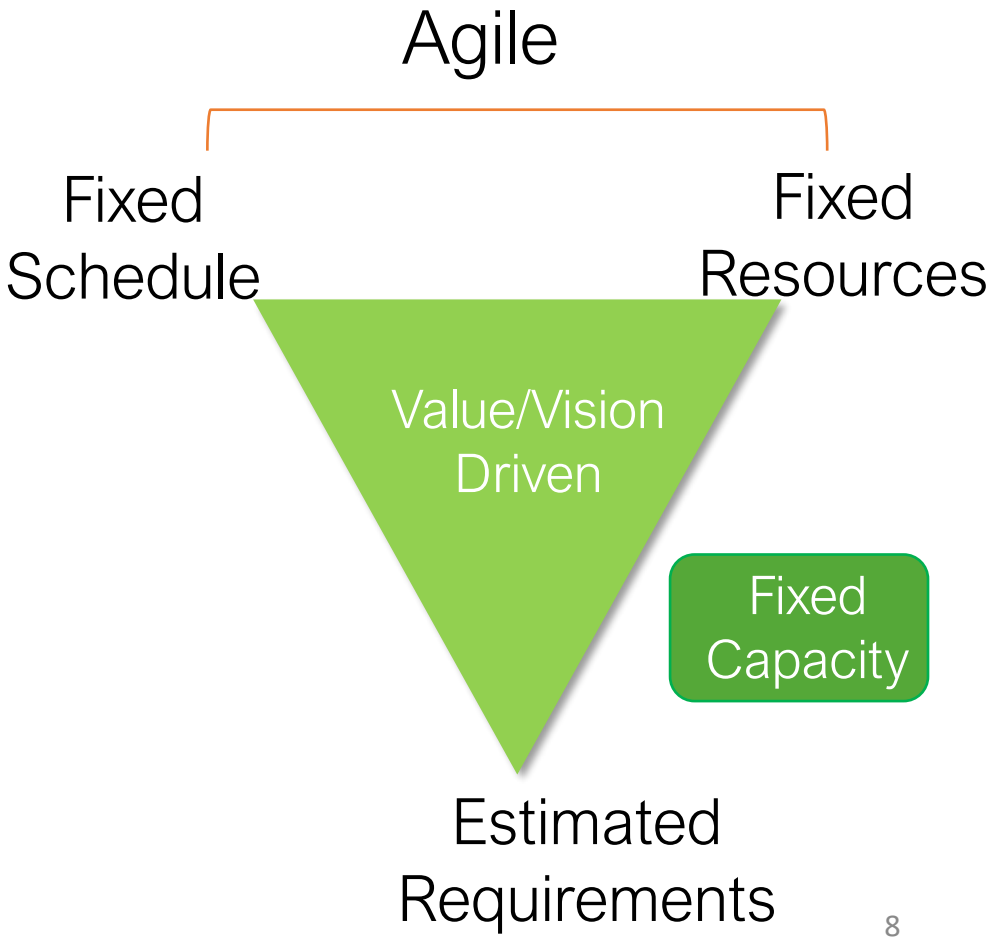
1. **Rapid flow of data-driven services to customers**
   Cross-functional teams rapidly deliver service/capability in small batches
2. **Customer feedback to ALL OIT teams**
   Maximize actionable data from customer behavior with reduced response cycles
3. **Continual learning, testing of hypotheses (experimentation) and improvement**
   Maximize agility/learning to deliver a continuously improving customer experience

"Learn from yesterday, live for today, hope for tomorrow. The important thing is not to stop questioning." – Albert Einstein

Agile vs Waterfall

- Waterfall methodology adheres to strict scope definition and delivers to plan, rather than value
- Agile methods deliver value incrementally based on iterative feedback and discovery
- Waterfall's plan driven approach is subject to increased capacity and decreased quality
- Agile' s value driven approach estimates the delivery of scope and risk declines as project progresses





Source: https://www.leaseweb.com/labs/2014/01/waterfall-versus-agile-comparing-software-development-methodologies/

Triggering Productivity with DevOps

Faster Time to Market
Quick deployments and easy communication makes value delivery faster.

Bringing Isolated Teams Together
Teams such as development, testing, and operations are easily coordinated

Automated Workflows
Automation shortens the development and delivery process

Continuous Integration
Developers can easily work on unit testing, code quality analysis, etc.

Better Monitoring
Real-time reports and dashboards can be accessed for continuous update, change requests or defects

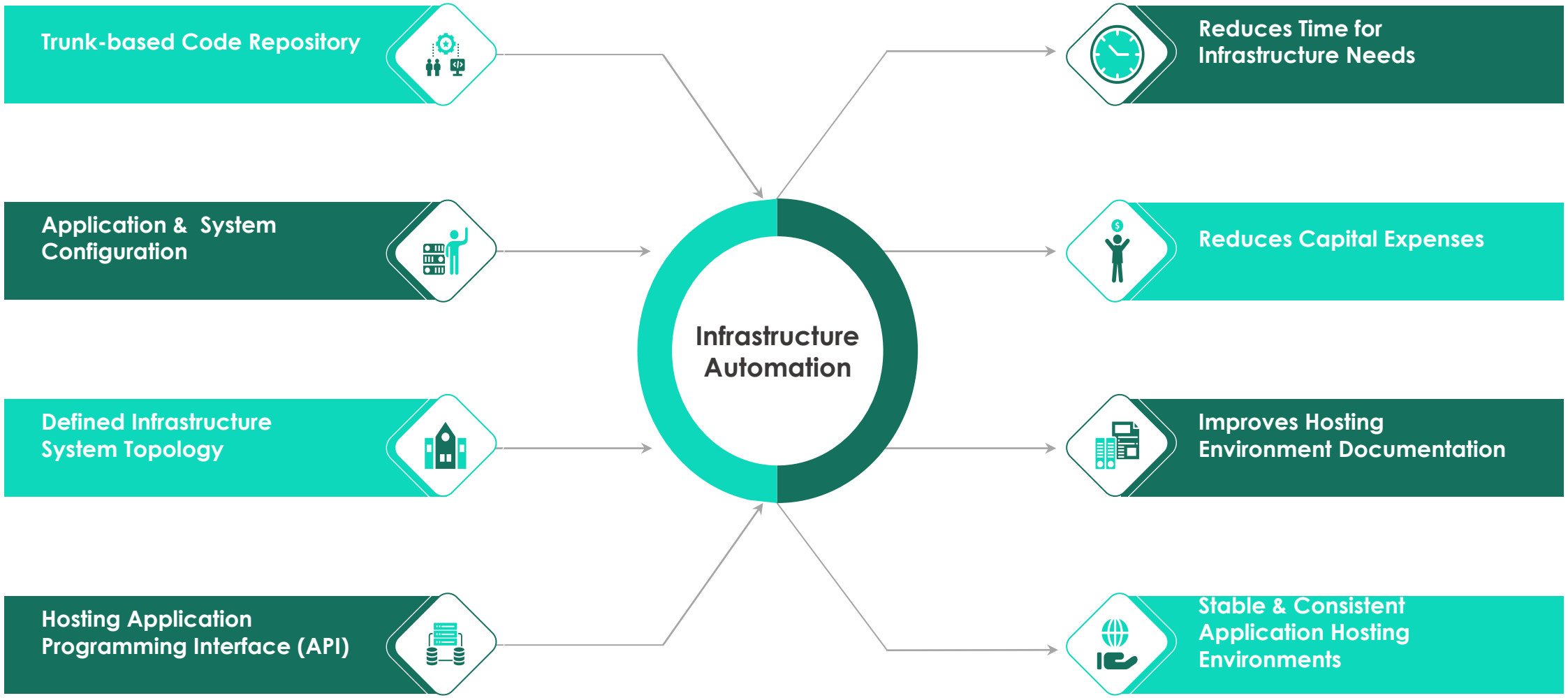
Faster Resolution
Development engineers and IT help desk managers get automated notifications

More Focus on Improving the Business
Teams can easily concentrate on improving core business which helps in productivity improvement.

Cost Reduction
Process management becomes less expensive since manual interventions gets eliminated

Decreased Risk
Risk factors are decreased due to less human error

Infrastructure DevOps Automation Model



Challenges Faced by DevOps Integration

04

Disconnected workflows

03

Lack of traceability of artifacts such as demands, requests, user stories, features, bugs, etc.

05

Ineffective software; poor ‘fit for purpose’ application hosting decisions

02

Poor cross-functional team collaboration

06

Lack of automation and toolchain integration and orchestration

01

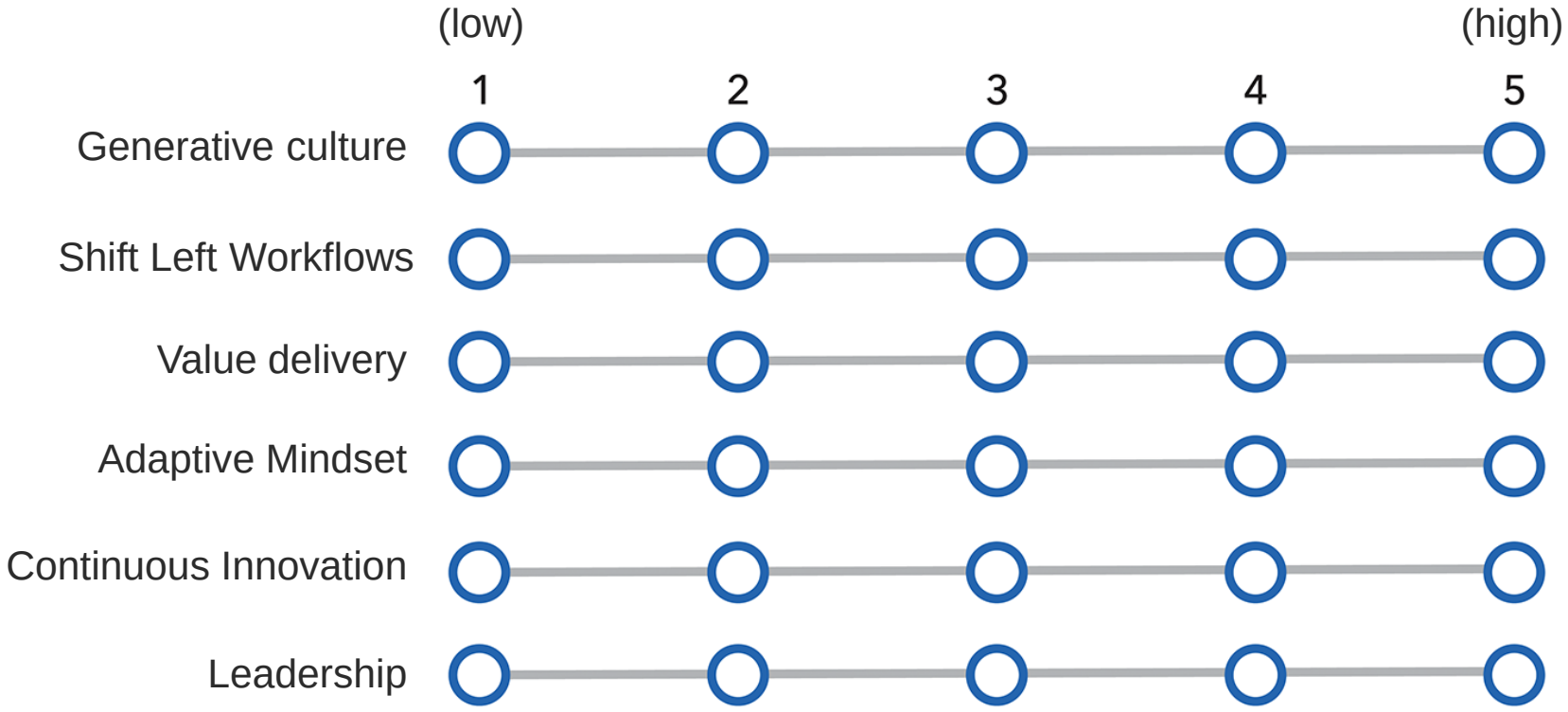
Lack of end-to-end visibility into the pipeline

07

Inadequate governance

Activity: Assessing organizational mindset

- **Step 1:** As a team, assess where your organization stands in embracing a mindset of adaptive agility.
- **Step 2:** Discuss the results of the assessment. Do the teams have similar low or high scores?



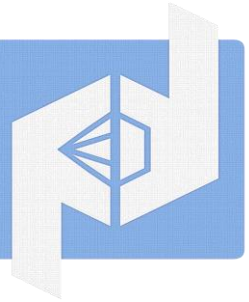
1.1 Infrastructure & Operations and digital services and applications

Infrastructure & Operations and digital services and applications

- ***IT infrastructure*** teams manage the physical and virtual assets that support networking, processing, and storage. This includes data center hardware such as servers, power and cooling elements, and networking devices, as well as virtualized data center environments.

- ***IT operations teams*** oversee designing, setting up, configuring, deploying, and then maintaining technologies that directly support the business. IT operations teams deliver services and applications to line-of-business customers as well as external customers.

"I&O's traditional approach to managing complexity via siloed tooling and expertise is insufficient for optimizing the digital experience and the application workloads that enable that experience." -Gartner, Predicts 2020: IT Operations

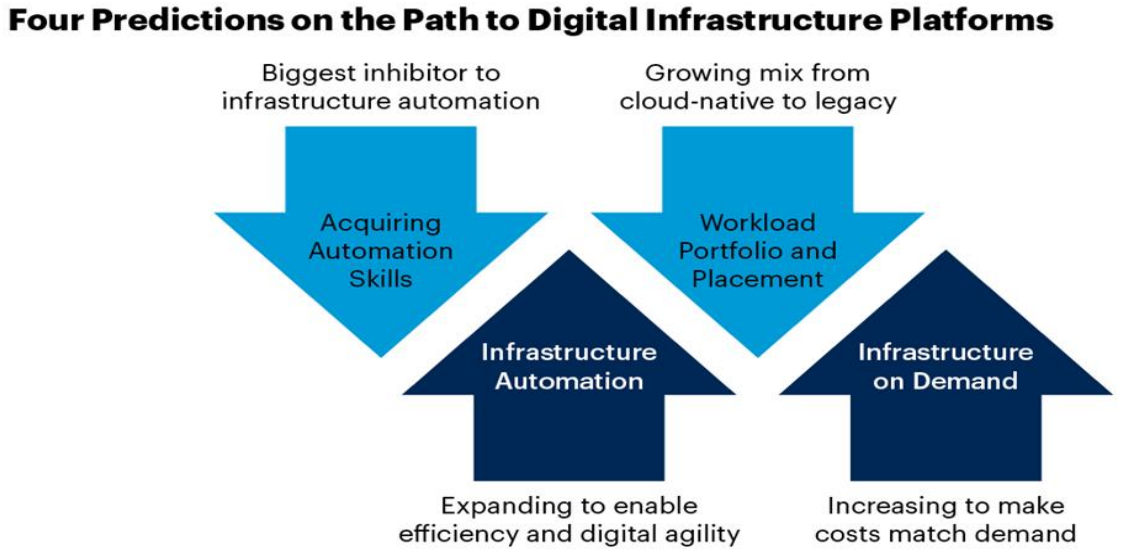


IT teams can no longer operate in silos. IT teams, including those associated with I&O, are no longer in the business of **project management**, they're providing products directly to customers. Products do not have end dates - they must be continuously improved and managed.

The Death of the Data Center?

The shift away from the traditional data centers continues, but this does not mean everything is moving to the cloud. Enterprises with older data centers may not wish to rebuild them or build new ones due to high capital costs and when Business Units request new applications, services or platforms… many IT organizations are no longer focused on ‘how they can build what was requested’, but on ‘where they can find and implement it’.

Data has become the lifeblood of organizations, and servers and cloud-computing have become the arteries that move that data. This means that infrastructure is critical to day-to-day operations.



Source: Gartner
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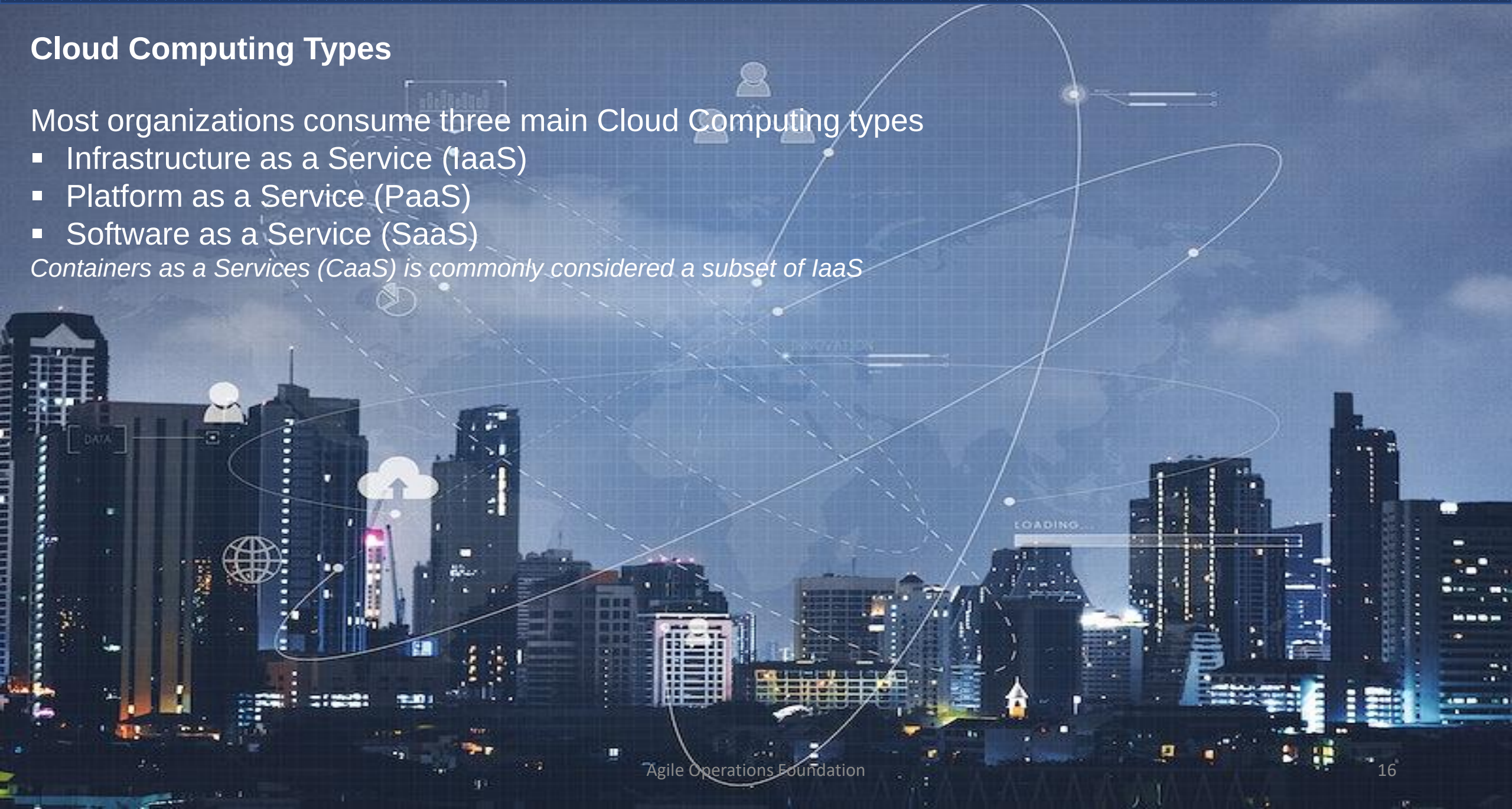
Cloud Computing Types

Most organizations consume three main Cloud Computing types

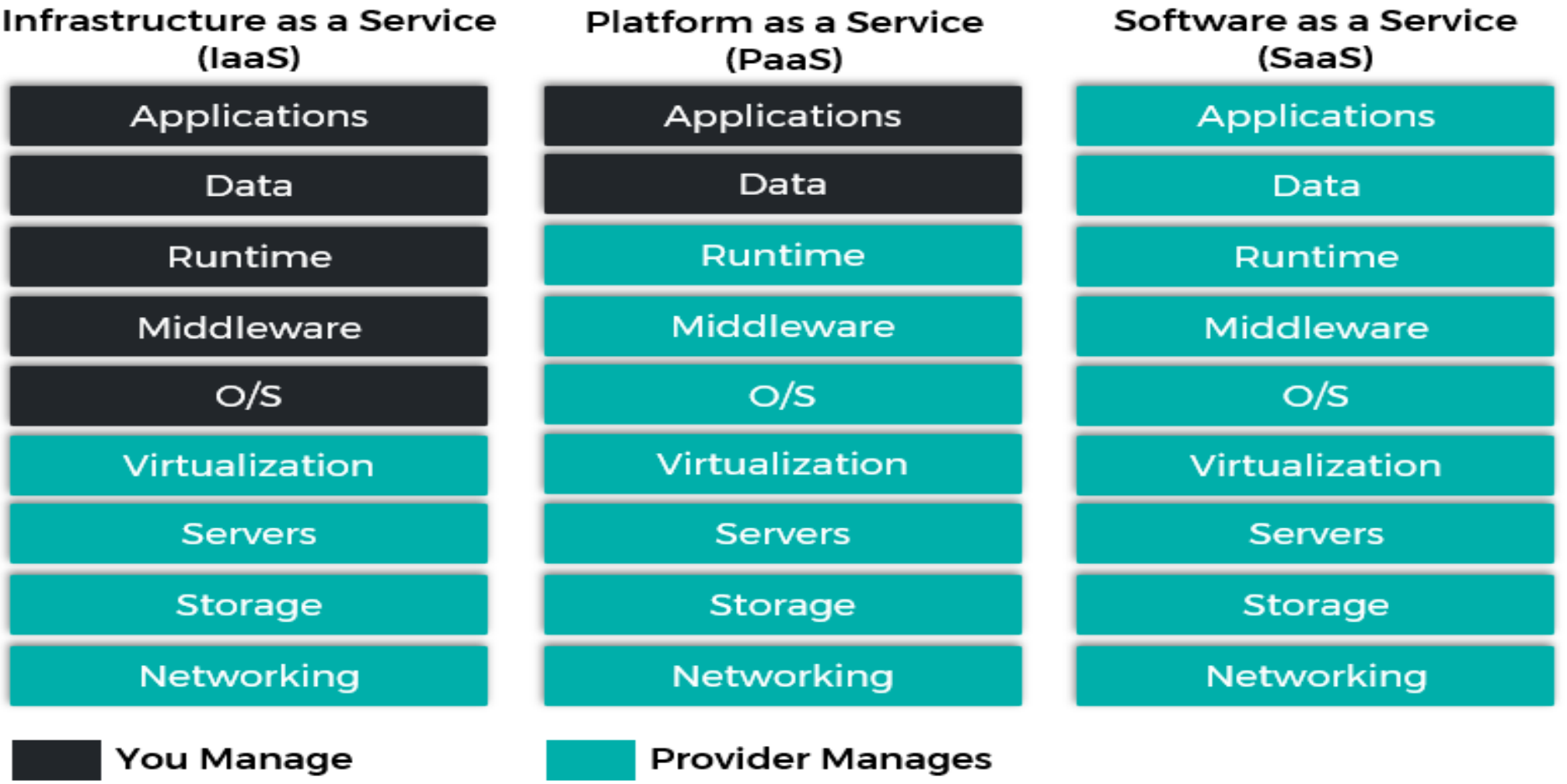
- Infrastructure as a Service (IaaS)
- Platform as a Service (PaaS)
- Software as a Service (SaaS)

Containers as a Services (CaaS) is commonly considered a subset of IaaS



IaaS, PaaS, SaaS

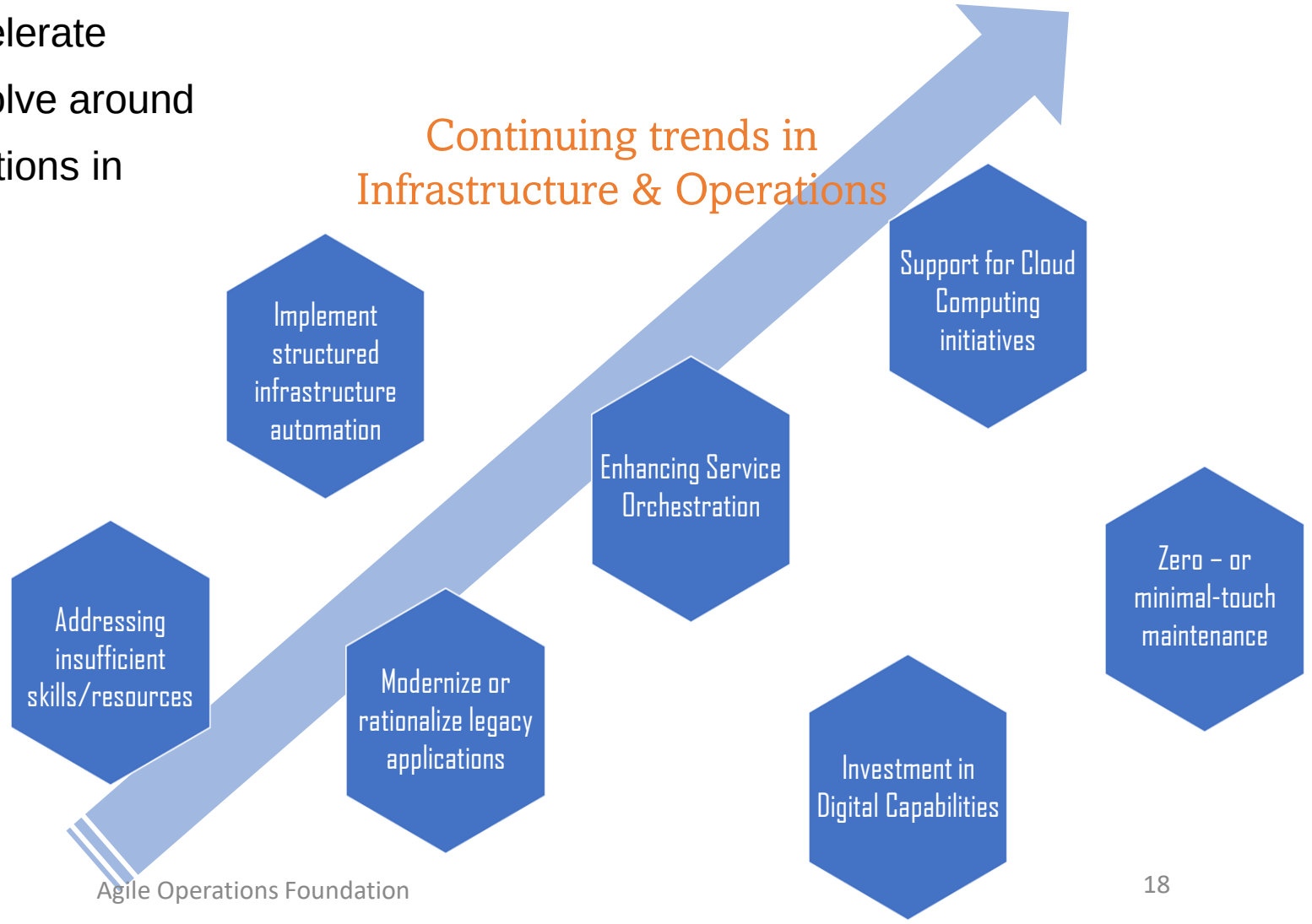
A DevOps, “Shift Left” approach to delivering Cloud Computing Services allows I&O to sync with Agile Teams to develop CI/CD pipelines to increase the delivery of value.



Infrastructure and Operations (I&O) teams are tasked with staying up-to-date on technological innovations and helping the organization meet digital needs and goals.

Infrastructure is changing as enterprises accelerate digital transformation. Top trends in I&O revolve around IT teams meeting new and changing expectations in growth, scalability, and security.

Hosting Services play an important role in determining and providing support for cloud computing initiatives.



Keep an Open Mind…

There are several drivers for the demand to shut down traditional enterprise data centers. Chief among them are Cloud Computing, Managed Service Providers (MSPs) and Colocation. Yet, it is important to remember that these options themselves are…data centers.

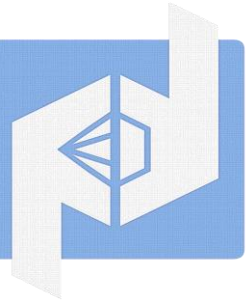
Look for efficiency…

Cloud Platforms can be much more efficient, given their improved approaches to resource sharing. IT can do much more with much less, burn fewer watts, and emit less carbon (once IT learns how to navigate and benefit from those Cloud services).

"Many traditional data centers will likely be repurposed into improved and innovative versions. I&O teams should not fear disruption, as disruptions can be a positive. Rather, they should embrace a culture of adaptive agility that allows them to see themselves in the digital transformation. They are part of the change, not victims of it." -MW Johnson, Paragon Delta

Be Adaptive…

MSPs and Colocation providers can usually host what existing data centers now host, including older systems such as mainframes and minicomputers that don't yet have analogs in public clouds. They can also host traditional systems with migration paths to the cloud that are too costly to justify for now.



Class Discussion

- How are ‘Fit for Use’ cases determined for applications in the environment you currently support?
- Is there an established Software Factory or Migration Factory in you organization?
- How familiar are you with the differing Cloud Computing Services?

1.2 Planning Technology

Planning Technology

Technology planning is an involved process that requires a commitment of time and resources from senior leaders and other staff. Understanding key aspects of technology helps organizations make sound decisions. Organizations should have the tools required to understand the environments they working in. This requires access to valid information. Planning Technology harnesses the power of that information.

As a process, Planning Technology has several steps:

- Synergize leadership and support
- Assess resources
- Define needs
- Explore solutions
- Write a plan
- Obtain funding
- Implement the plan

Balanced Scorecard Example

- Lean, Agile Mindset Adoption (Culture)
- Training Plan Implementation
- Customer Experience Rating
- Team Member Satisfaction
- % of Staff with policy knowledge
- % of Strategic Priorities mapped
- Staff Utilization Ratio (Staff Planning)
- % of understood objectives (Comm Plan)

- Actual vs Planned Expenditure
- Service Migration Rate
- Resource allocation satisfaction
- Savings through cost optimization
- Emerging Technology adoption rate
- % of Services with defined SLA
- Number times SLAs broken
- Infrastructure availability satisfaction

- Number of Services offered
- Number of viable contract vehicles
- Vendor toolset integration
- Overall Stakeholder satisfaction
- EA driven enhancement %
- Delivery Performance
- Lead Time Improvement
- Staffing Diversity

- Estimated Business Value
- Workflow Transparency
- Innovation Enablement satisfaction
- Ease of Intake & delivery rating
- Governance integration rate
- Critical processes w/ approved performance
- Customer Engagement Model
- Operational/Development Value Stream

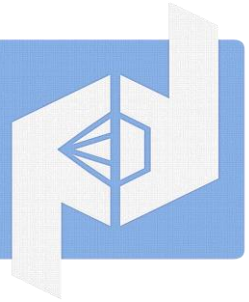
1.3 Continuous Integration and Functional and Non-Functional Controls

Continuous Integration and Functional and Non-Functional Controls

DevOps begins with the practices and tools used for releasing software to compute environments. With DevOps, tools are easier to use and integrate.

- **Continuous integration** establishes an automated way to build, package, and test applications
- **Continuous delivery** and Continuous Deployment pick up where continuous integration ends as one generates versioned artifacts and publishes them to a repository and the other automates application delivery to selected environments, including production, development, and testing environments. Continuous delivery/deployment is an automated way to push code changes to these environments.

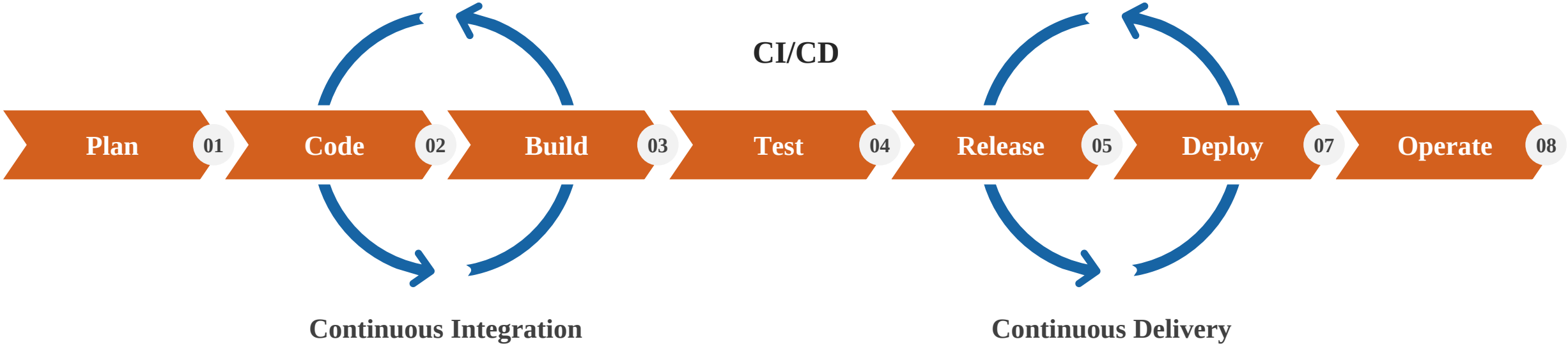
Organizations that implement a CI/CD pipeline often have several DevOps best practices in place, including microservices development, serverless architecture, continuous testing, infrastructure as code, and deployment containers.



Each of these practices improves process automation and increases the robustness of cloud computing environments. Together, these practices provide a strong foundation to support continuous deployment.

Recommended Reading: *The Book…**Accelerate***
by Nicole Forsgren - PhD, JezHumble, and Gene Kim
accelerate book - Google Search

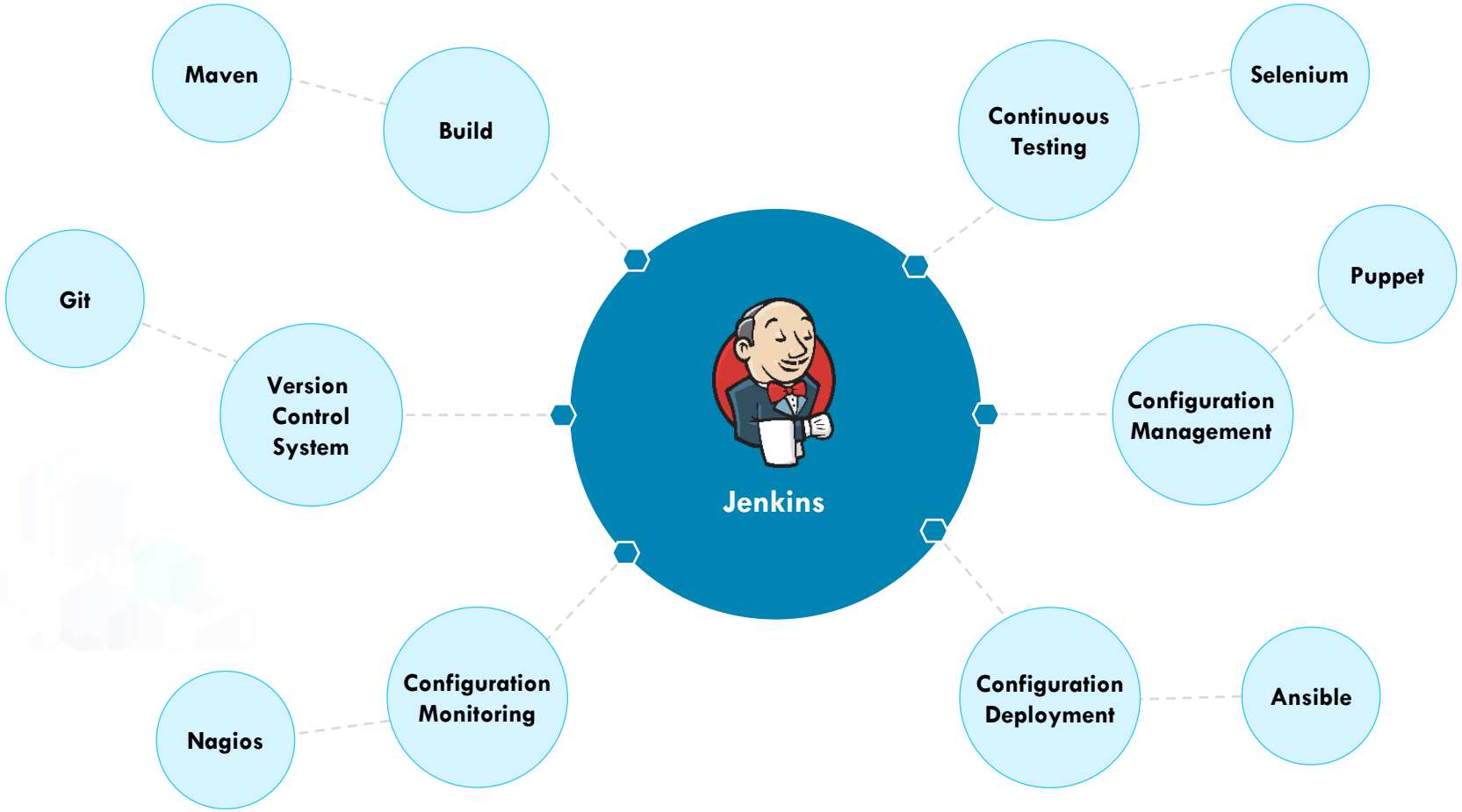
Continuous Integration and Delivery Approach



Key Benefits

- Delivers high quality product
- Saves a lot of time during project integration phase
- Helps in detecting integration issues

Continuous Integration in Jenkin



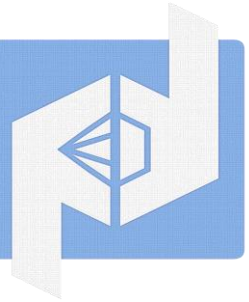
Functional and Non-Functional

According to the Business Analysis Body of Knowledge (BABOK) definition, requirements are a usable representation of a need.

Functional requirements define what a product must do, what its features and functions are.
Nonfunctional requirements describe the general properties of a system. They are also known as quality attributes. This includes transition requirements such a continuous delivery and deployment functions.

To ensure high quality and reliability, Continuous Testing is deployed, which involves running many different types of tests (automated and manual) throughout the software delivery process to repeatedly validate and improve the quality of the software that is being built.

	Manual	Automated
Business Facing	Functional Acceptance Tests	Showcases Usability Testing Exploratory Testing
Technology Facing	Unit Testing Component Testing System Testing	Non-Functional Acceptance Tests (e.g. Capacity, Compliance, Security, availability…)



QA Testing Methodologies- Functional

Unit Testing

- To divide the website/software process in small modules and test them

Integration Testing

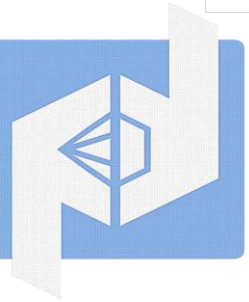
- To merge different modules and test teams collectively

System Testing

- To test the whole system at once to detect any bugs or problems

Acceptance Testing

- To test the system opposite its specifications to check if it performs well



QA Testing Methodologies Non-Functional

Vulnerability/ Security Testing

- To ensure user's data is secure from hackers

Compatibility Testing

- To verify that the website/software is well suited for hardware, web browsers

Usability Testing

- To make sure the software/website is user friendly

Performance Testing

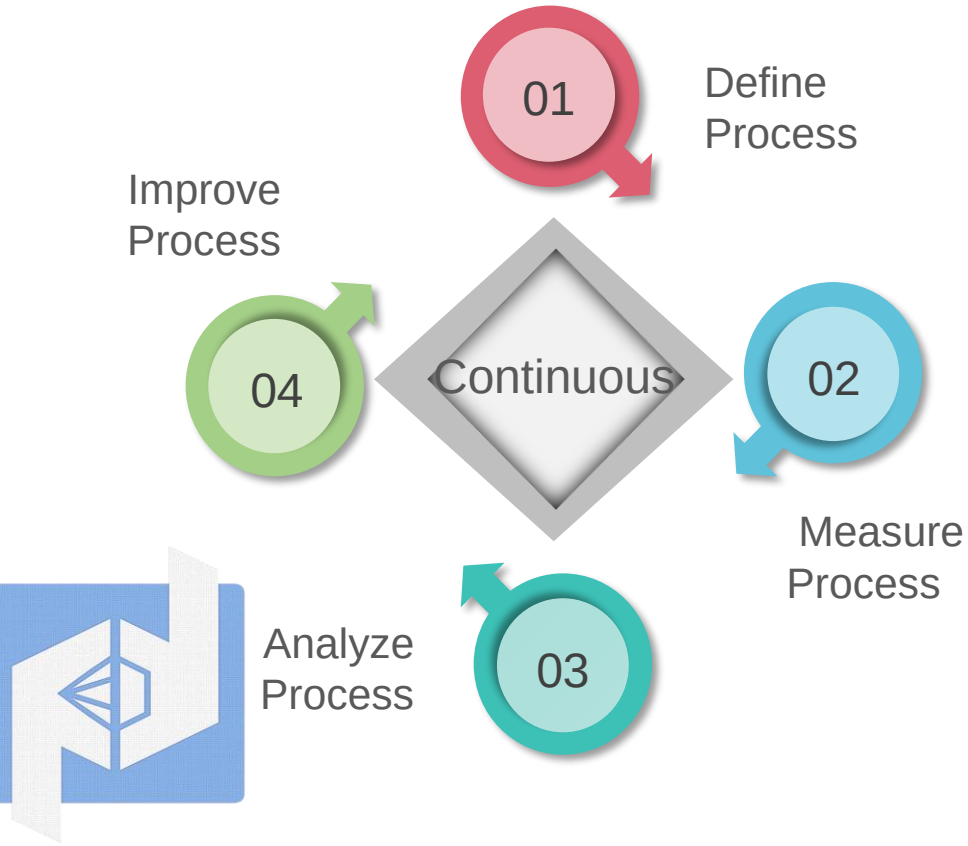
- To make sure that website/software works fine in different situations

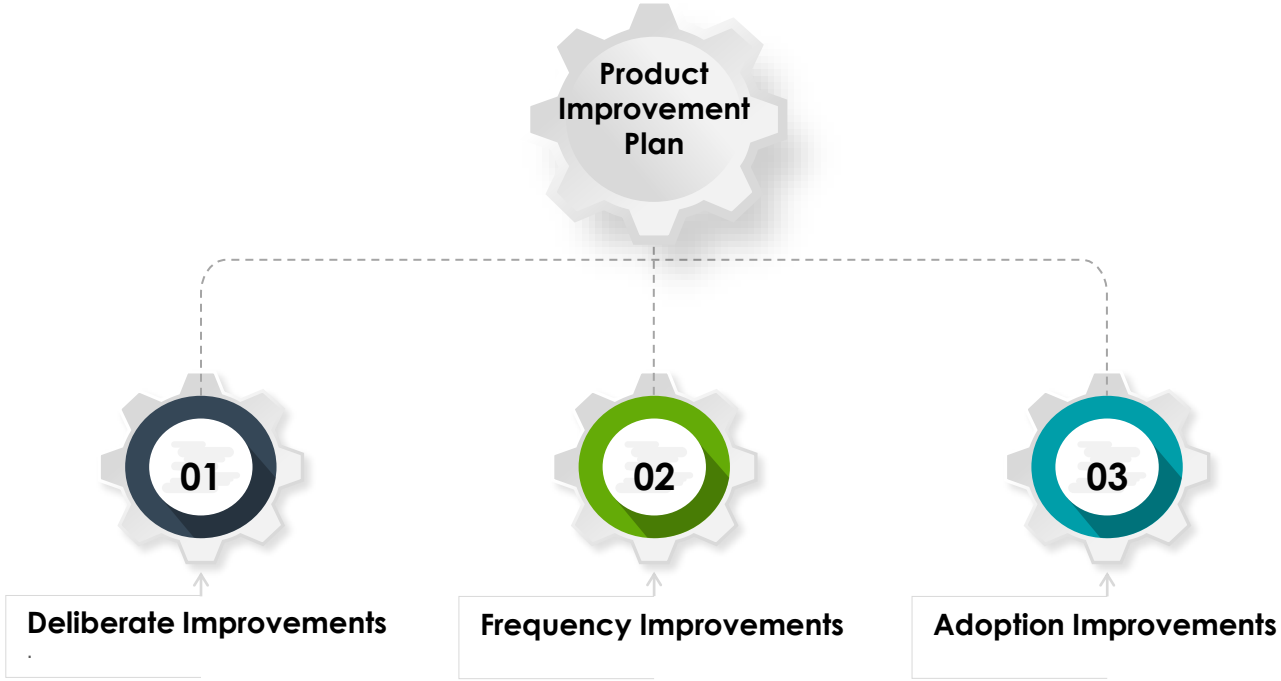
1.4 Product and Process Improvement

Product and Process Improvement

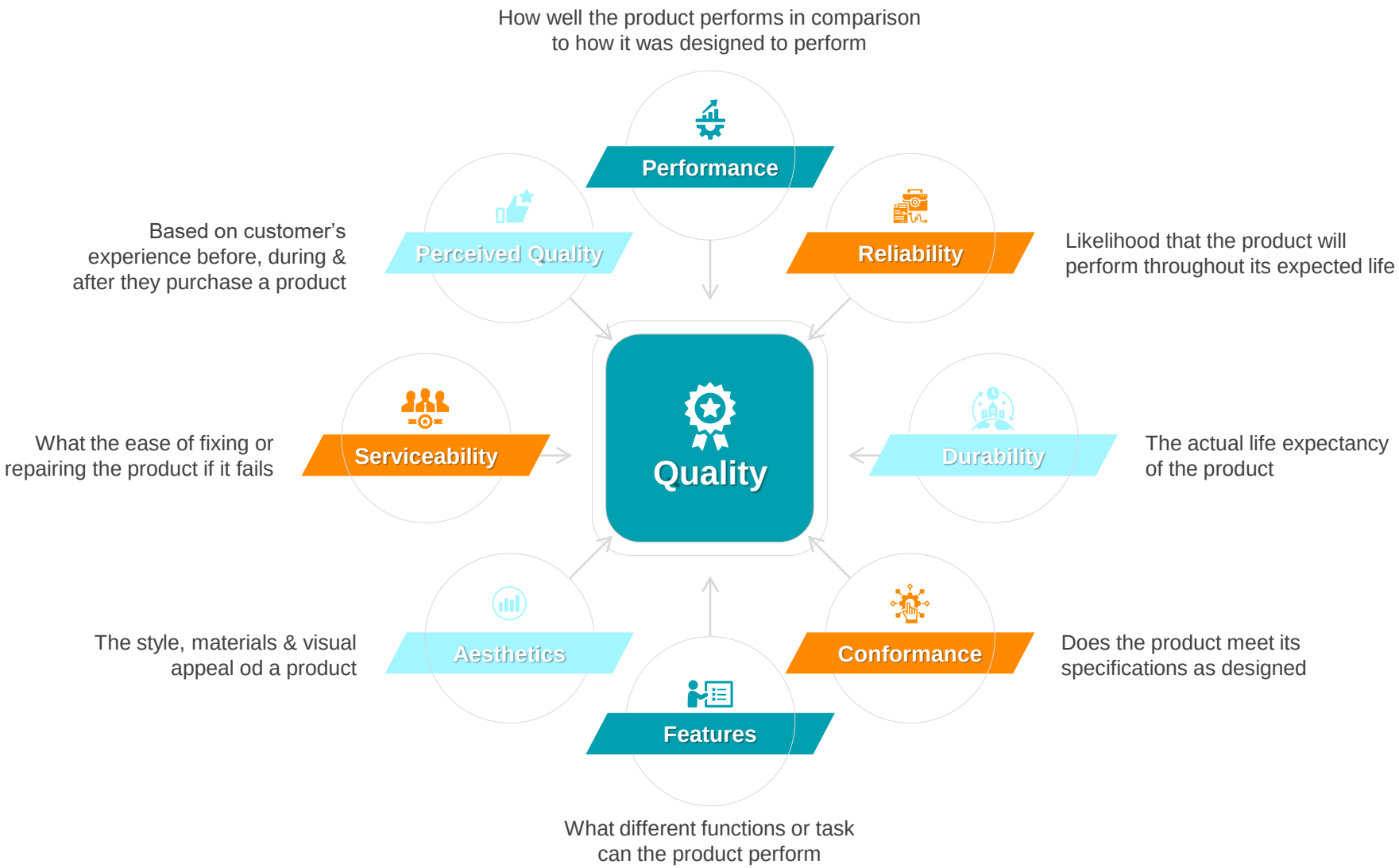
Meaningful process and product changes that result in in an increased customer base and increased value realization are the result of Product and Process Improvement efforts.

Operations teams become heavily involved in the agile value delivery cycle during the release and production stages to ensure quality, security, and stability upon implementation. If teams aren't communicating well, these are the phases where competing values and objectives can send a project off track.

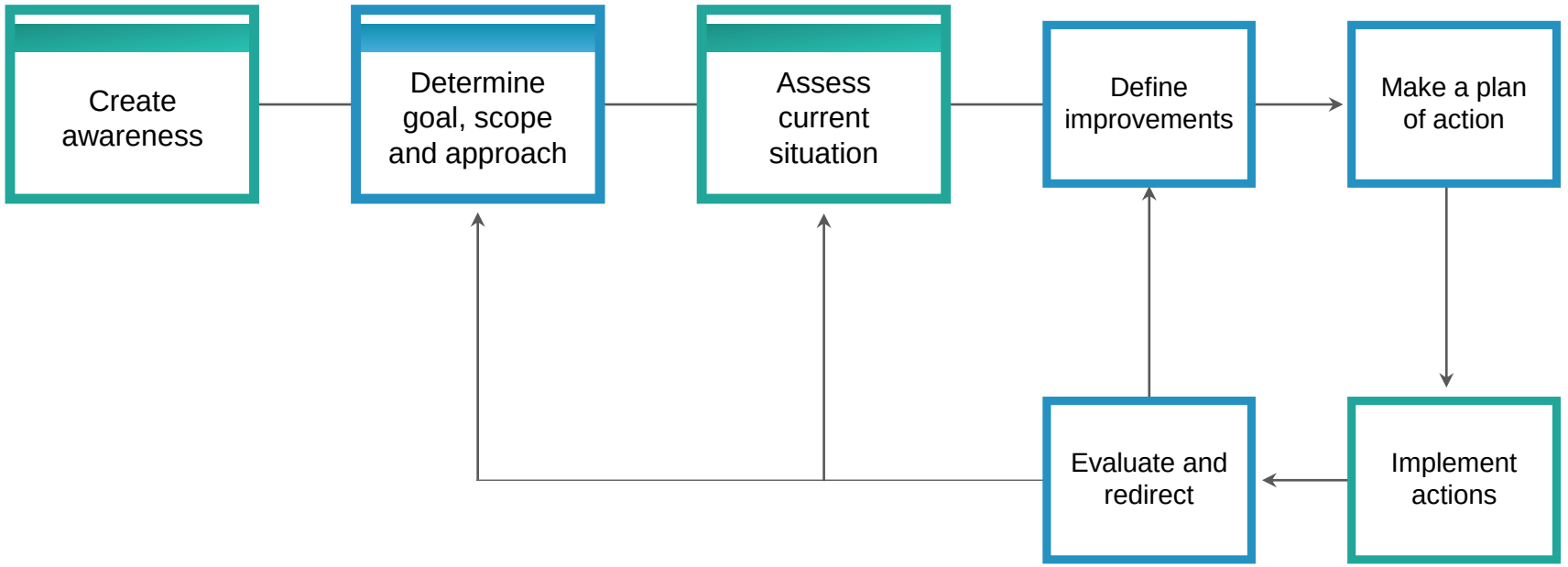




Product Dimensions You Can Improve Upon



Quality Assurance Process Improvement Activities

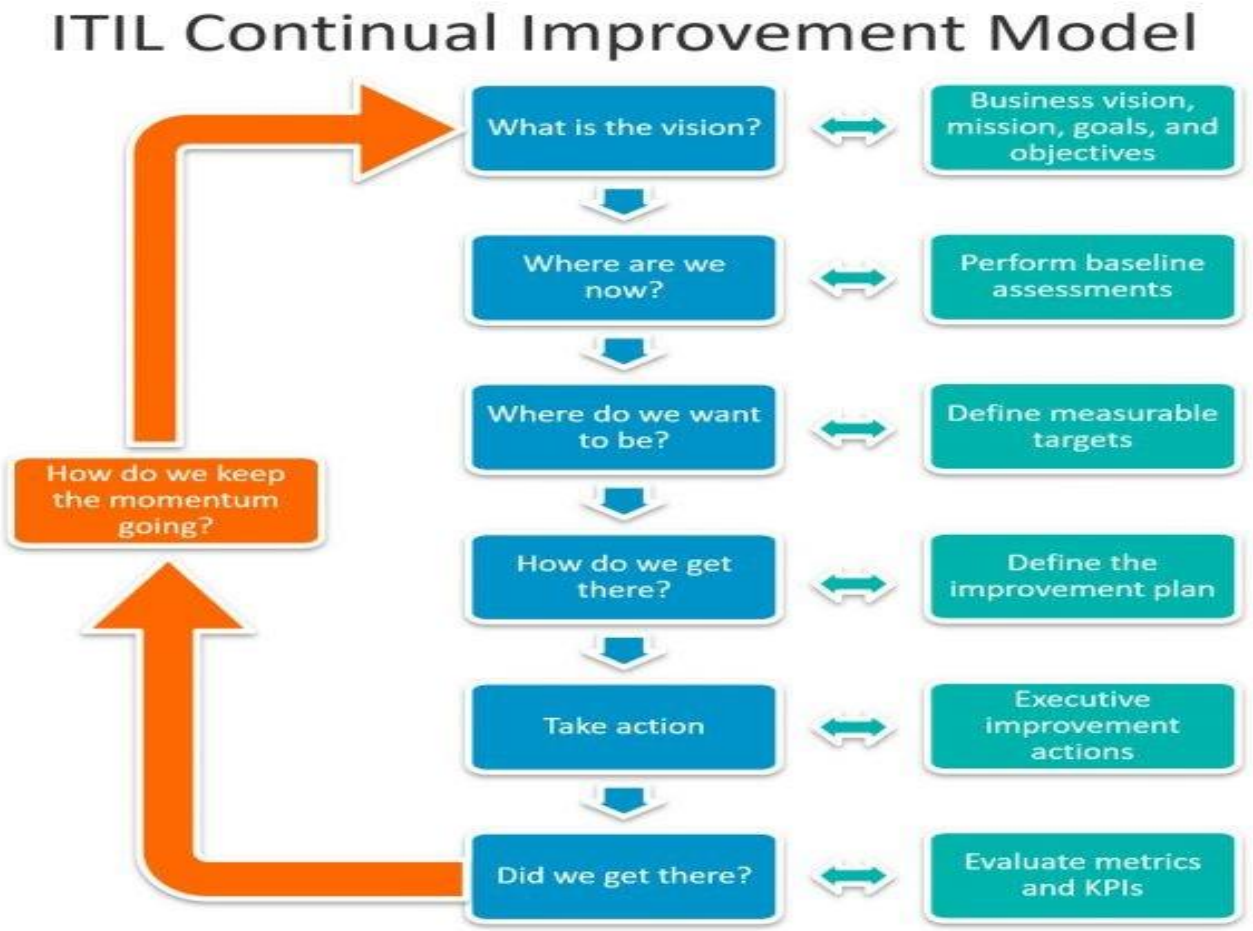


Relentless Improvement

There will be infinite opportunities for product and process improvement. However, it is critical that only those improvements which align with and contribute to the desired direction of the organization are pursued. Ensure that program and team priorities are aligned with organizational strategic themes and prioritized roadmaps.

Adoption of a ‘Relentless Improvement’ culture is recommended for development and I&O teams. No process or product is ever good enough. There is always a way to make things better for consumers.

Deliver value…and then improve that delivery continuously.



ITIL 4 Continuous Improvement Model

Lesson 2
Adaptive Agility

2.1 Adaptive Mindsets (cultural, business and technology agility)
2.2 Adjusting to the Level of Maturity
2.3 Path to Mastery and the Counter-Intuitive Risk
2.4 Balancing the Creative and Critical Inputs for Agile Excellence
2.5 Breaking Barriers to Early Delivery
2.6 Tool Decisiveness: Evaluate When to Adjust

Adaptive Agility is the ability of organizations to identify and rapidly adapt to positive and negative disruptions. Accepting the change inherent in these disruptions, organizations adhering to Adaptive Agility are capable of flexing and adapting their operations, technology and information to continuously evolving business needs brought on by market dynamics, competitive pressures and business turbulence.

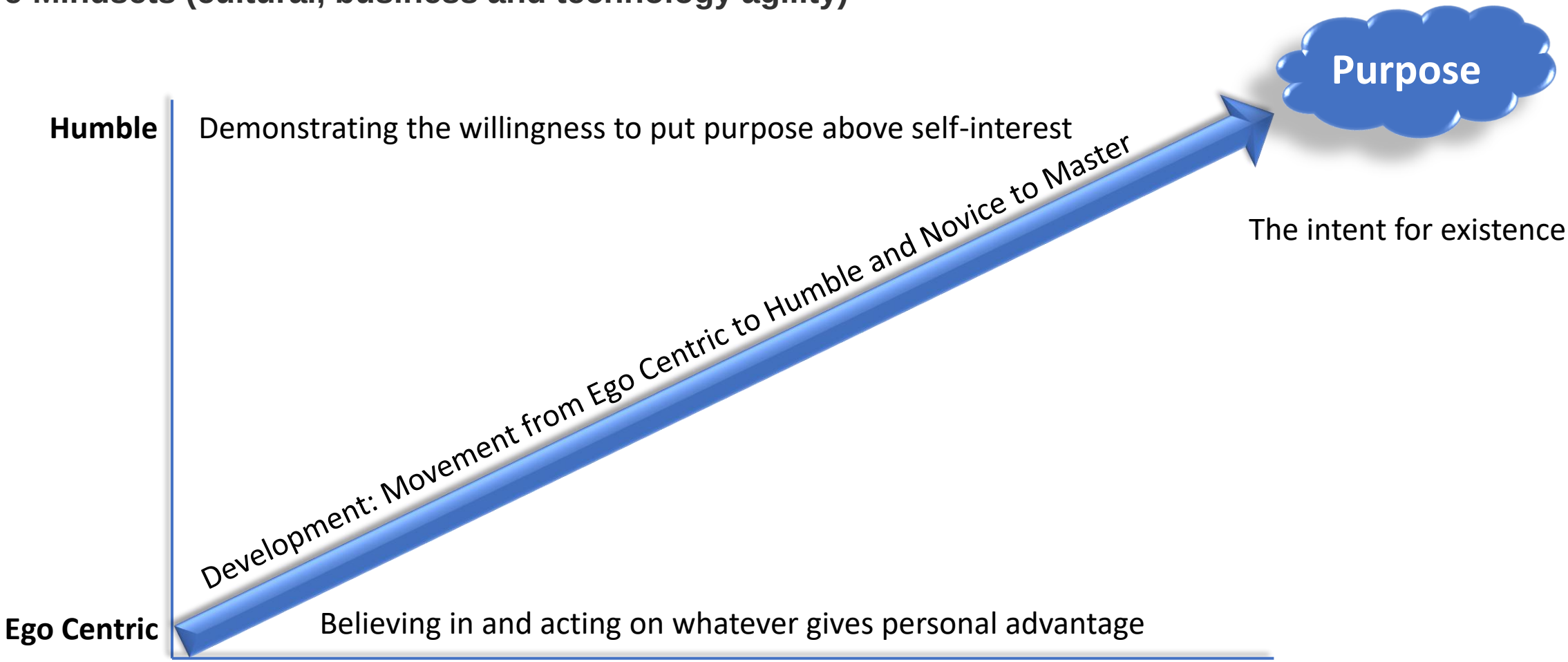
Agility *is about the level of operational flexibility an organization has to change—it's the ability to respond quickly to shifts in demand or customer preference within the boundaries of an existing business model.*

Adaptiveness *is about the overall ability of an organization to survive significant unforeseen and foreseen changes to the environment in which they operate.*

"Masters forced to comply to standards hinders innovation, while novices unleashed to innovate invites excessive risk." – David Fuller

2.1 Adaptive Mindsets (cultural, business and technology

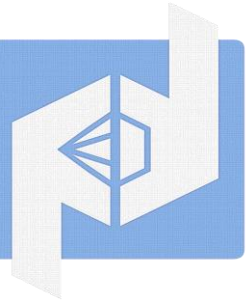
Adaptive Mindsets (cultural, business and technology agility)



Adjusting to the level of maturity

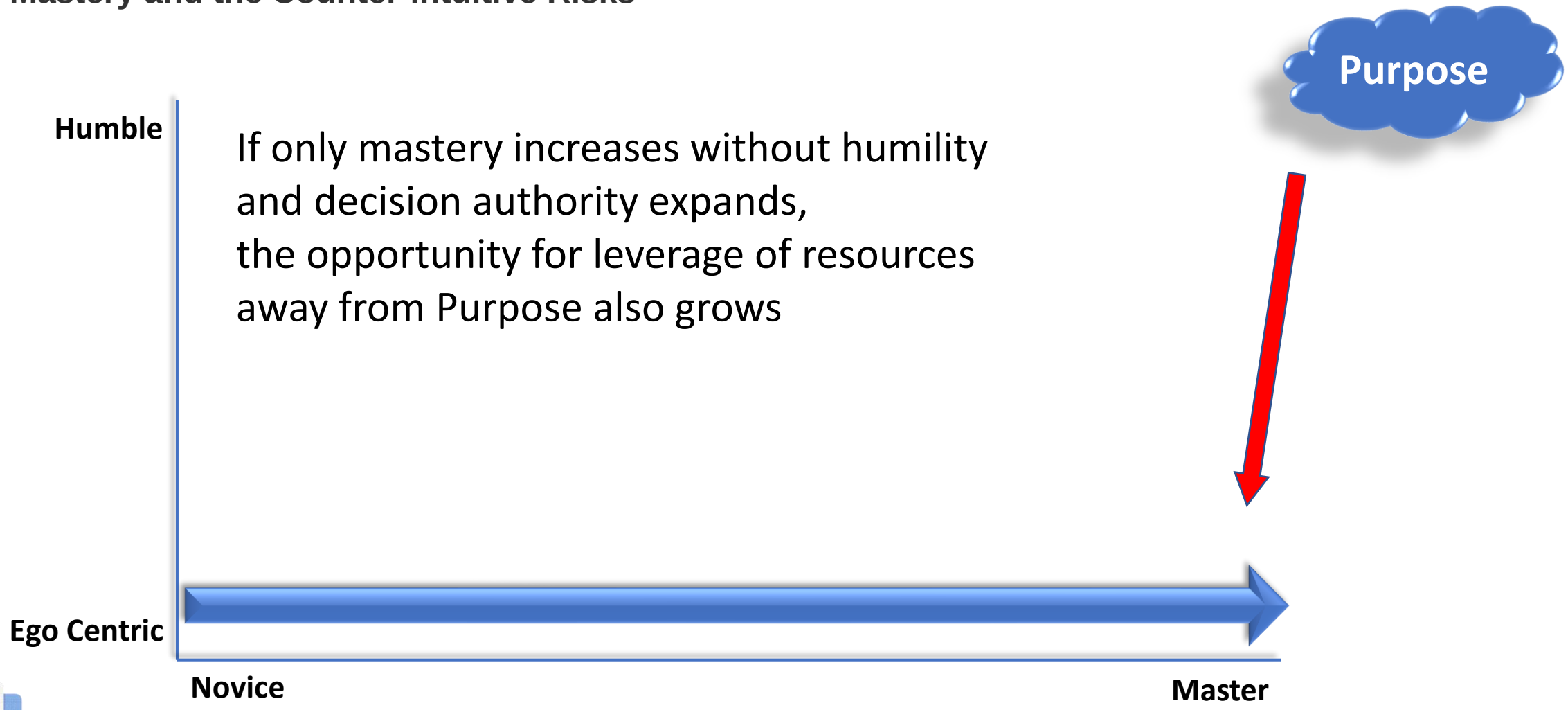
As team develops in mastery and humility:

- Does the need for standards increase or decrease? Why?
- Does the need for documentation increase or decrease? Why?
- Does the velocity increase or decrease? Why?
- Does efficiency increase or decrease? Why?
- Does motivation increase or decrease? Why?

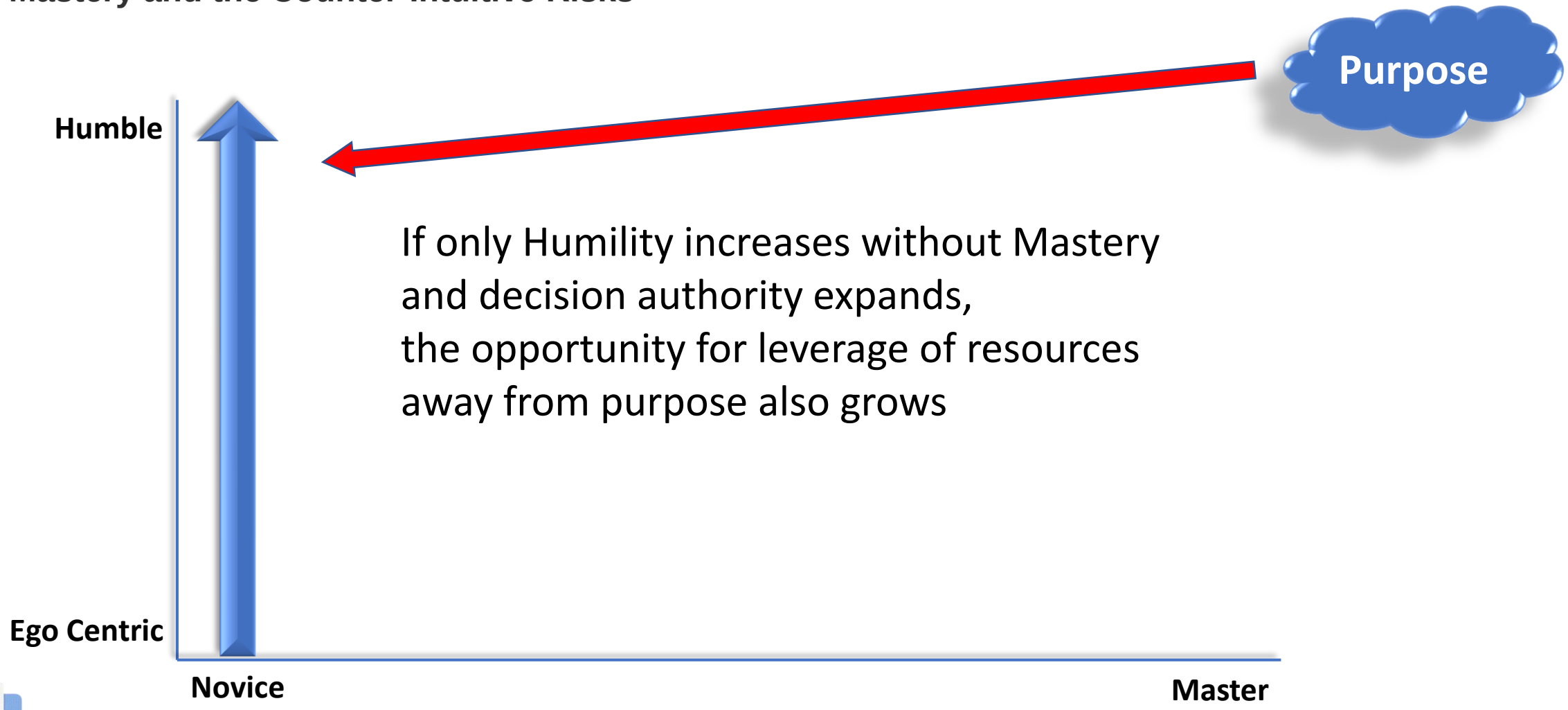


2.3 Path to Mastery and the Counter-Intuitive Risk

Path to Mastery and the Counter-Intuitive Risks

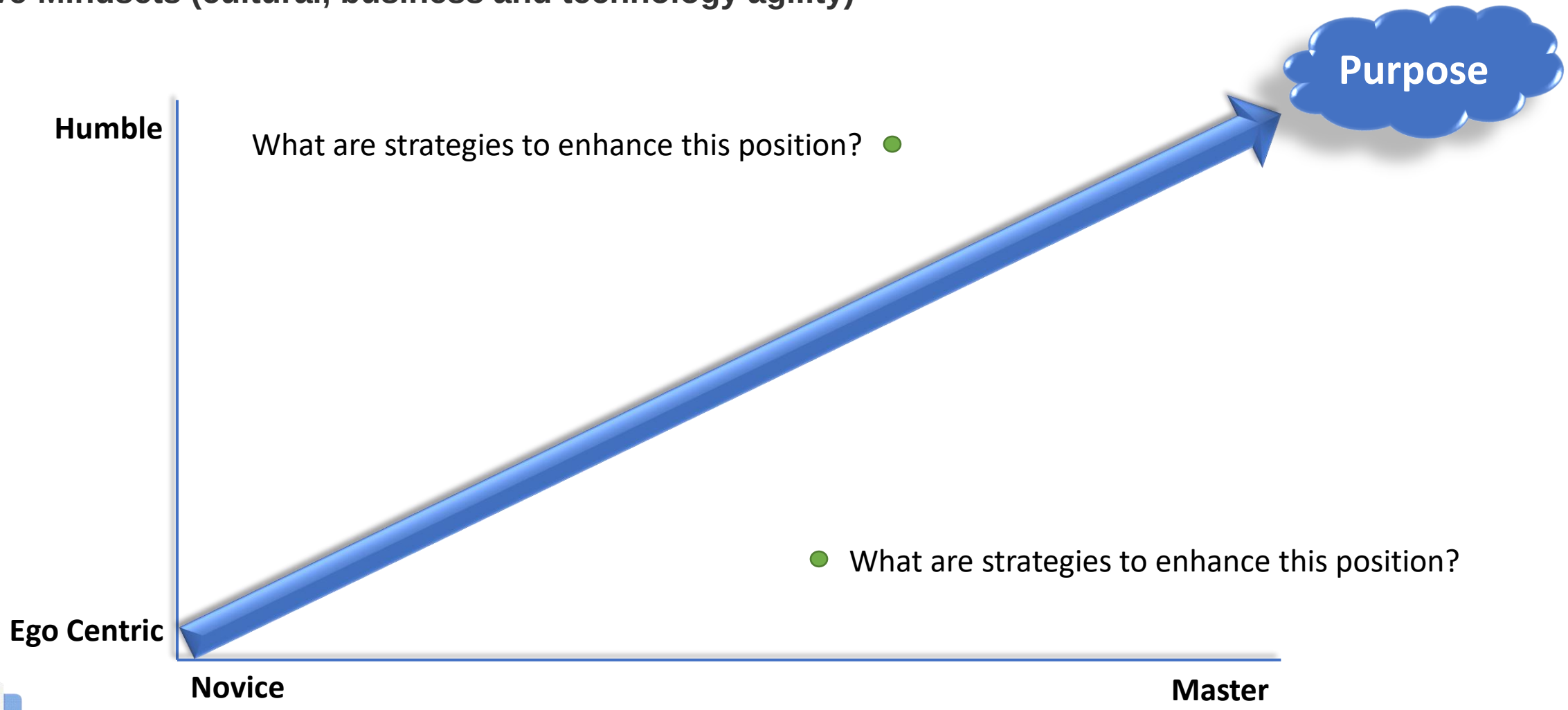


Path to Mastery and the Counter-Intuitive Risks



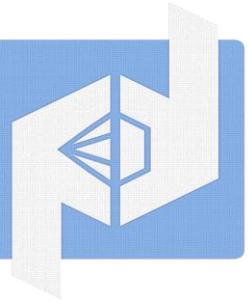
If only Humility increases without Mastery
and decision authority expands,
the opportunity for leverage of resources
away from purpose also grows

Adaptive Mindsets (cultural, business and technology agility)



How does this Model apply to Agile?

- What happens when a strong cultural leader clashes with a culturally submissive teammate that is more developed in the relevant competency?
- How does a team overcome business authority direction that lacks mastery and or humility?
- Do you have a story that demonstrates the risks?



2.4 Balancing the Creative and Critical Inputs for Agile Excellence

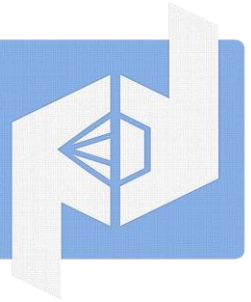
Balancing the Creative and Critical Inputs for Agile Excellence

Creative

- Brainstorm
- Apply Principle from Other Disciplines
- Solution/Design

Critical

- Evaluate for Compliance
- Measure
- Test



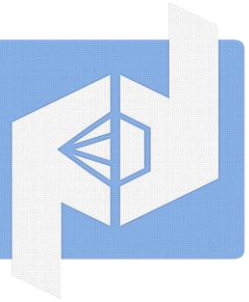
- People are usually dominate in either Creative or Critical Thinking – Both are necessary
- Phases of the Agile Lifecycle and Engagements usually are either creative or critical exercises
- Encourage the strengths of the team members

2.5 Breaking Barriers to Early Delivery

Breaking Barriers of Early Delivery

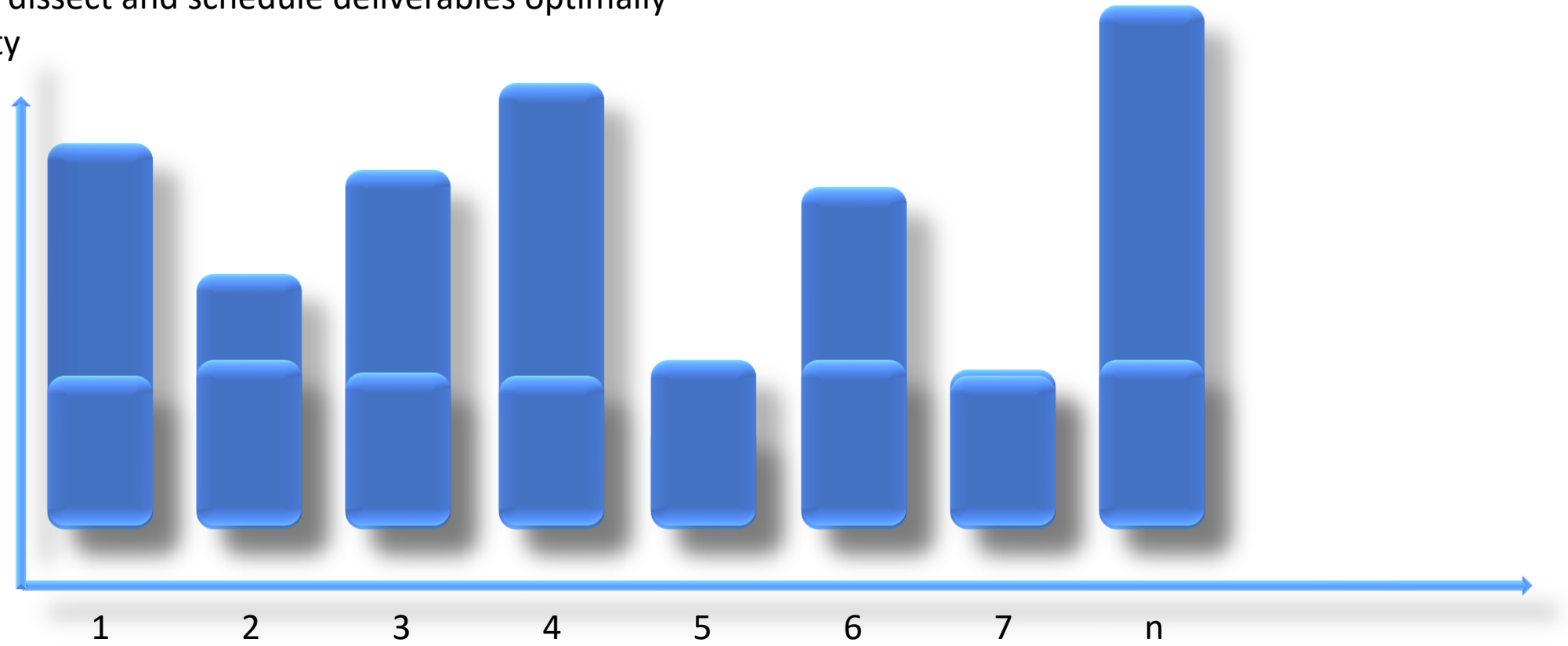
Albert Einstein is famously attributed with saying: “We cannot solve problems by using the same kind of thinking we used when we created them.”

All Models are wrong, some are useful. – George Box



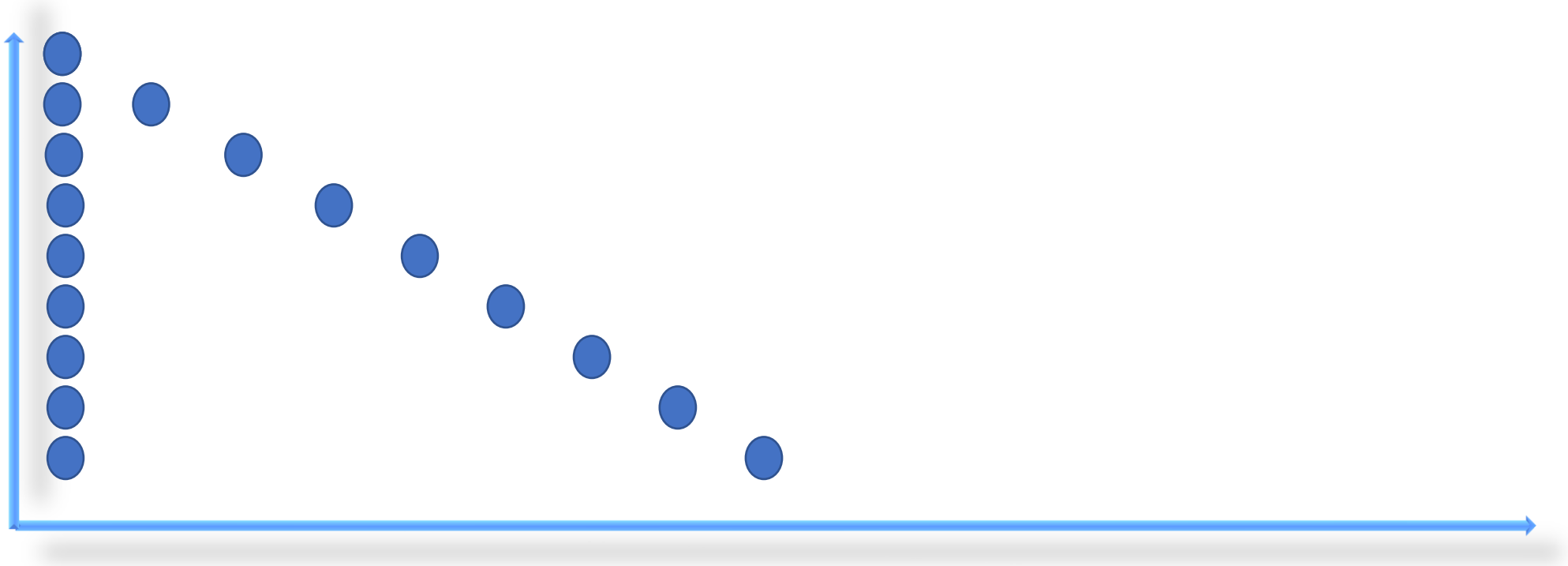
Breaking Barriers of Early Delivery

Learning how to dissect and schedule deliverables optimally
Increases velocity



Breaking Barriers to Early Delivery

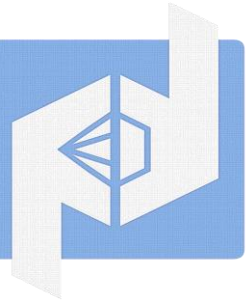
Demo of benefits of single piece flow versus batch



[Elephant Carpaccio facilitation guide (google.com)]

Breaking Barriers to Early Delivery

- Batching Story Components
- Excessive multi-tasking or task switching
- Scope creep or changing priorities
- Dependencies on 3rd parties or providers
- Dependencies on other functions
- Technical debt
- Excessive meetings or distractions
- Lack of Experience with tools or technology
- Stories with lack of clarity
- Rework
- Unseen complexity
- Excessive Work in Progress (WIP)



Lesson 3

Integrated Improvement Framework

3.1 Selecting Evaluation Method(s)
3.2 Innovation from Prioritized Gaps
3.3 Critical Thinking Applied to CPI Frameworks
3.4 Prioritization Opportunities and Methods
3.5 Assumptions and Questions are the Starting Point
3.6 Appropriate Delegation of Improvement Jurisdiction (Control of Appropriate Resources)

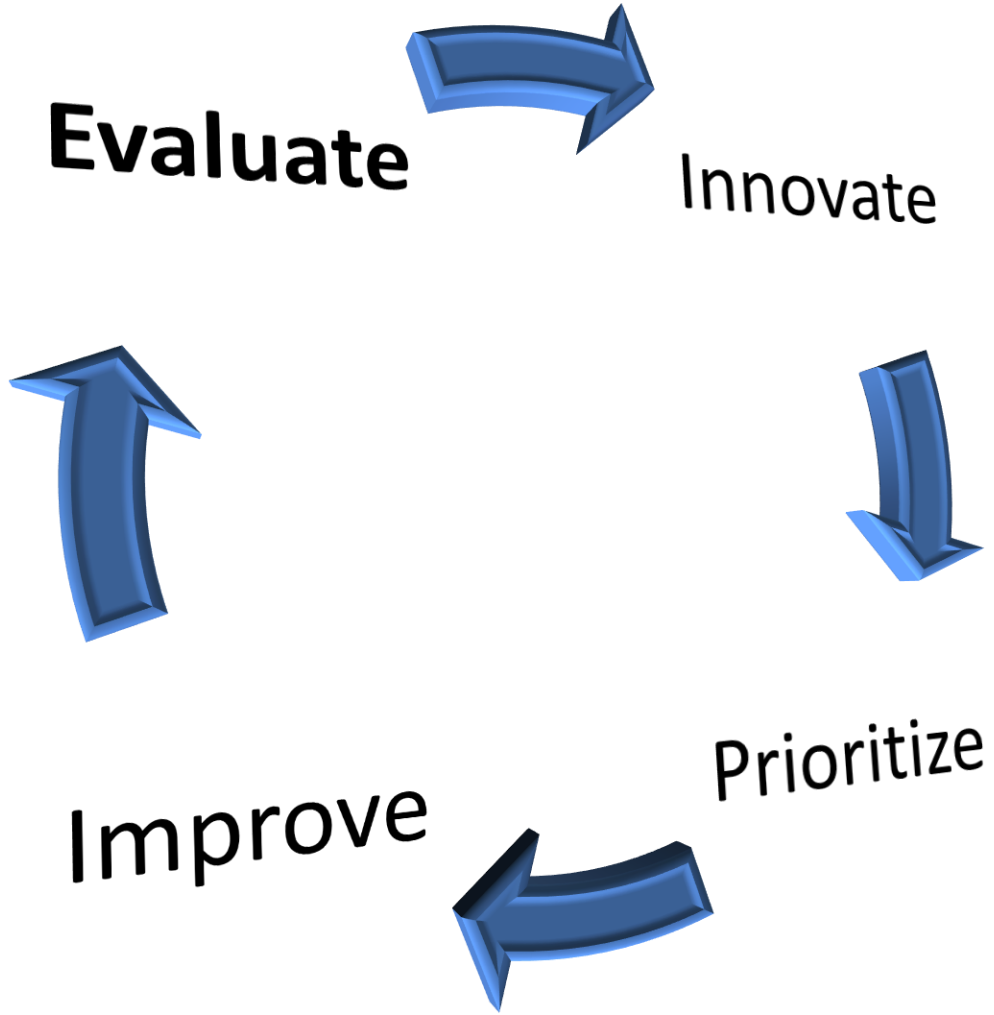
3.1 Selecting Evaluation Method(s)

Selecting Evaluation Method(s)

Comparison of current state to an ideal state
Could be driven by:

- Strategic Intent - Mission/Vision/Goals
- Compliance to Policy or Standards
- Good Business Practices
- Agile Maturity or Hype Cycle

Enterprise Agile Planning (EAP)
Tool to manage strategy, investments, work and outcomes of value

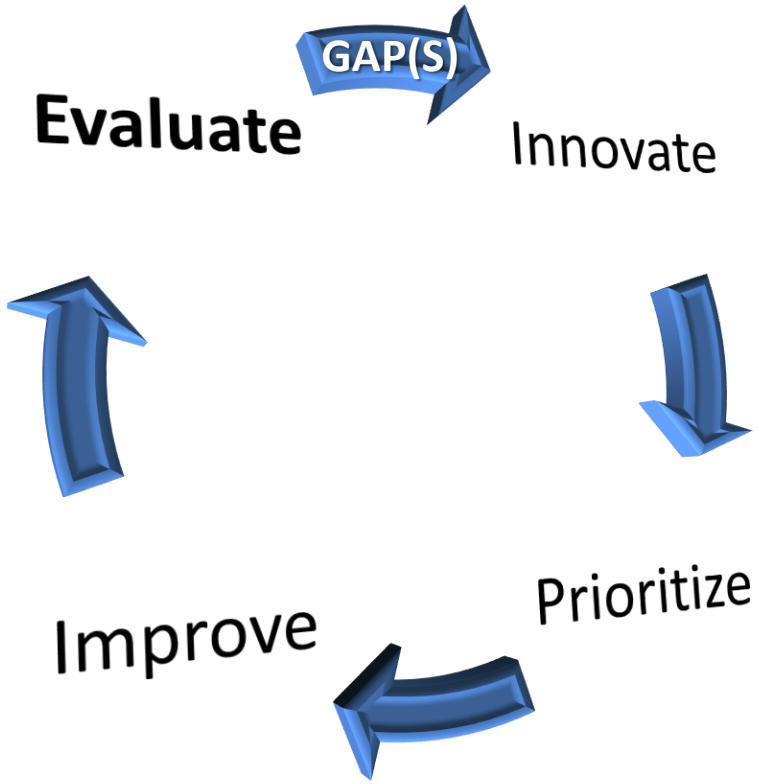


Evaluation sets a foundation for improvement

3.1 Innovation from Prioritized Gaps

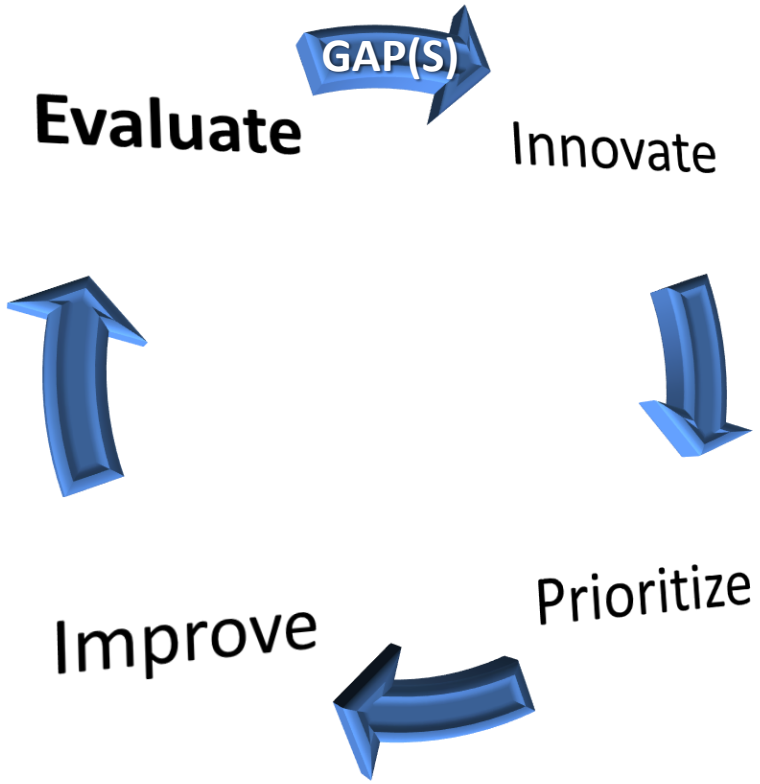
Innovate from Prioritized Gaps

- Outcome of evaluate is the gap between ideal state and current state
- To prioritize the Gaps, identify organization/program/product values based on drivers
- Weight the values



Evaluation Questions

- What methods does your organization evaluate your current state of Agile?
- How would you describe your organization's ideal state?
- What are the most significant gaps that you have found?

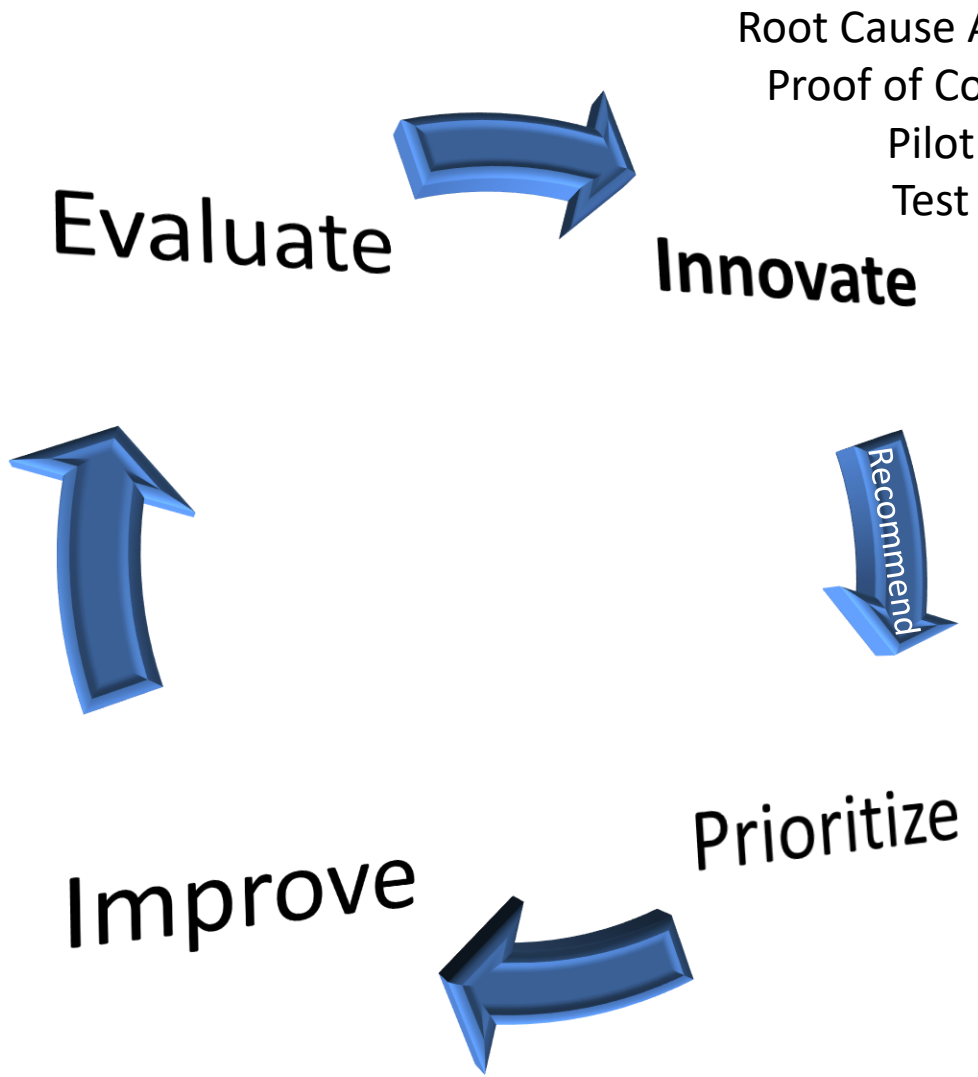


Innovate from Prioritized Gaps

With prioritized gaps identified,
it's time to look for solutions

Typically, a cycle between creative and critical thinking optimizes the iterative process:

Creative: Brainstorm Ideas
Critical: Arrange Ideas
Creative: Express Values: Speed – Quality – Cost
Critical: Measure Ideas Impact to Value
Creative: Select Ideas to Explore/Innovate



3.3 Critical Thinking Applied to CPI Frameworks

Critical Thinking Applied to CPI Framework

Continuous Process Improvement (CPI) Frameworks

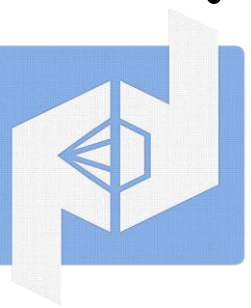
- ITIL Continual Service Improvement
- Lean Manufacturing
- Six Sigma
- Lean Six Sigma
- Theory of Constraints
- Business Process Re-engineering
- Total Quality Management
- Capability Maturity Model Integration
- Baldrige Award

Critical Thinking Framework (Foundation for Critical Thinking)

- Purpose
- Question
- Assumptions
- Information
- Concepts
- Inferences
- Conclusion
- Consequence
- Points of View

Intellectual Standards

- Clarity
- Accuracy
- Precision
- Relevance
- Depth
- Breadth
- Logic
- Significance
- Fairness



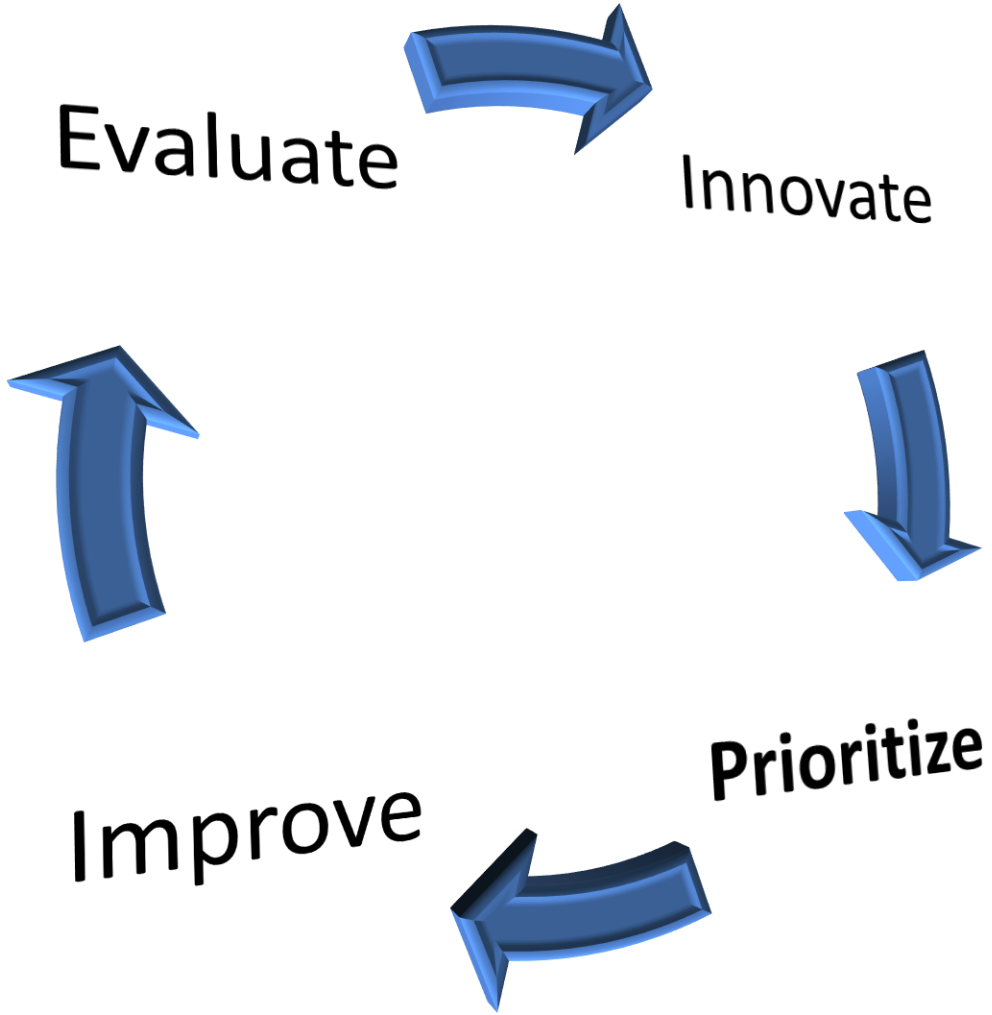
3.4 Prioritization Opportunities and Methods

Prioritize Opportunities and Methods

Why Prioritize?

- Scarce Resources
- Efficiency – Minimize Redundancy
- Alignment to Strategy and Values
- Compliance with Policy

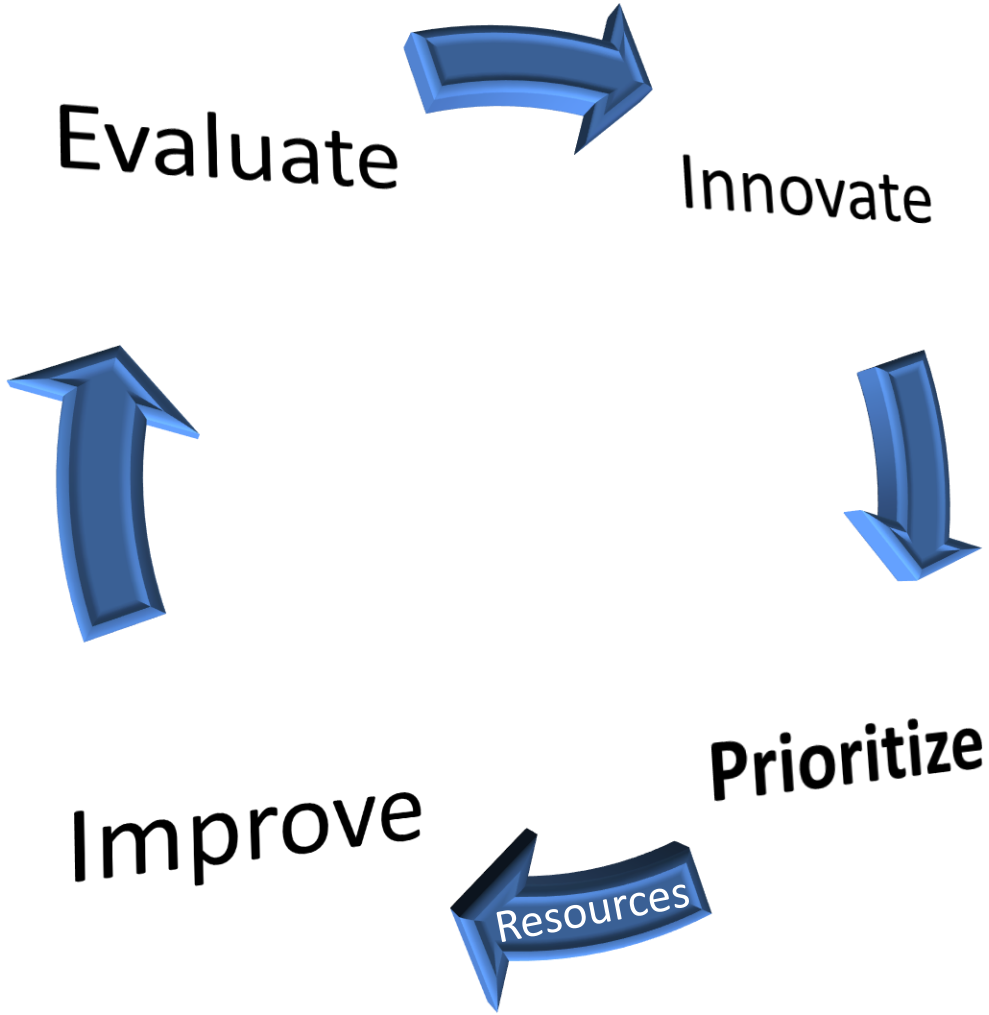
What are other reasons?



Prioritize Opportunities and Methods

Resources may include:

- Authority to Execute
- Associated Technician hours
- Consultant(s)
- Managed Service
- Technology Purchases
- Contracts, Licenses, Credits
- Charter



What are other potential outcomes from Prioritize?

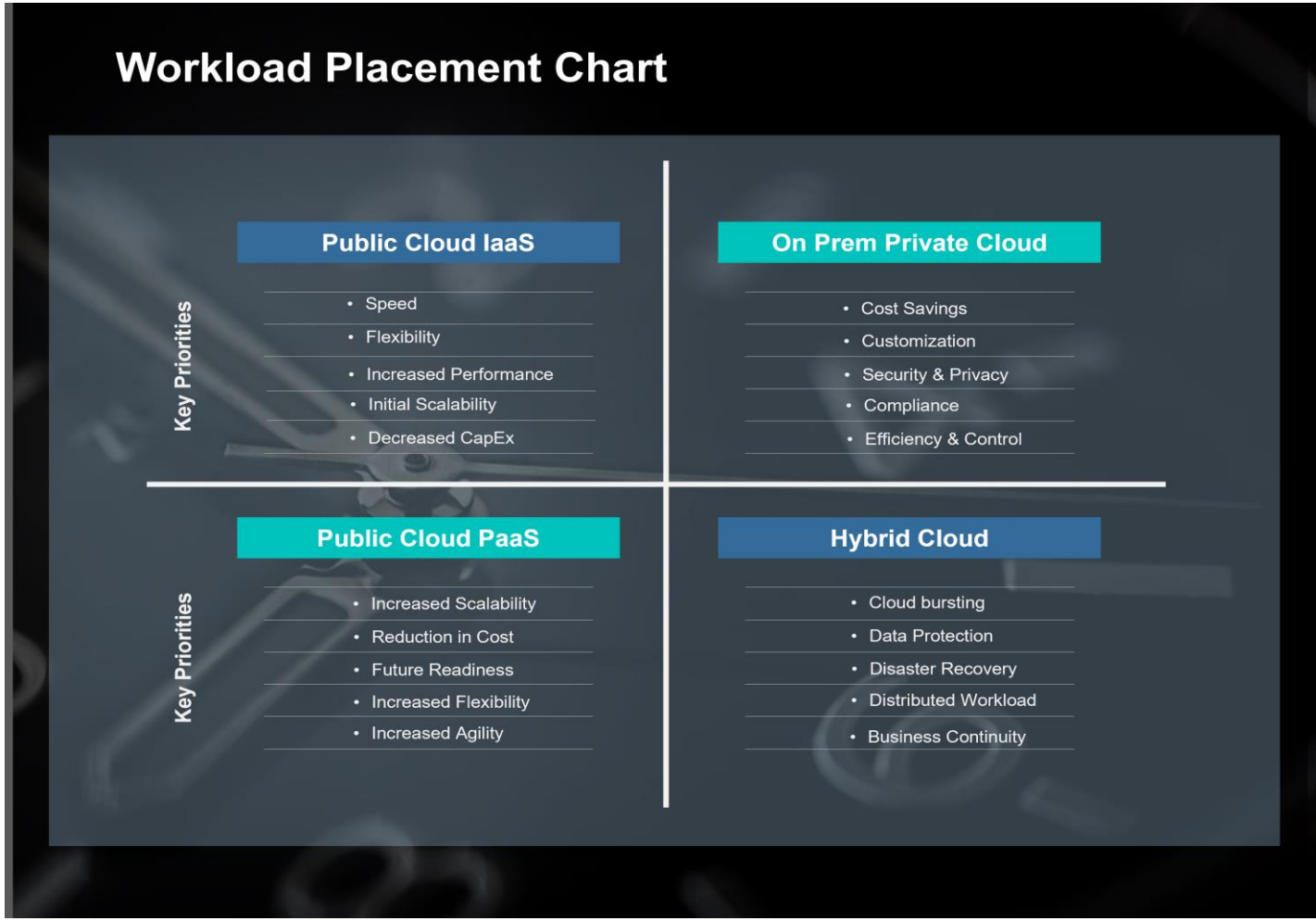
Lesson 4
Workload Placement

4.1 Strategic Infrastructure Baseline(s)
4.2 The Service Partner Ecosystem
4.3 As-a-Service Offerings
4.4 Critical Skills vs Critical Roles
4.5 Continuous Innovation

Workload Placement

Beyond virtualization…Workload Placement is a strategy that helps IT understand business goals in order to create a strategy for building the optimal future state where applications can bring consistent value to the business.

"Success today requires the agility and drive to constantly rethink, reinvigorate, react and reinvent." – Bill Gates



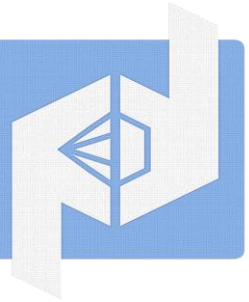
4.1 Strategic Infrastructure Baseline(s)

Strategic Infrastructure Baseline(s)

The concept of a baseline includes **a complete picture of established infrastructure**. Traditional Data Centers used to baseline on maps. However, this mapped baseline is not as detailed as a picture. With the Cloud, everything is discoverable and can be understood via configured APIs.

A key component of adaptive agility is **elasticity.** Elasticity has the connotation of being able to grow on demand with minimal effort, but also being able to return to a baseline once conditions allow.

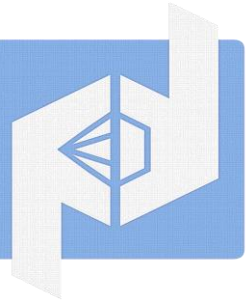
Another key component is **portability**. The infrastructure should have enough abstraction built in that migrating a workload from one data center to another, or even temporarily to the cloud, is a simple matter of triggering the migration with a script or an import wizard.



Security is not the enemy

When baselining infrastructure, if Security teams are enforcing compliance controls only after significant development work has been completed, they will be inadvertently portrayed as “the bad guy” putting up roadblocks at the end of the development process.

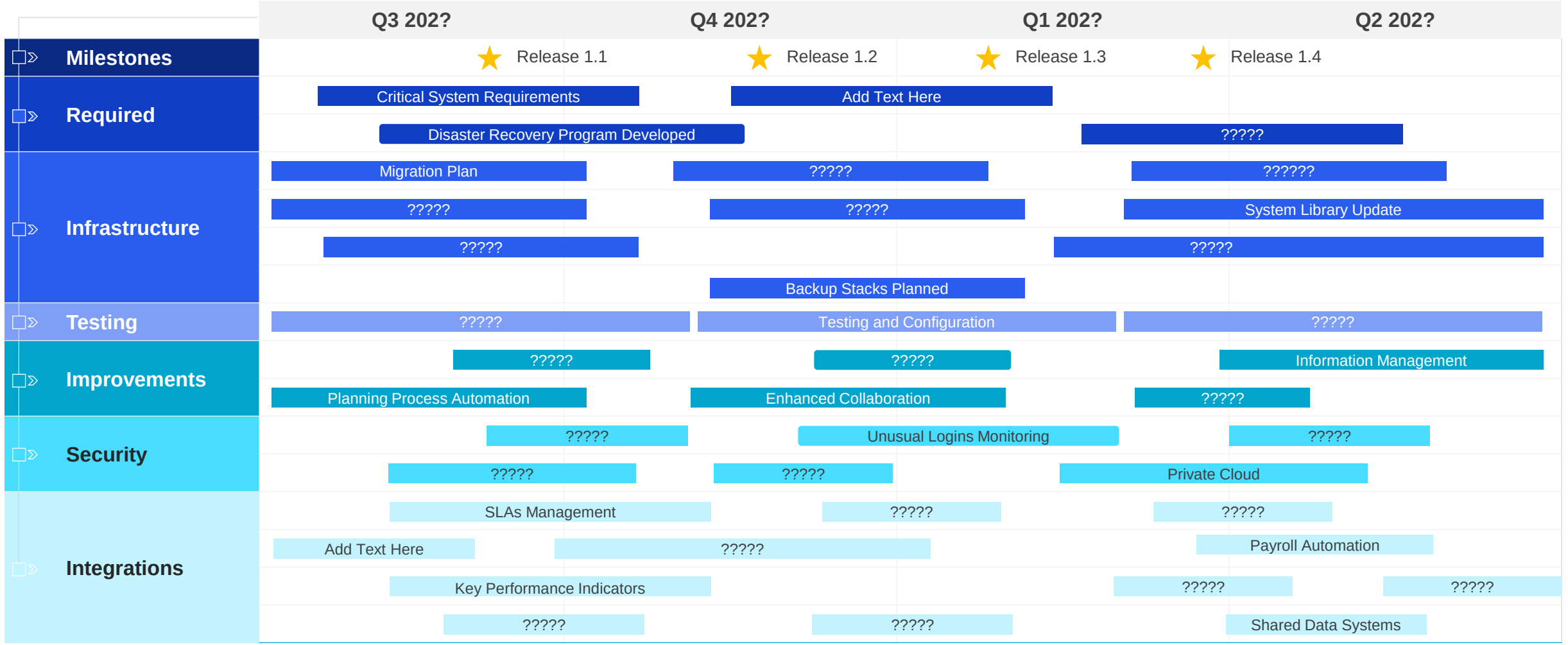
Infrastructure as code (IaC) can help address organizational distrust between teams, but IaC templates are not deterministic. It is impossible to fully know what deployed infrastructure will look like until resources are running in the cloud.



Baselining fills in the gaps. It provides the details and high fidelity to enable different teams to collaborate effectively. Because every configuration attribute is spelled out, there is no ambiguity about whether a specific resource is compliant with enterprise security policy for instance. Every relevant compliance control can be run against the baseline to verify whether the control will pass or fail.

Activity: Strategic IT Infrastructure Enhancement Roadmap

As a group, provide input for some of the areas marked with question marks below.



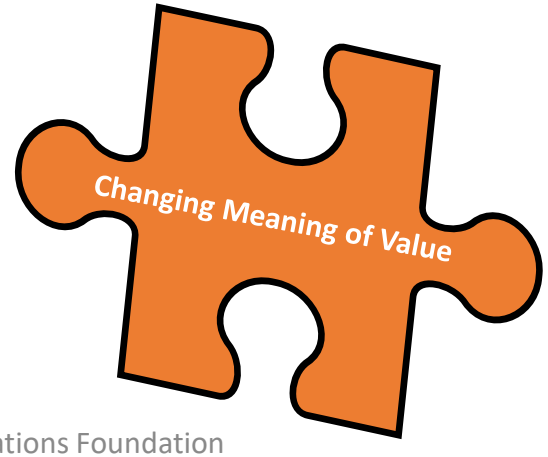
4.2 The Service Partner Ecosystem

Service Partner Ecosystem

A system of record that displays all of the service partnerships an organization has created.

This service ecosystem visualizes the broad range of interactions and touchpoints that come into play across a product/service lifecycle.

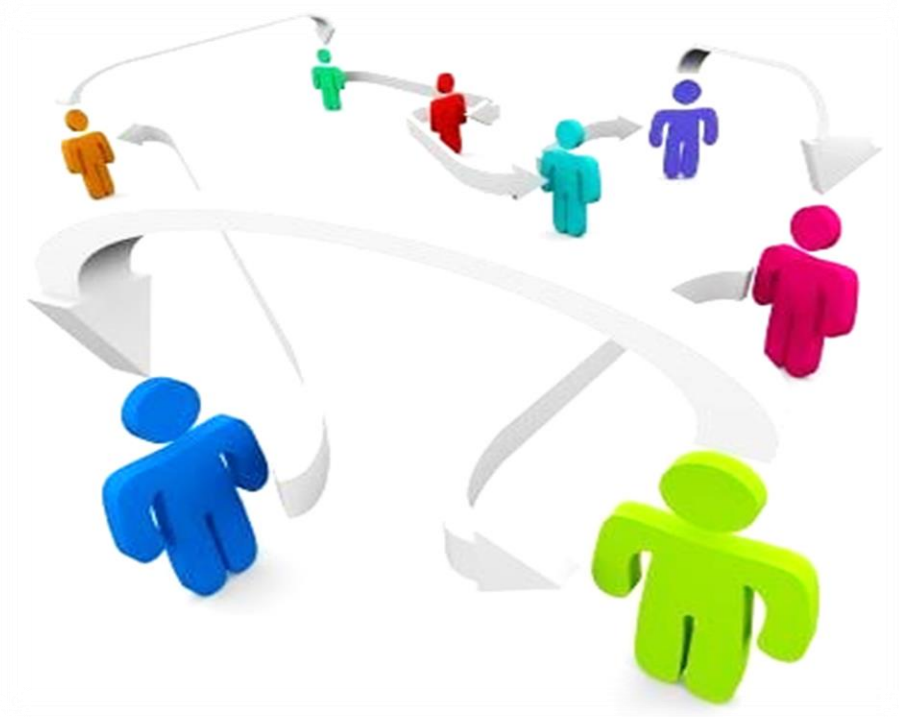
Business models have fundamentally changed from selling and buying products to responding to how customers consume technology and how it supports their businesses.



Who is a vendor, Who is a partner and Who is a customer?

Currently, vendors may be hardware, software or services-oriented, and organizational partners may be cloud providers, master agents, solution providers or some combination thereof.

IT Organizations are seeing vendors, service providers and solution providers partnering together to create additional value for end customers and to ensure long term solvency and success.



Rethink how vendors and partners help deliver value as an ecosystem.

Deploying Effective Partner Ecosystem

Co – Innovation for Growth

- Focus on exploring new methods to develop solutions to cater critical and emerging customer requirements
- Co – innovation ensures customer relevancy, accomplishing partner and developer goals

Collaborating at Scale

- Ensure product developers and partners plan collaboratively, and render required results
- Collaboration include multiple engagement models such as provider-to-partner and partner-to- partner in order to render customized products to clients

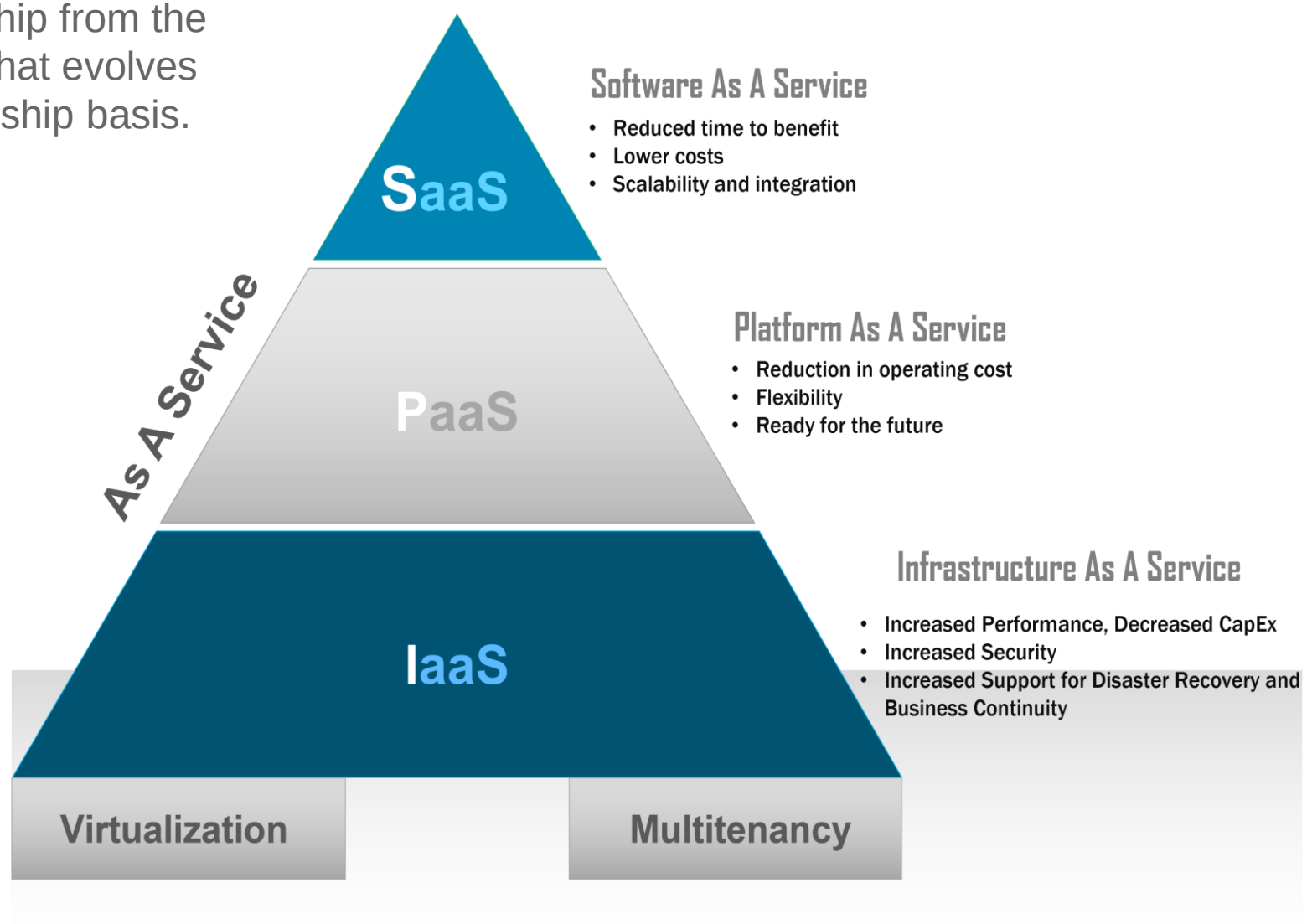
Co-investments for Future Growth

- Product developers focus on aligning investments with associated partners in order to manage clients' expectations and optimize business outcomes
- Developers consider incentives essential for improved co-investing mindsets

4.3 As-a-Service Offerings

As-A-Service Offerings

The ‘As a service’ business model is a business model that shifts the customer - supplier relationship from the traditional model of ownership to a model that evolves around providing a service on a non-ownership basis.



Infrastructure as a Service (IaaS) Types

Production Environment

- Allows businesses to execute live applications in the cloud, boosting the speed of their hardware, operating systems, databases, and application servers
- Faster access to a secure, enterprise-ready environment, which will help them save money, reduce cycle times, fulfill compliance standards, and improve quality

Replication Environments

- Intended to manage high-availability duplication, business continuity, and disaster recovery workloads
- Critical to choose a Managed Services Provider (MSP) that provides IAAS environments for replication workloads and supports all main OS, including IBM I IBM AIX, Linux, and Windows

Hosted Disaster Recovery Environments

- In the case of a calamity and a system failure, offer a backup infrastructure
- Scaled-down replica of the entire production infrastructure that is accessible on a standby basis and situated in a separate secure data center and can be hosted in either a public or private cloud

Test & Development Workloads

- Many businesses begin by testing the notion of cloud computing with workloads that are still in the testing and development stage
- Cloud computing makes sense for test and development for developers who only require a framework for a short period while they test if their workload is ready to go live

Platform as a Service (PaaS) Types

Public PaaS

- Runs on the public cloud
- Users gain efficiency and faster time to market at the expense of having less control over their development stacks

Private PaaS

- Companies may get more control over their data by using a virtual private cloud PaaS
- Objective of a private PaaS is to combine the agility of public systems with the security and compliance benefits provided by private data centers

Hybrid PaaS

- Hybrid PaaS architecture mixes public and private services to give more capacity flexibility and cost stability
- Red Hat Openshift is an example of a prominent hybrid PaaS provider

Communications PaaS

- Developers may leverage a cloud-based system to add real-time connectivity options to their app service without constructing back-end interfaces or infrastructures
- DevOps teams may save money on HR and infrastructure by adopting CPaaS to incorporate communications functionalities

Mobile PaaS

- For the setup of mobile apps, a paid integrated development platform is used
- MPaaS is generally supplied via an internet browser and compatible public, private cloud, and on-premises storage

OpenPaaS

- Cloud-based social network that uses a cloud infrastructure to foster collaboration and teamwork
- Offers real-time collaboration features like document editing, sophisticated video conferencing, and process modeling

Software as a Service (SaaS) Types

Customer Relationship Management (CRM) Software

- Handle customer information, manage contacts with customers, gather company statistics, and automate sales

Enterprise Resource Planning (ERP) Software

- Merge many operations into a single, comprehensive system to boost efficiency and information sharing

Accounting Software

- To guarantee that your business grows as it should, keep your money structured and well tracked

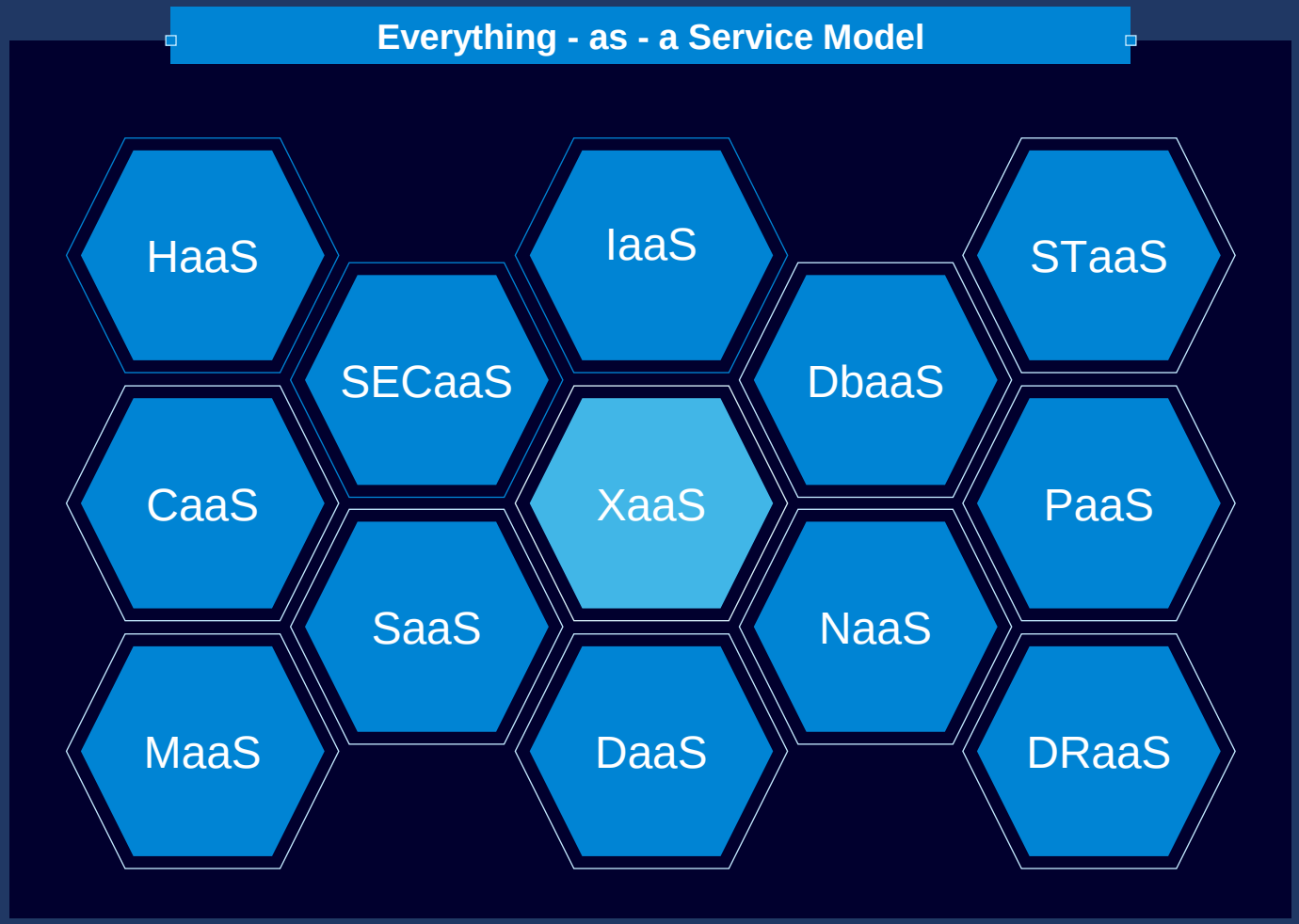
Project Management Software

- To execute projects on budget and on time, design projects, organize schedules, assign resources, and communicate deadlines

Payment Gateways & Billing Solutions

- SaaS billing solutions include payment-related business operations and enable companies to take payments via various channels, including credit cards, mobile wallets, bank transfers, and incentive programs
- Other elements of payment processing, such as reporting, are also covered by these solutions

Everything as a Service (XaaS) Overview



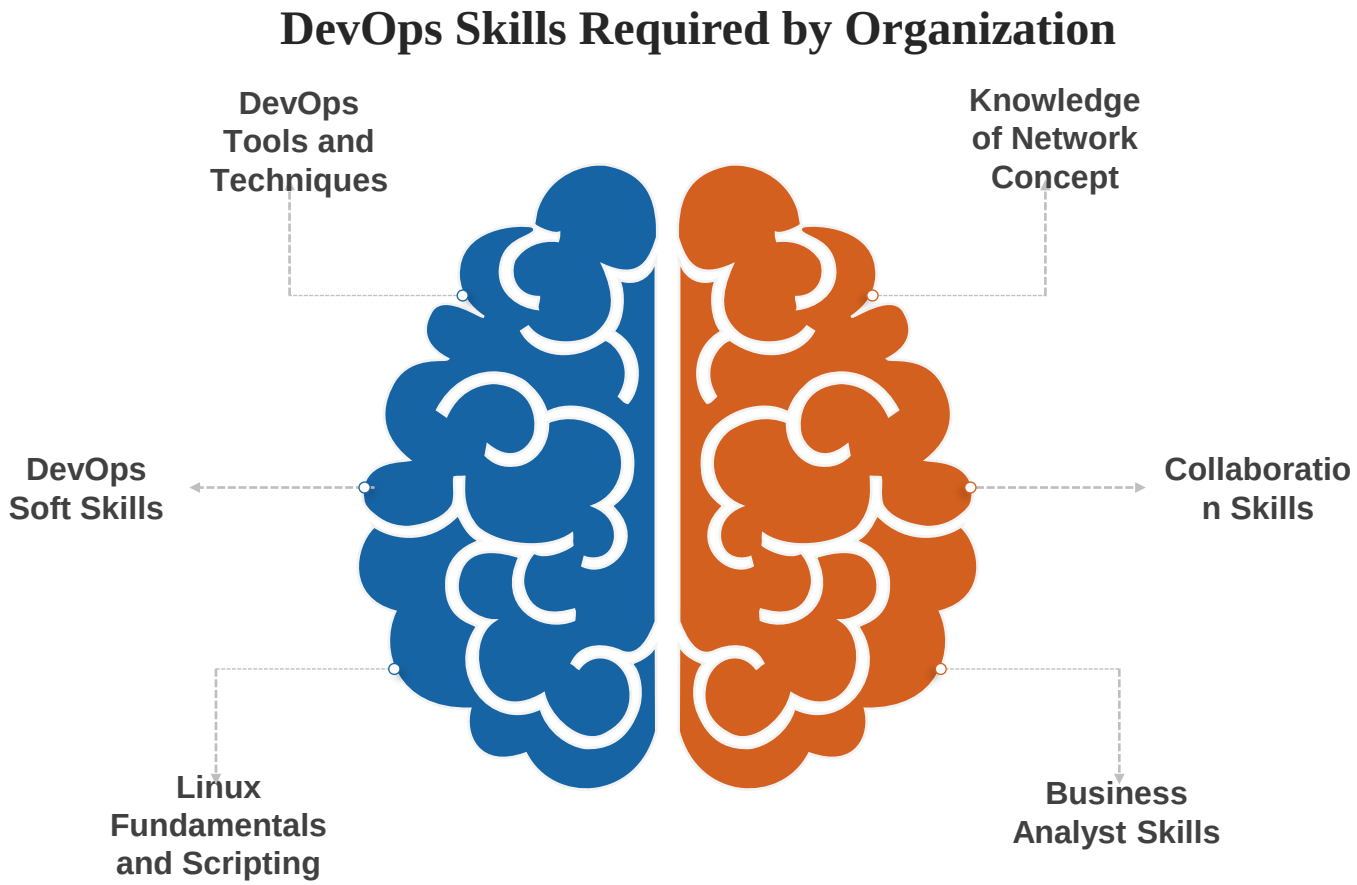
- With cloud computing and remote accessibility, anything can now be a service
- Cloud computing technologies enable various services to be delivered through the internet
- Anything as a service provides users with various tools, technologies, and services as a service
- Before xaas and cloud services, businesses had to purchase and install licensed software, secure their websites, and supply infrastructure for commercial needs
- Business is simplified with xaas since they pay for what they require

4.4 Critical Skills vs Critical Roles

Critical Service Skills vs Critical Roles

There will always be curve balls, innovations and disruptors that will change the way things are done and shift the landscape of how things currently look. A shift in focus from roles to skills leads to greater employee satisfaction and helps weatherproof companies from rapid changes in their industry.

Adapting a training methodology that takes into consideration the continuous introduction of new knowledge will help both employees and organizations develop resilience and increase their future-proof ability.



Activity: Roles and Skills Identification

As a group, add at least one additional skillset to the identified roles below

DevOps Team

Business Analyst

Understanding the Business Objectives
Creation of Reports and Dashboards
Add text here

Mainframe Developer

Identify and note all relevant information on a task
Data integration
Add text here

DevOps Engineer

Coding and Scripting
Cloud Skills
Add text here

Test Engineer

Understanding the testing process
Test environment management
Add text here

Scrum Master

Acting as a Coach for Team Development
Communication and Good Listening Power
Add text here

Solution Architect

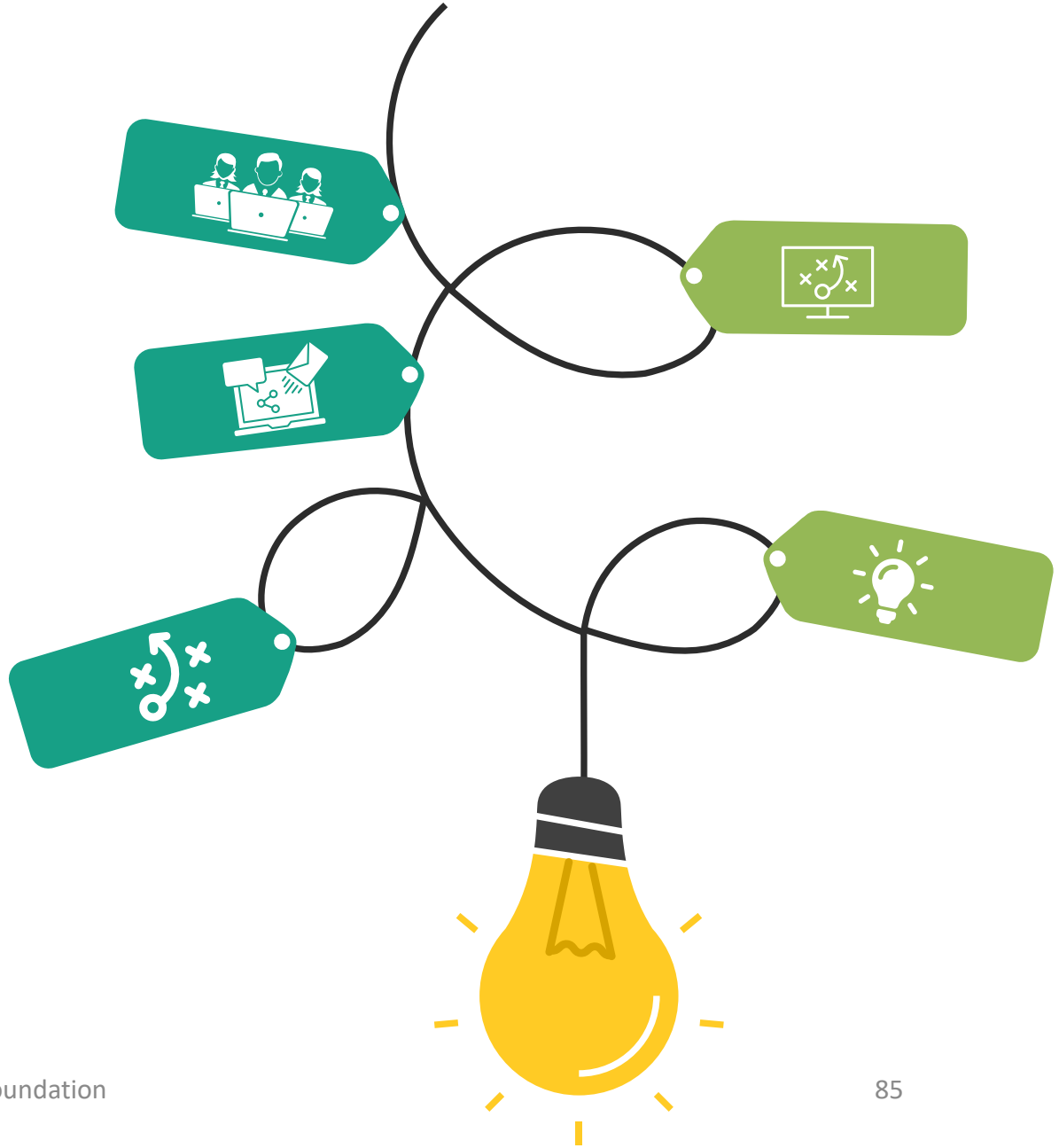
DevOps practices
Business analysis techniques and processes
Add text here

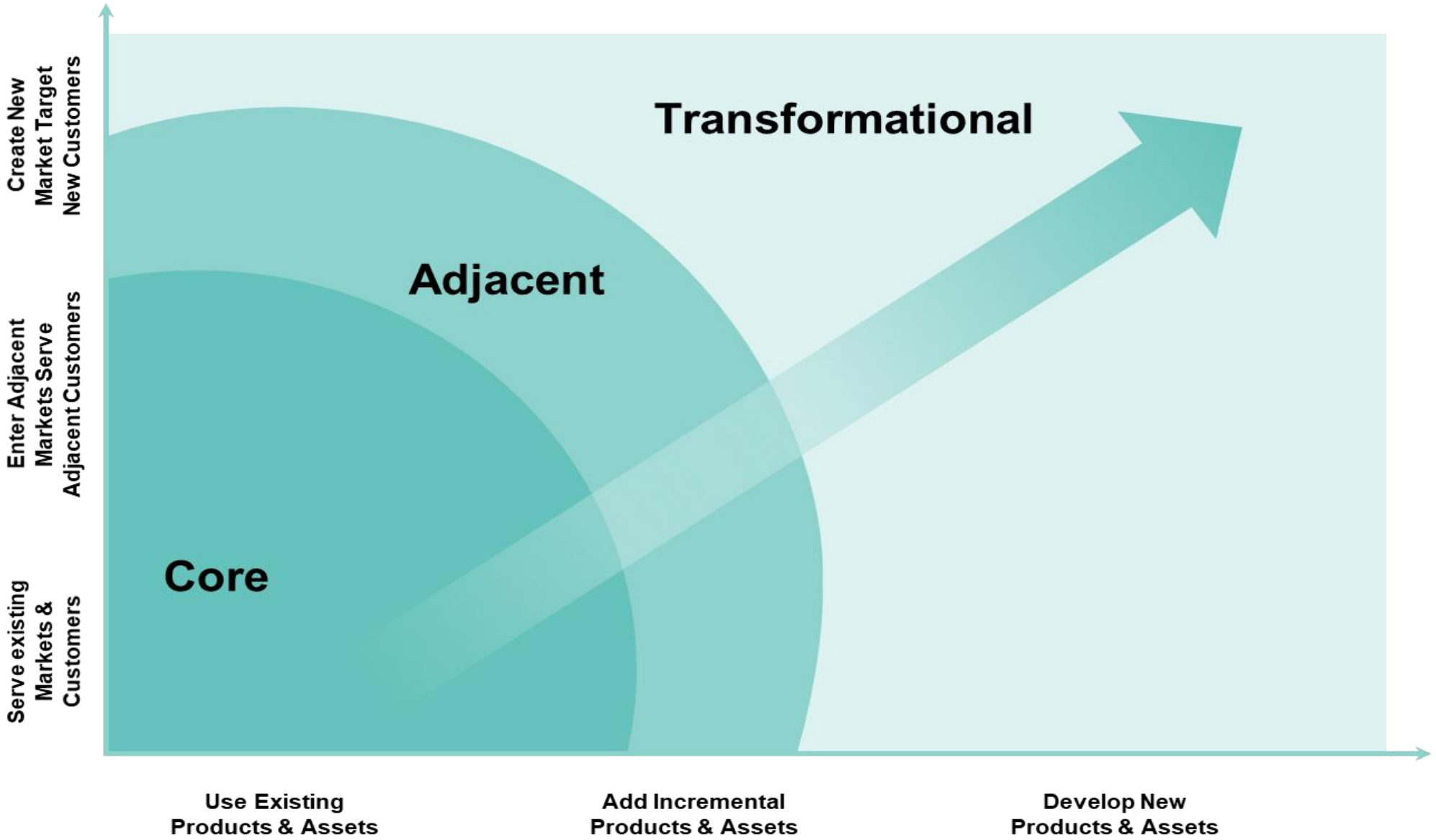
4.5 Continuous Innovation

Continuous Innovation

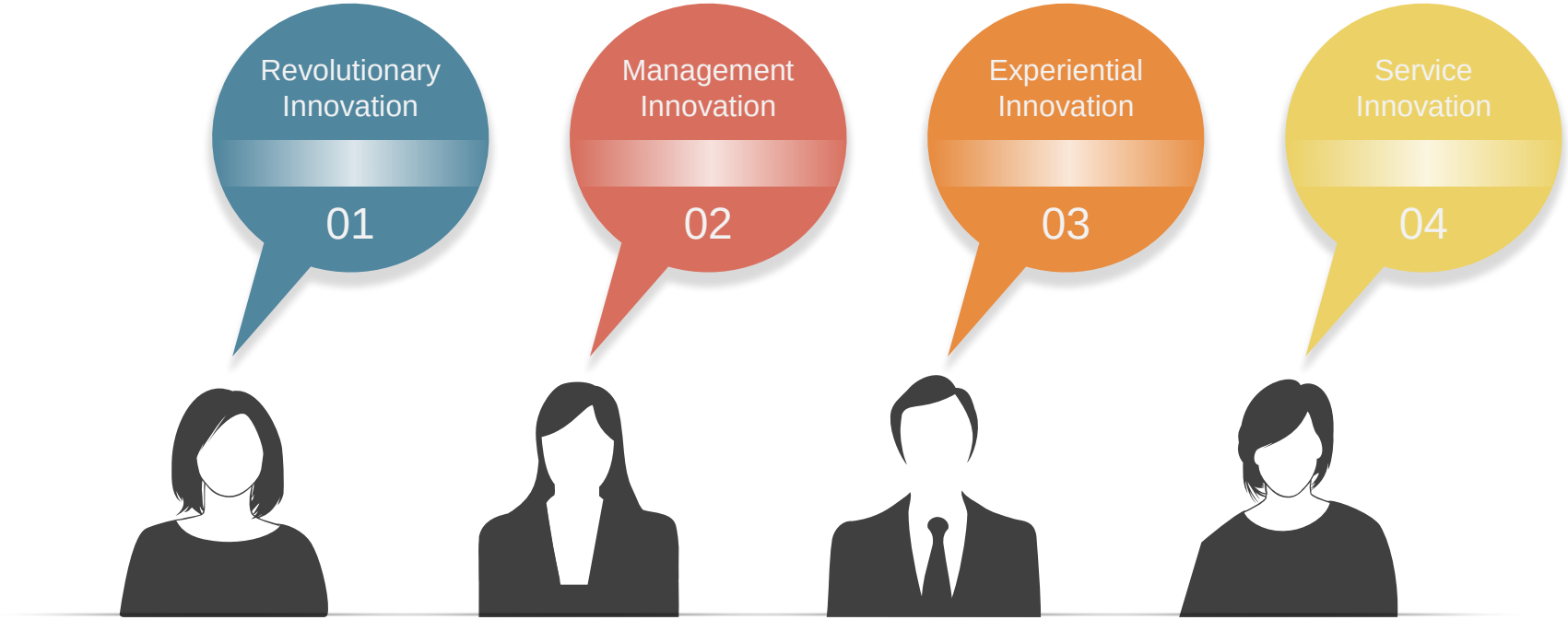
Whatever is worth copying will eventually be copied. It is only by continuously outlearning the competition, does an organization remain relevant to customers.

This is the essence of Continuous Innovation. As opposed to stop and go innovation, continuous innovation is a mindset of constantly challenging the status quo—even if you currently are the status quo.




Create New Market Target New Customers
Enter Adjacent Markets Serve Adjacent Customers
Serve existing Markets & Customers
Transformational
Adjacent
Core
Use Existing Products & Assets
Add Incremental Products & Assets
Develop New Products & Assets

Run strategy by experimentation through limited releases and prototyping



The best Digital Strategies do not rely on past analysis, but instead start fresh and carve out a vision based on where they believe value is likely to shift over the next three to five years

Effective Digital Strategies prioritize a handful of interventions where the business can exploit significant opportunities

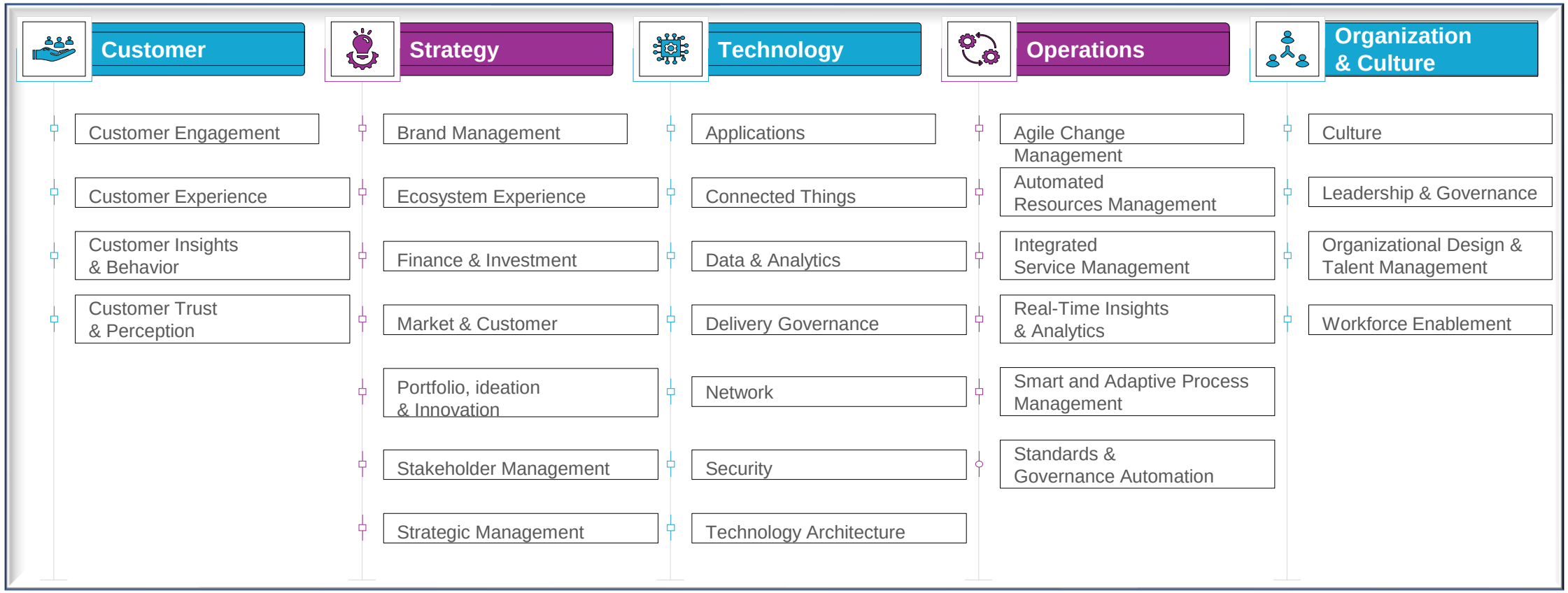
Lesson 5

Enterprise Agile Integration Maturity Model

5.1 Adapting and Evolving
5.2 One Community
5.3 Training recommendations

Enterprise Agile Integration Maturity Model *(eAIMM)*

Paragon Delta's eAIMM process is an improvement approach, that assists organizations with identifying their current maturity level by observing existing strategy, governance, culture, practices and behaviors, and works to improve performance by introducing necessary transformations, standardized procedures and learning from previous experiences. eAIMM distinguishes between five possible maturity levels: instinct driven, product driven, lean portfolio driven, vision driven, and strategy driven.



eAIMM Maturity Levels

Instinct Driven

No formal product/lean process management, Agile roles and org structure

01

Product Driven

Initial product management, Agile roles, DevOps roles and org structure established

02

Lean Portfolio Driven

Customer need and customer experience shape value streams, the service value chain and continuous innovation

03

Vision Driven

Effective Partner Ecosystem established with stakeholders aligned around a common vision

04

Strategy Driven

Strategic Infrastructure Baselines and Roadmaps established. Decisions aligned to strategic priorities.

05

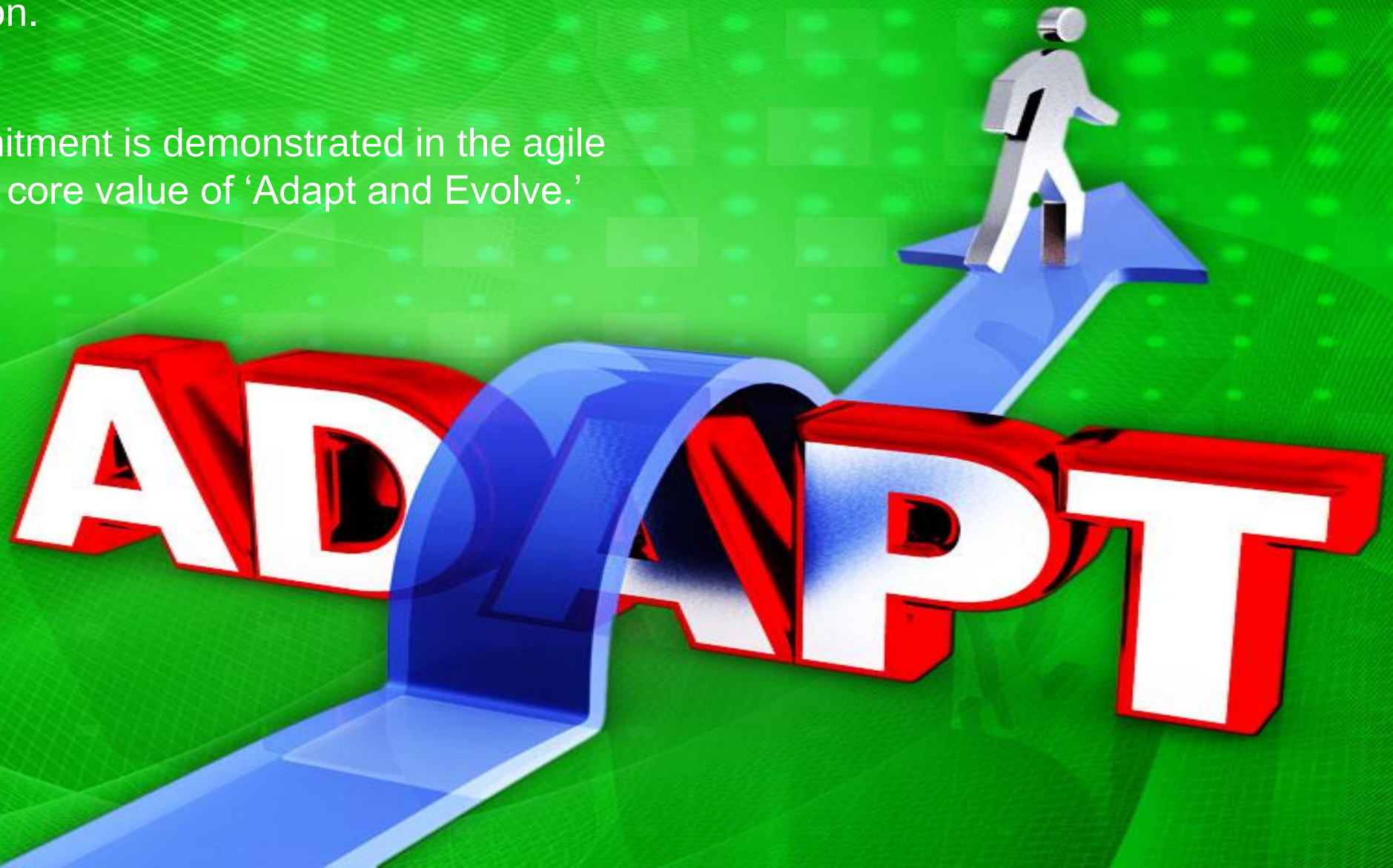
“Success today requires the agility and drive to constantly rethink, reinvigorate, react and reinvent.” – Bill Gates

An I&O Lean Portfolio Example

5.1 Adapting and Evolving

As an organization commits to relentless improvement, it must not simply rest on what it knows, it must actively pursue opportunities to grow and develop the individuals and components of the organization.

This commitment is demonstrated in the agile operations core value of ‘Adapt and Evolve.’



Implement ‘Adapt and Evolve’ into culture through accessible learning opportunities and comprehensive professional resources.

01 **Online Learning Platforms**

02 **Building and retaining existing relationships**

03 **Lunch and Learns**

04 **Team motivation Practices**

05 **Team strengthening Practices**

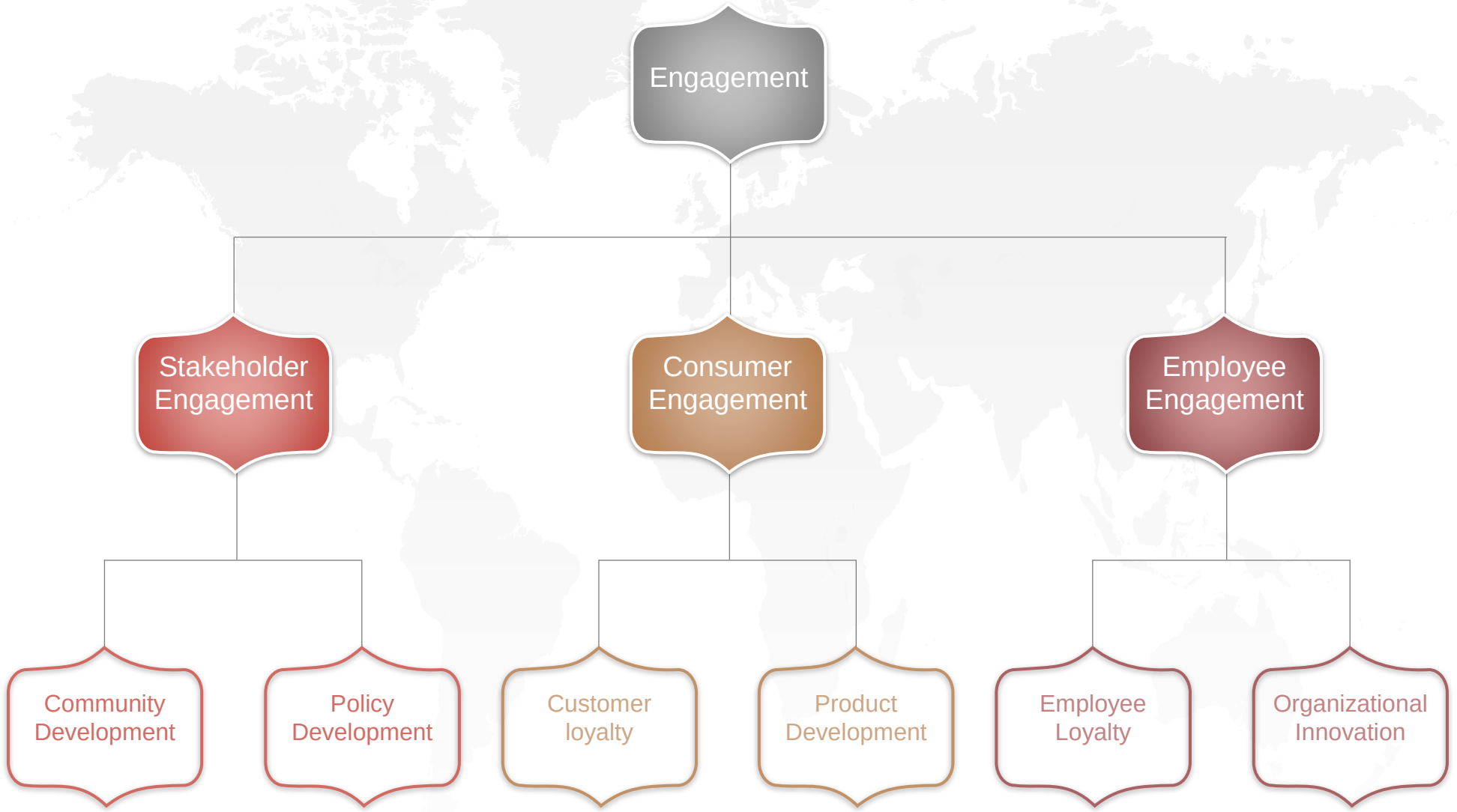
06 **Communities of Practice**

07 **Conferences and Seminars**

08 **Certifications**

09 **Book Clubs**

5.2 One Community


Engagement
Stakeholder Engagement
Consumer Engagement
Employee Engagement
Community Development
Policy Development
Customer loyalty
Product Development
Employee Loyalty
Organizational Innovation

Creating a Community of Practice

CoPs are learning communities, unofficial networks that people find time to attend because they are worth it, and what we learn make us more effective at our jobs.

Think of starting a new CoP as an experiment. If value exists, people will keep coming. If not, close the community. It’s a perfectly acceptable outcome to try to start a community and have it not last. Experiments are worth trying.

For practitioners, by practitioners

Communities of Practice work when they are attended by professionals that share a particular job function.

When people that do the same work in different environments get together, share what works, and share discrete practices, it can be a very rewarding experience. CoPs are learning communities.

You are authorized to create a new community

Any staff member can start a Community of Practice. Regardless of which unit you work for, or seniority level.

There is no official requirement that you must meet to qualify as a community organizer.

Choose a membership policy

CoPs are open to membership from all interested parties without restriction; however, if it makes sense to set ground rules about joining the community.

Policy can be captured in a Community Charter that explains your membership criteria to help others understand the defining characteristics of the Community of Practice.

What is the target subject matter?

What do we mean when we say a Security Community of Practice?

- Security practices for endpoints, hardware and applications?
- Security Practices related to Security Controls and Separation of Duties?

5.3 Training recommendations

Training

Reading

What Matters Now: How to Win in a World of Relentless Change, Ferocious Competition, and Unstoppable Innovation: Hamel, Gary

Speed of Trust: Stephen Covey

Drive: Daniel Pink

Online Sites and Articles

www.criticalthinking.org

Adaptive Leadership Teams – Fostering Agility and Innovation - Executive Mentors, Leadership Training (merryck.com)

Online Videos

5 Steps to Business Agility – YouTube

What is Business Agility | Buzzwords – YouTube

Adaptive Leadership - Introduction – YouTube

Leadership on a Submarine – YouTube

Scrum vs Kanban - What's the Difference? + FREE CHEAT SHEET - YouTube

Email: contact@paragondelta.com to inquire about additional certification opportunities.