



Adventist University of Central Africa

SOFTWARE PROJECT MANAGEMENT

Aimable IRAGENA MSc, MBA, PMP®

LESSON 1

BUSINESS ENVIRONMENT

- Foundation
- Strategic Alignment
- Project Benefits and Value
- Organizational Culture and Change Management
- Project Governance
- Project Compliance



Learning Objectives

- Define 'project' and how it relates to the larger discussion of project management.
 - Discuss the different types of organizational structures and how they relate to your project's management.
 - Discuss the principles of project management.
 - Discuss the principles of agile and how they relate to your project's management.
- Discuss strategic alignment and its elements.
 - Explain the impact of business factors on strategic alignment.
 - Determine how projects align with business strategy.

Learning Objectives

- Identify types of business value.
- Describe change management theory and its relation to organizational change.
- Define and discuss project governance.
- Explain project compliance and its importance.

A real project environment is dynamic, with frequent changes and uncertainties in requirements, technology, market conditions, stakeholders, regulations, complexity, team dynamics, organizational shifts, and external factors.



Foundation

TOPIC A

Project

A project:

- Creates a unique product, service or result
- Is time-limited
- Drives change
- Enables value creation for a business or organization.

The most common definition of a project is: **“A temporary endeavor undertaken to create a unique product, service or result.”**

Project success depends on:

- Organizational project maturity
- Project manager effectiveness
- Funding and resource availability
- Team member skill levels
- Collaboration and communication within the team and with key stakeholders
- Understanding of the core problem and related needs

The Evolution of Project Management




ca. 1969 – PMI founded

The application of knowledge, skills, tools and techniques to project activities to meet the project requirements

2022 - Toward a systems view

“Projects do not simply produce outputs, but more importantly, enable those outputs to drive outcomes that ultimately deliver value to the organization and its stakeholders.”

Project Management Life Cycles and Development Approaches

	Description	Key Roles	Value Delivery Proposition
	Plan-based approach: <ul style="list-style-type: none"> Activities completed in a distinct or linear fashion New phase begins only when the previous phase is completed 	<ul style="list-style-type: none"> Project sponsor authorizes project Team led by project manager 	<ul style="list-style-type: none"> Deliverables transitioned to customer at completion Value realized in both short and long term
	  Change-based approach: <ul style="list-style-type: none"> Agile, incremental or iterative development Timeboxed cadence (iterations/sprints) or continuous flow 	<ul style="list-style-type: none"> Product owner controls value proposition Project team delivers work Process roles include team lead, scrum master, agile coach, facilitator 	<ul style="list-style-type: none"> Iterative or incremental delivery to customer during life cycle Regular customer feedback cycle enables continuous development of value toward a "final" product
	Any combination of the above		

Project Management Office (PMO)

A management structure that standardizes the project-related governance processes and facilitates the sharing of resources, methodologies, tools and techniques. PMOs are more common in larger organizations because of the number of projects that can be in process at the same time.

PMOs can be:

Supportive

- Develop best practices, methodologies, standards and templates
- Coach, mentor, train, guide project managers

Controlling

- Monitor compliance with project management standards, policies, procedures and templates via project audits

Directive

- Manage shared resources
- Coordinate communication across projects

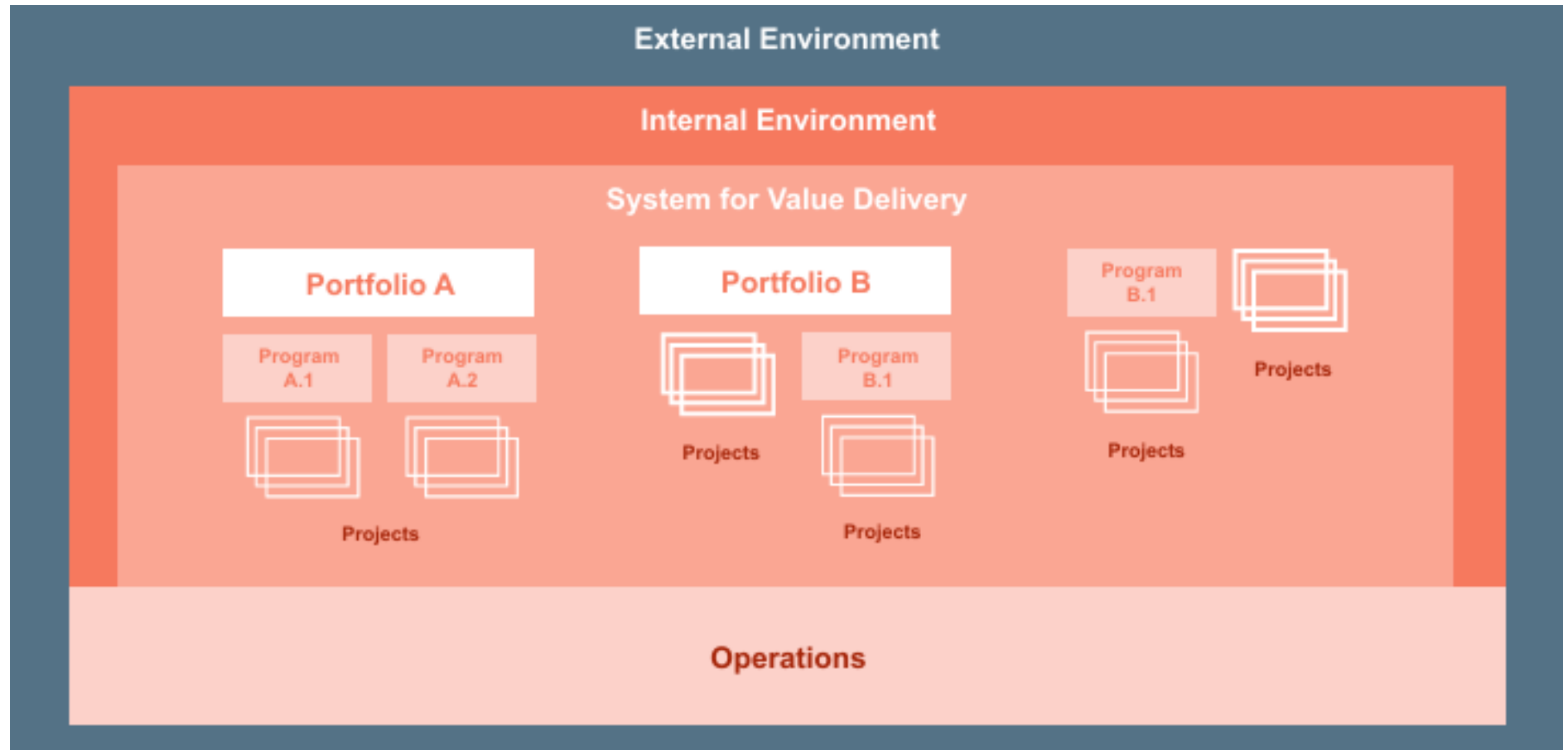
Agile Centers of Excellence (ACoEs) aka Value Delivery Office (VDO)

ACoEs enable, rather than manage, project efforts:

- Coach teams
- Build agile mindset, skills and capabilities throughout the organization
- Mentor sponsors and product owners

OPM: A System for Value Delivery

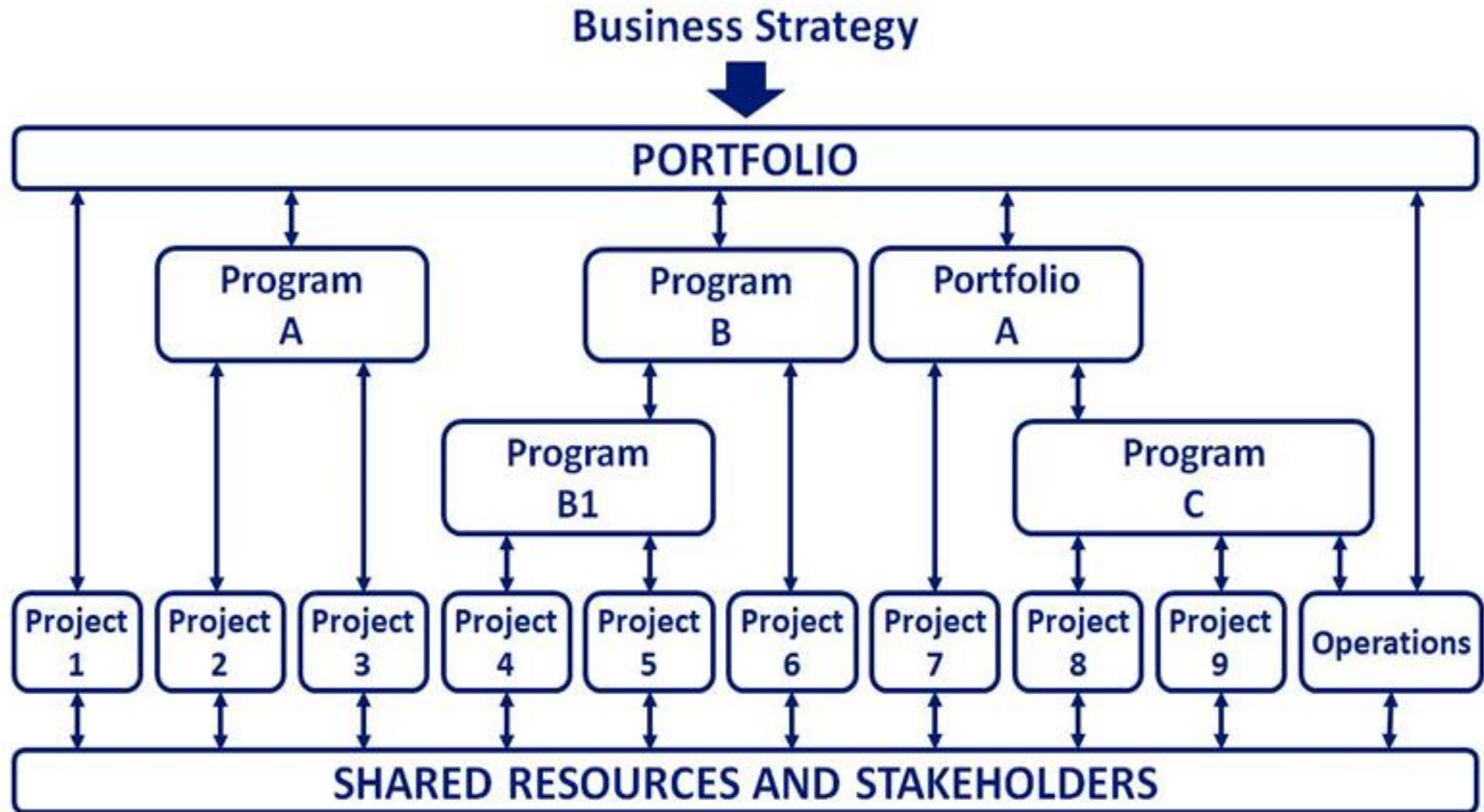
Organizational project management (OPM) – strategy execution framework that coordinates project, program, portfolio and operations management, and which enables organizations to deliver on strategy



Projects, Programs, Portfolios

Portfolio Management	Collection of projects, programs, subsidiary portfolios and operations managed in a group to achieve strategic objectives	Aligns with business strategies
Program Management	Group of related projects, subsidiary programs and program activities managed in a coordinated manner to obtain benefits not available from managing them individually	Controls components and interdependencies to realize benefits
Project Management	Part of a broader program, portfolio or both	Enables achievement of organizational goals and objectives

Projects, Programs, Portfolios



Organizational Structures

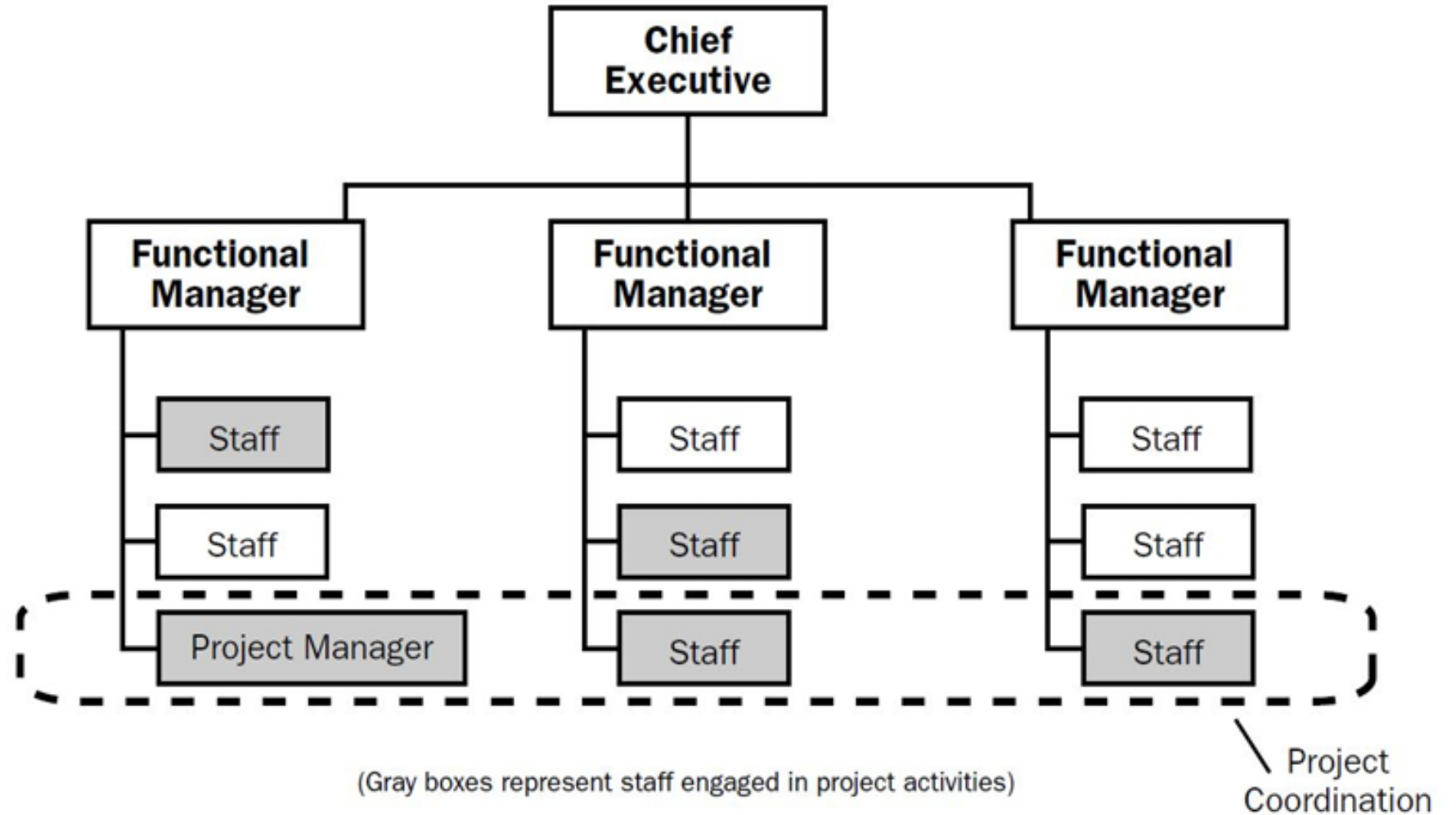
- Functional
- Matrix
- Project-oriented
- Composite

Organizational structure and governance affects/determines:

- How organizational groups and individuals interrelate
- How much authority the project manager has
- What resources will be available
- How the project will be conducted

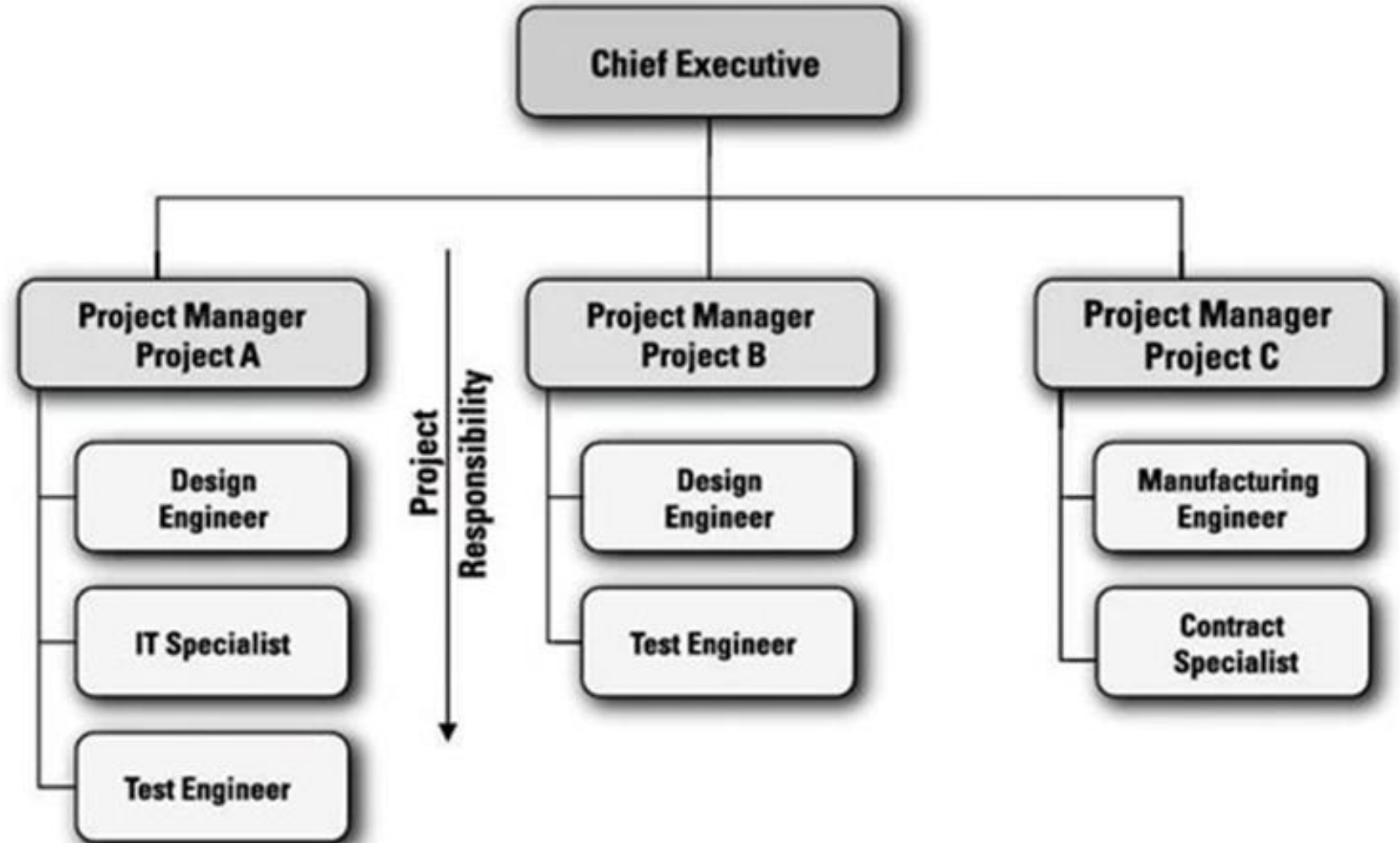
Organizational Structures

Functional



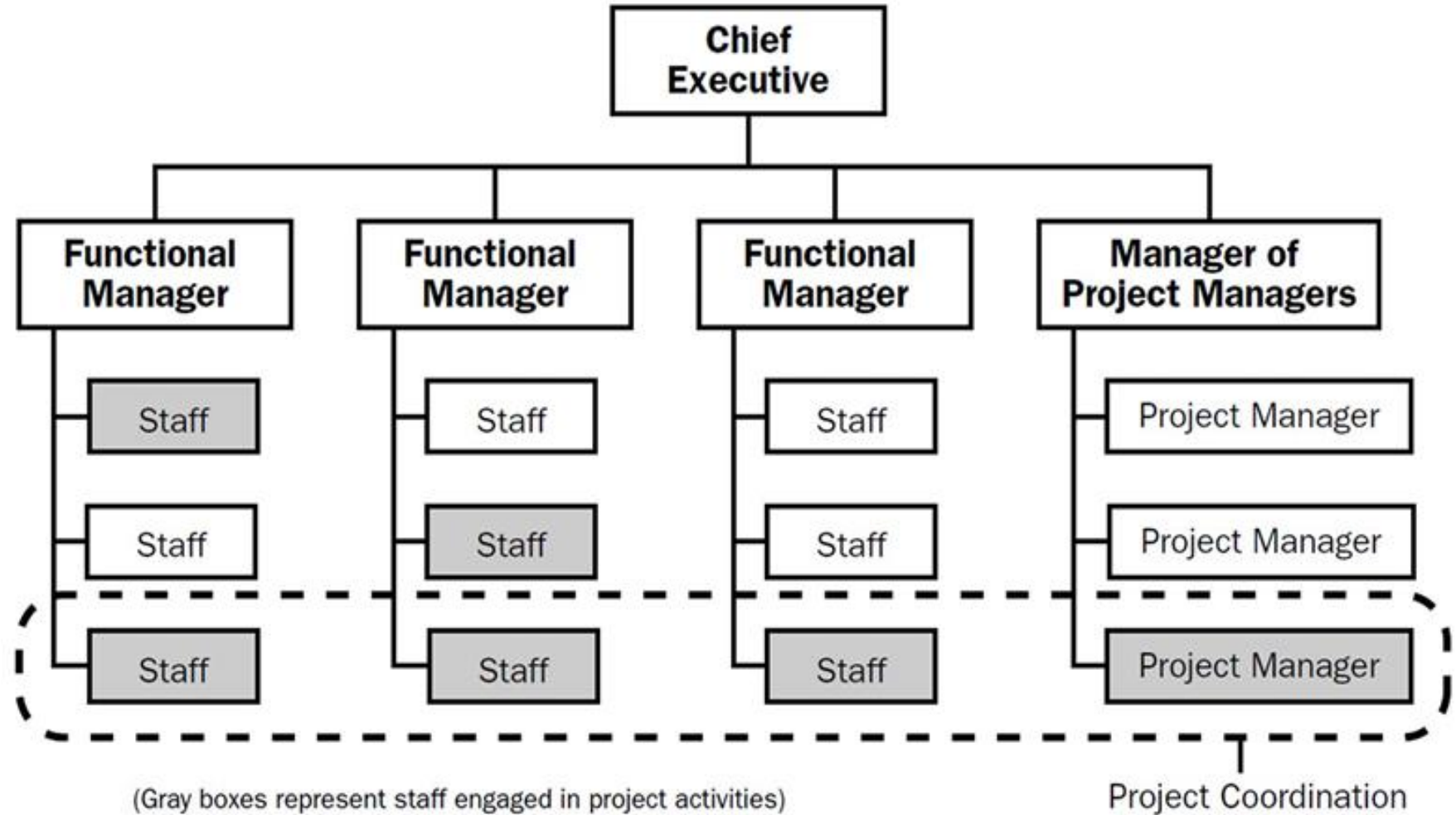
Organizational Structures

Project-oriented



Organizational Structures

Matrix



Relative Authority in Organizational Structures

	Functional	Matrix	Project-oriented
Team member loyalty	Functional department	Conflicted loyalty	Project
Team member reporting	Functional manager	Both functional manager and project manager	Project manager
Project manager role	Seldom identified	Coordinator to full project	manager Full-time and responsible
Team member role	Part-time on project	Part-time on project	Full-time on project (preferred)
Control of project manager over team members	Nonexistent (functional manager controls)	Medium – shared with functional manager/sponsor	High

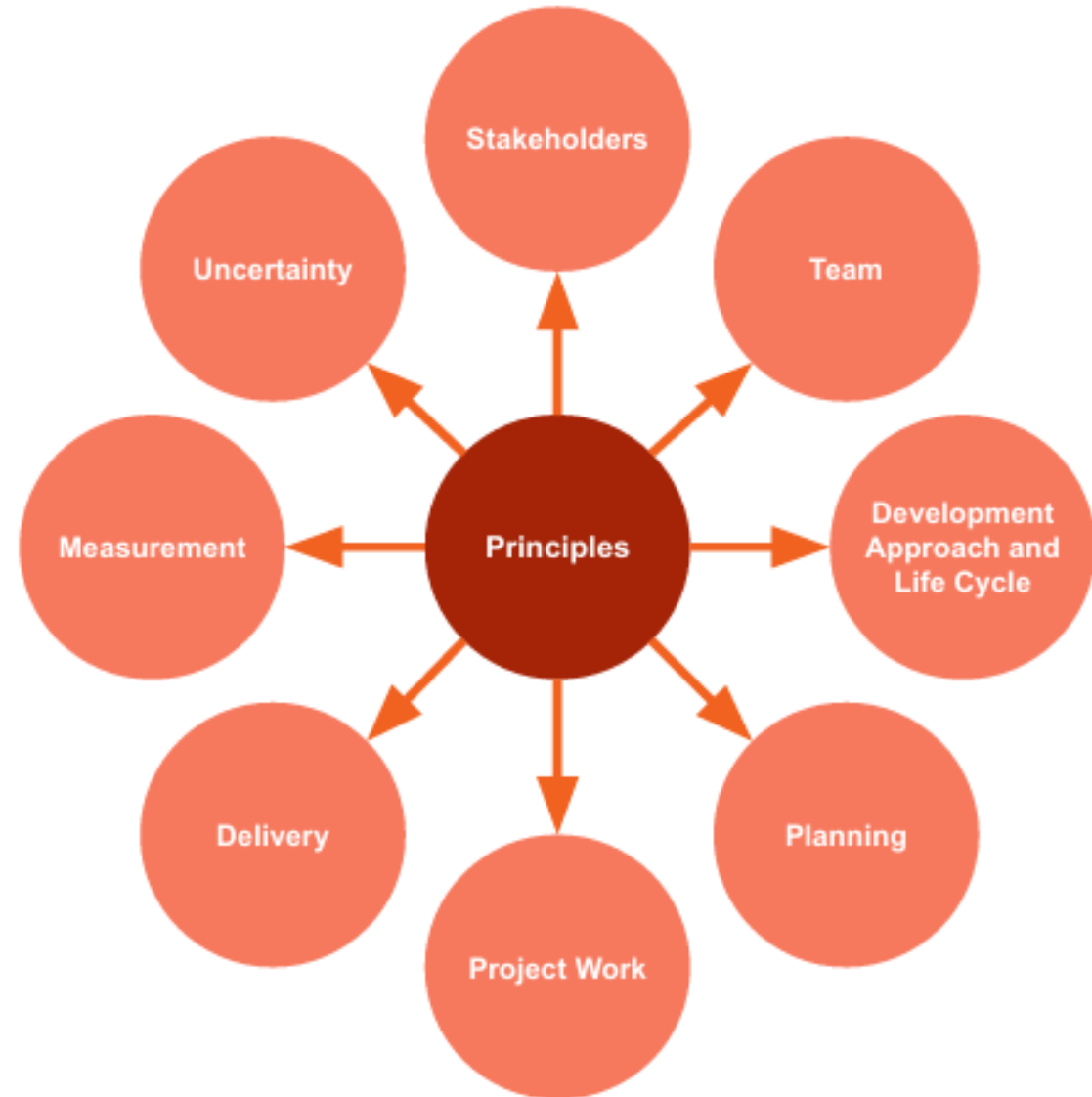
Project Management Principles

Guidance for All Project Practitioners

-
- a. Be a diligent, respectful and caring steward
 - b. Recognize, evaluate and respond to system interactions
 - c. Navigate complexity
 - d. Create a collaborative project team environment
 - e. Demonstrate leadership behaviors
 - f. Optimize risk responses
 - g. Effectively engage with stakeholders
 - h. Tailor based on context
 - i. Embrace adaptability and resiliency
 - j. Focus on value
 - k. Build quality into processes and deliverables
 - l. Enable change to achieve the envisioned future state

From Principles to Performance Domains

Use the 12 principles to guide behavior in the 8 project performance domains

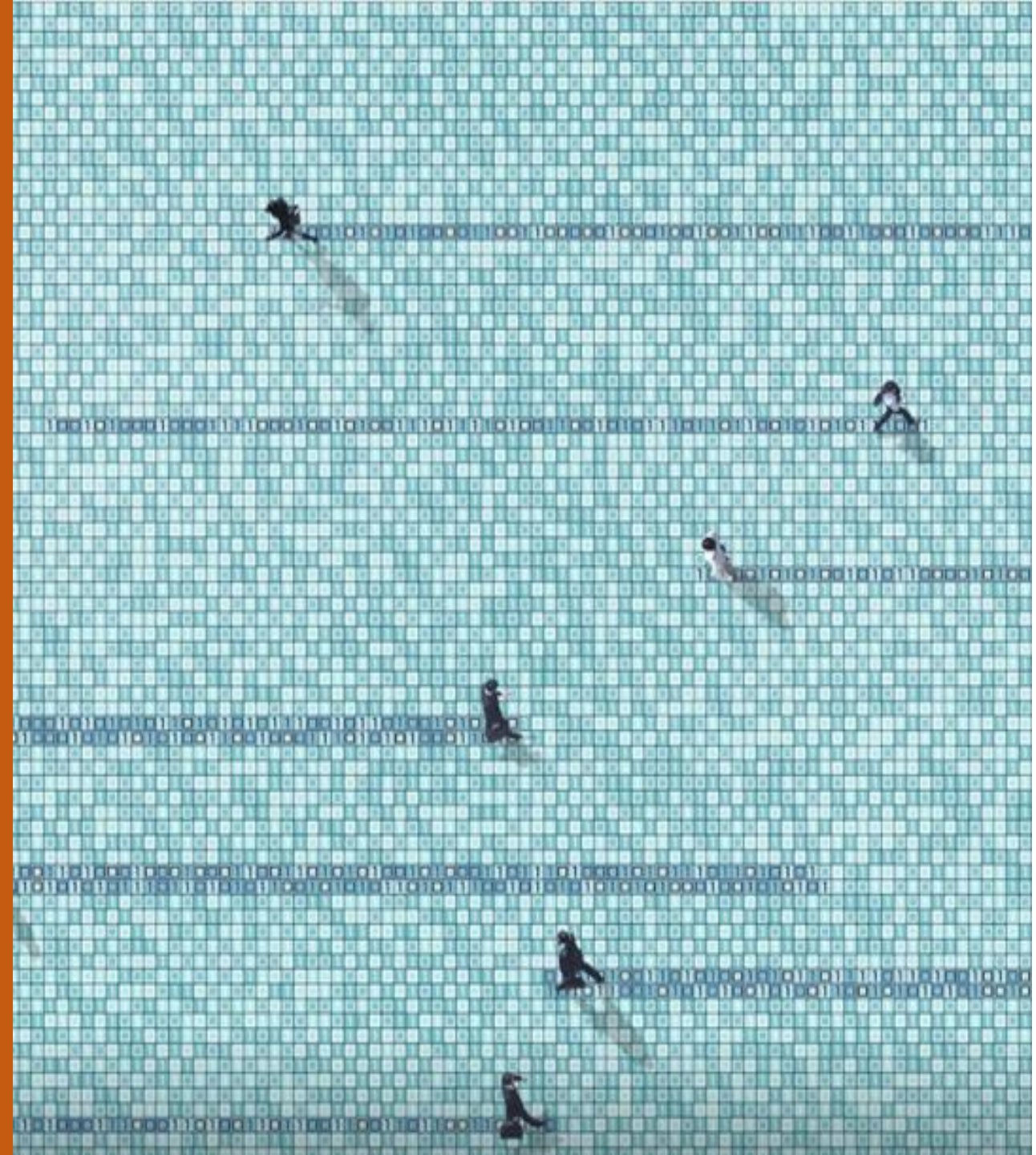


Agile

Derived from:

- Four values from the Agile Manifesto
- 12 principles

There are more than 50 known agile practices and methods in use!



The Agile Manifesto for Software Development

“We are uncovering better ways of developing software by doing it and helping others do it.

Through this work we have come to value:

Individuals and interaction	Over	Process and tools
Working software	over	Comprehensive documentation
Customer collaboration	over	Contract negotiation
Responding to change	over	Following a plan

That is, while there is value in the items on the right, we value the items on the left more.”

Principles Behind the Agile Manifesto 1 to 6

-
1. Our highest priority is to **satisfy the customer through early and continuous delivery** of valuable software.
 2. **Welcome changing requirements**, even late in development. Agile processes harness change for the customer's competitive advantage.
 3. Deliver working software frequently, from a couple of weeks to a couple of months, with a **preference to the shorter timescale**.
 4. **Businesspeople and developers must work together** daily throughout the project.
 5. Build projects around **motivated individuals**. Give them the environment and support they need and trust them to get the job done.
 6. The most efficient and effective method of conveying information to and within a development team is **face-to-face conversation**.

Principles Behind the Agile Manifesto 7 to 12

-
7. Working solution is the primary measure of progress.
 8. Agile processes promote sustainable development.
The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
 9. Continuous attention to technical excellence and **good design enhances agility.**
 10. Simplicity – the art of maximizing the amount of work not done – is essential.
 11. The best architectures, requirements, and designs emerge from **self-organizing teams.**
 12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

Agile:

The “Far Side” of Adaptive Approaches

“Doing Agile vs. Being Agile”

Agile means:

- Iterations are likely to be shorter.
- Product is more likely to evolve based on stakeholder feedback.

Still used for software development, and agile principles have been applied to other kinds of development projects, vis-à-vis the agile mindset.

- Adopt a flexible, change-friendly way of thinking and behaving
- Understand the purpose of these practices
- Select and implement appropriate practices based on context
- Internalize agile values, mindset and behavior

Tailor* Projects to Contexts

Because each project is unique, we adapt methods to the unique project context to determine the most appropriate ways of working to produce the desired outcomes.

Tailor iteratively and continuously throughout the project

Tailor Hybrid Approaches, Processes, Practices and Methods

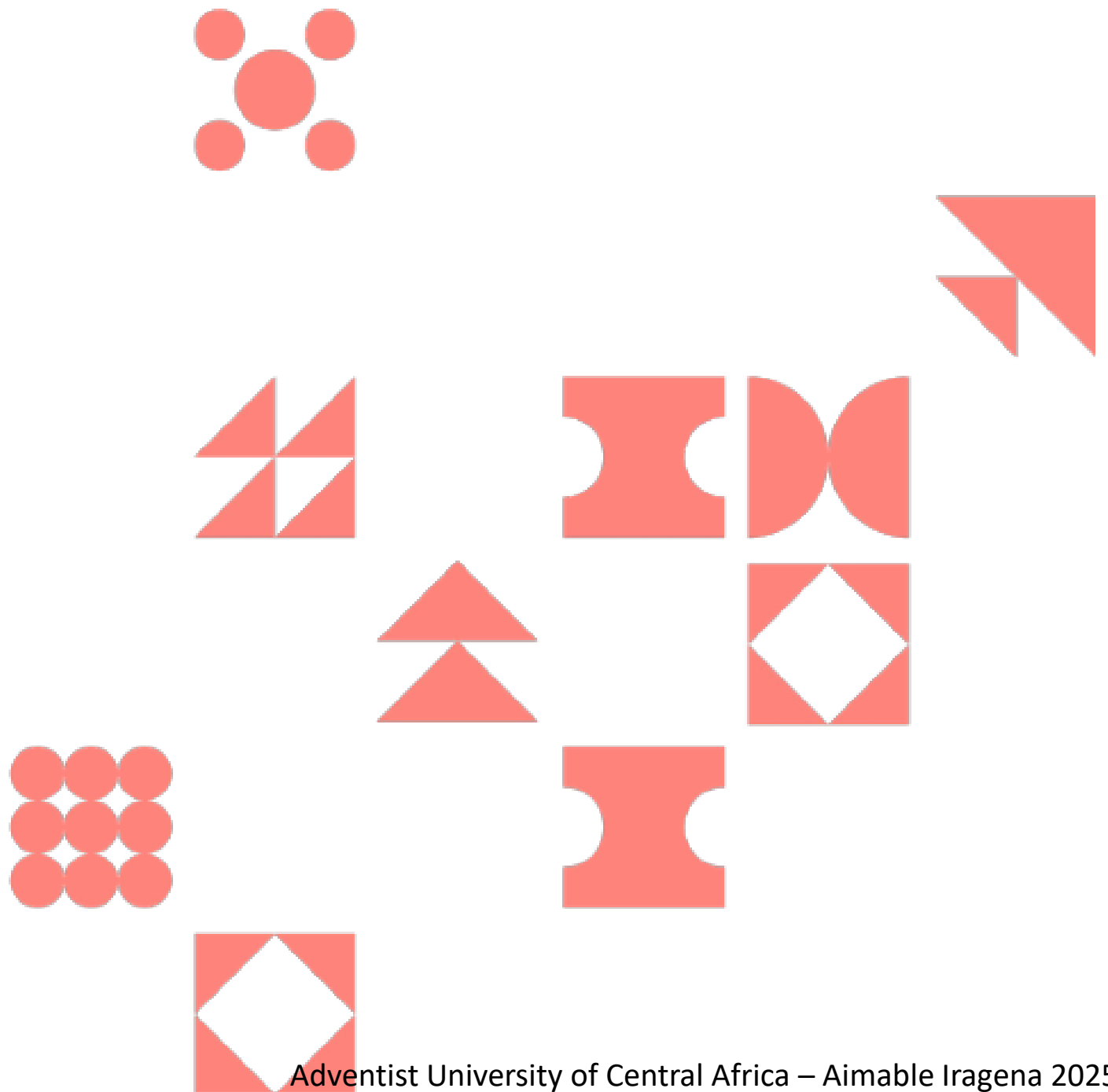
Apply product knowledge, delivery cadence and awareness of the available options to select the most **appropriate development approach**

Tailor **processes** for the selected life cycle and development approach; include determining which portions or elements should be added, modified, removed, blended, and/or aligned

Tailor **practices and methods** to the environment and culture

Topics Covered

- Foundational project management concepts
- Project management principles
- The Agile mindset
- Tailoring – hybrid approaches, processes and practices in project management



Strategic Alignment

TOPIC B

PMI Talent Triangle®



The PMI Talent Triangle® reflects the skills needed by today's project PMI Talent Triangle® professionals and changemakers as they navigate the evolving world of project management.

Ways of Working

Mastering diverse and creative ways (predictive, adaptive, design thinking) to get any job done

Power Skills

The critical interpersonal skills required to apply influence, inspire change and build relationships

Business Acumen

Effective decision-making and understanding of how projects align with the big picture of broader organizational strategy and global trends

Strategic Alignment and Business Management Skills

STRATEGIC PLAN

A high-level business document that explains an organization's vision and mission plus the approach that will be adopted to achieve this mission and vision, including the specific goals and objectives to be achieved during the period covered by the document.

Do you:

- Know your organization's **strategic plan**?
- Understand how project goals matter to an organization's long-term vision and mission?
- See a high-level overview of the organization?
- Have a working knowledge of business functions?
- Have pertinent product and industry expertise?

Can you:

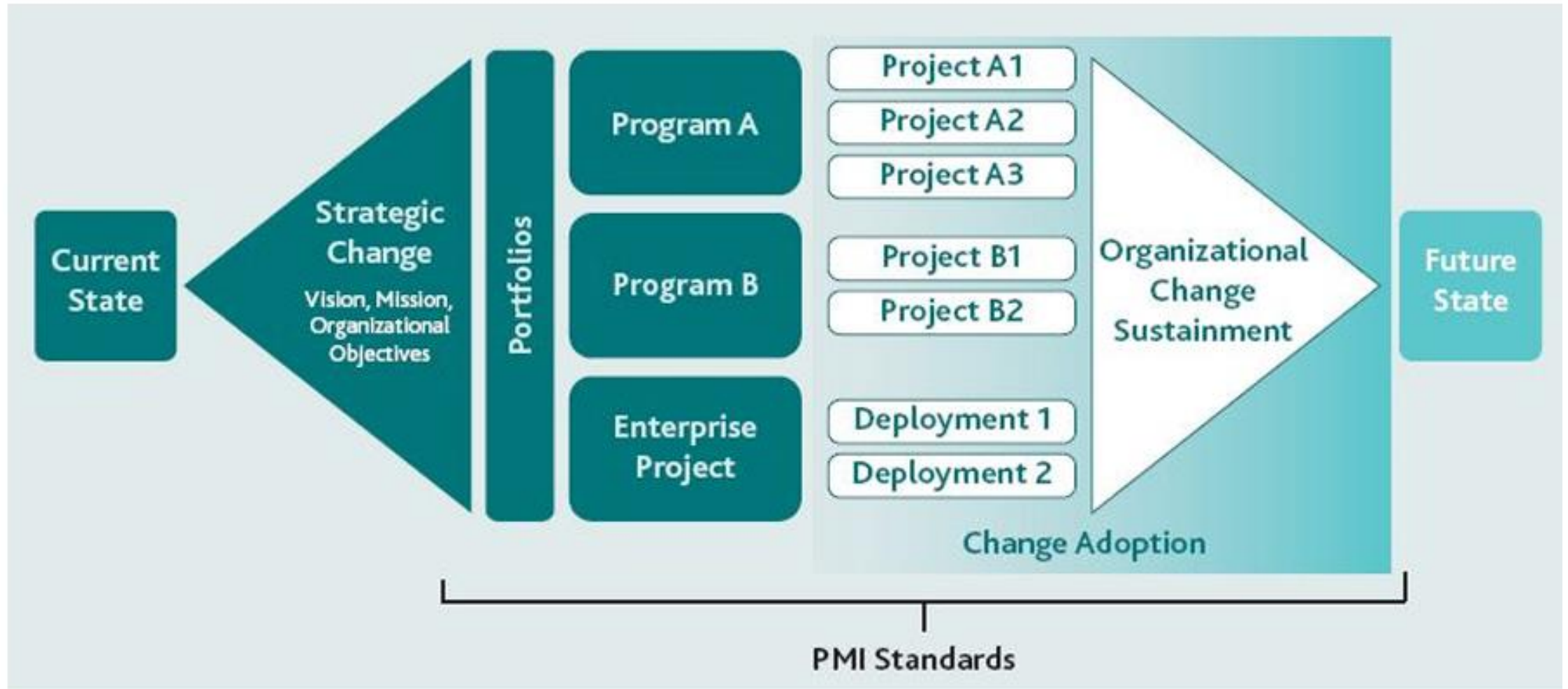
- Explain the essential business aspects of a project?
- Work with SMEs and a sponsor to develop an appropriate project delivery strategy?
- Implement strategy to maximize the business value of project?

Strategic Management Elements and Frameworks



Some agile projects use a goal-setting framework such as OKRs (Objectives and Key Results) that describes the organization's objectives and desired key results

Strategic Management Elements and Frameworks



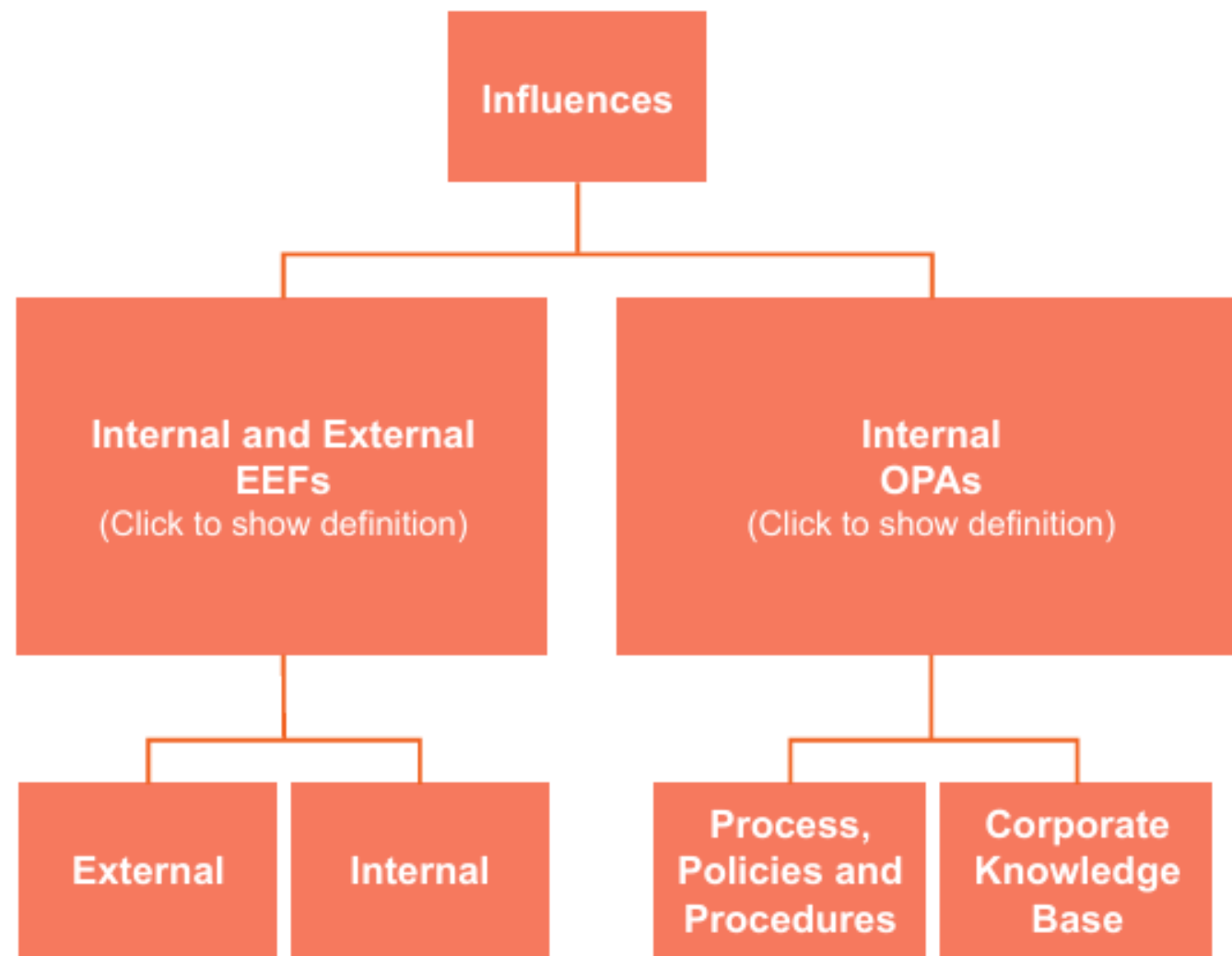
Organizational Influences

Enterprise Environmental Factors (EEFs)

- Internal and external to the organization

Organizational Process Assets (OPAs)

- Project policies, procedures and templates
- Historical project information



Get to Know the External Business Environment

Use frameworks or prompts to understand external factors that can introduce risk, uncertainty, or provide opportunities and affect the value and desired outcomes of a project:

- **PESTLE:** Political, economic, socio-cultural, technical, legal, environmental
- **TECOP:** Technical, environmental, commercial, operational, political
- **VUCA:** Volatility, uncertainty, complexity, ambiguity

In addition, review:

- Comparative advantage analysis
- Feasibility studies
- SWOT (strengths, weaknesses, opportunities and threats) analysis
- Assumption analysis
- Historical information analysis
- Risk alignment with organizational strategy

Internal Business Environment Factors

- **Organizational changes** can dramatically **impact scope**
- **The project manager, project sponsor or product owner** need to be familiar with business plans, reorganizations, process changes and other internal activities

Internal business changes might cause:

- Need for new deliverables
- Reprioritization of value, including removal of existing deliverables



OPAs and EEFs

OPAs

Processes, policies and procedures

Examples—

- Organizational charts
- Procurement rules
- Hiring and onboarding procedures

Organizational knowledge bases

Examples—

- Engineering wikis
- Libraries or archives
- Lessons learned repositories

EEFs

Internal

Examples—

- Resource capabilities
- Organizational culture
- IT software
- Distribution of facilities

External

Examples—

- Marketplace conditions
- Laws, regulations and standards
- Operating conditions
- Social and cultural influences

Activity: Identify OPAs & EEFs

Project name: Shawpe Lifestyle Center

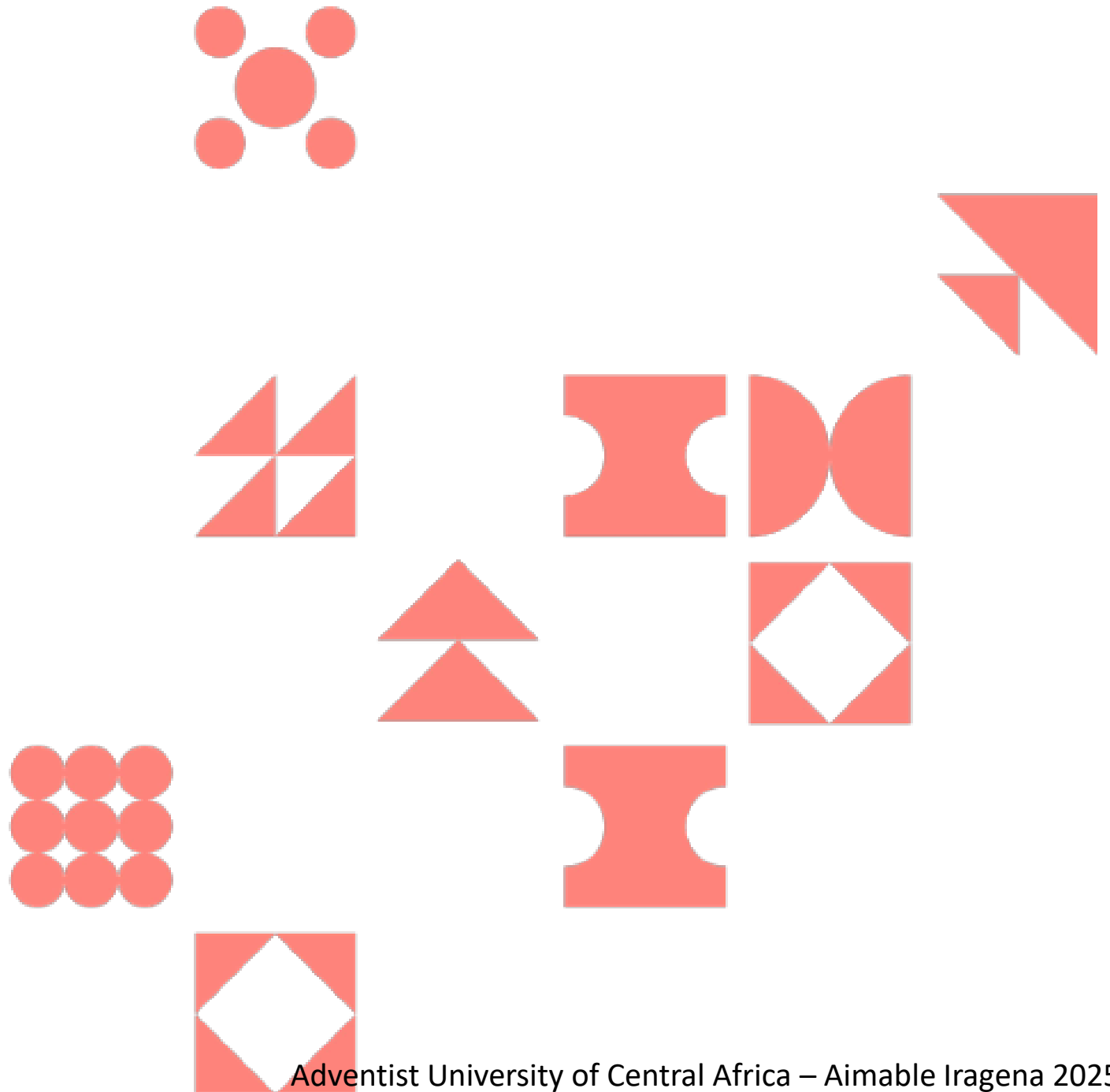
List of EEFs and OPAs:

- a. Economic demand for a new shopping area
- b. Historical society (conservation) building regulations
- c. Local neighborhood demand for a better town center
- d. Archive of past large infrastructure projects
- e. Approved vendor and contractors list
- f. Tenant selection process

Which are EEFs? Which are OPAs?

Topics Covered

- Define strategic alignment and business acumen
- Follow guidelines for effective business decision-making
- Explore organizational influences on projects
- Explain how projects align with broader organizational strategy and global trends



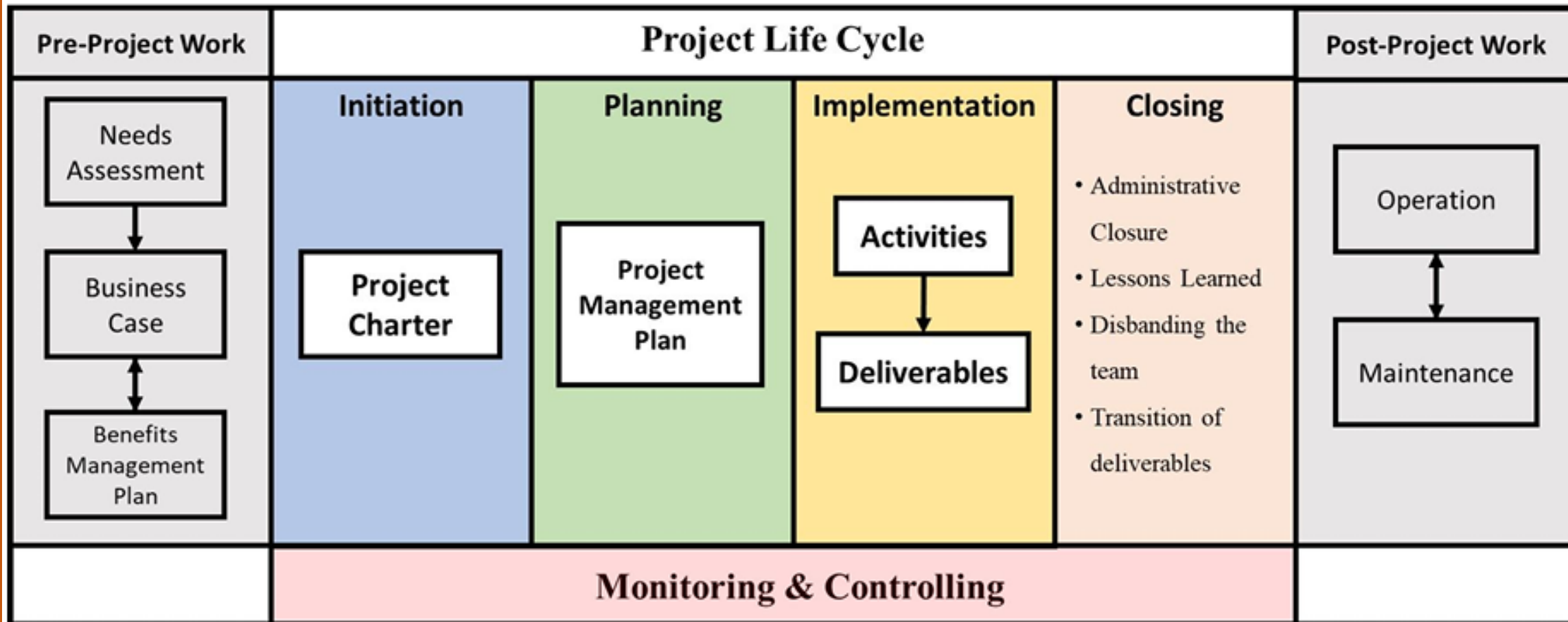
Project Benefits and Value

TOPIC C

Business Value

Projects exist to deliver business value—whether that is monetary value, an improvement on a product or service or otherwise.

Projects exist to deliver business value.



Examine Business Value

-
- Communicate with stakeholders, do the research and use expert knowledge
 - Examine, evaluate and confirm to determine exactly what is or can be of value!

Look especially at:

- Shareholder value (publicly traded companies) or business growth (private)
- Customer value
- Employee knowledge
- Channel or business partner value

Types Business Value



**Financial
Gain**



**New
Customers**



**Social
Benefit**



**First to
Market**



Improvement
*Technological,
process, etc.*



Regularization
*Alignment or
compliance with
standards and
regulations*

Needs Assessment

Obtain Data for the Project

-
- Usually performed by a business analyst.
 - Precedes the business case.
 - Involves understanding of:
 - Business goals and objectives.
 - Issues and opportunities.
 - Recommends proposals to address:
 - What should be done.
 - Constraints, assumptions, risks and dependencies.
 - Success measures.
 - Implementation approach.

Business Documents

- Are **developed prior to project start** (usually by a business analyst or key project stakeholder)
- Contain information **about the project's objectives** and contribution to the business goals
- Help the business to **determine whether a project is worth the required investment of time, money, and resources**



Review the business documents periodically

Business Documents

Business Case and Benefits Management Plan

Business case: justifies the project and establishes boundaries

- Cost-benefit analysis
- Business need
- Quality specifications
- Schedule or cost constraints

❗ Acceptance of the business case usually leads to **creation of the project charter**.

Benefits management plan should include:

- Processes for creating, maximizing and sustaining project benefits
- Time frame for short- and long-term benefits realization
- Benefits owner or accountable person
- Metrics
- Assumptions, constraints and risks

❗ This is a business document, not part of the project management plan.

Benefit Measurement Methods

Cost-benefit analysis: How businesses justify the selection (authorization) of a project

Business-based - “smaller is better”

- Estimate payback period — Smallest number (duration) chosen
- Assess opportunity cost — What if we didn’t undertake the project?

Financial-based - largest number (profit) chosen - “bigger is better”

- Time value of money
- Present value (PV)
- Future value (FV)
- Net present value (NPV)
- Internal rate of return (IRR)
- Return on investment (ROI)

How OKRs Help Deliver Business Value

- Start with organizational objectives
- Decide key desired results
- Refine further with objectives and key results (OKRs):
- Objectives are goals and intents
- Key results are time-bound and measurable milestones under these goals and intents

OKR best practices:

- Support each objective with between 3-5 measurable key results
- Aim for 70% success rate to encourage competitive goal-making. A 100% success rate should be re-evaluated as not challenging enough
- Write OKRs that are action-oriented and inspirational and include concrete, measurable outcomes

Incremental Value Delivery

- **Businesses need to show value delivered to please stakeholders and, in many cases, to continue funding the project!**
- Breaking down the delivery of features and functions (where possible) enables continuous progress and feedback on the results delivered.

An incremental development approach can:

- Enable value delivery sooner
- Attain higher customer value and increased market share
- Allow partial delivery (or previews) to customers
- Enable early feedback, allowing for adjustments to the direction, priorities and quality of the product



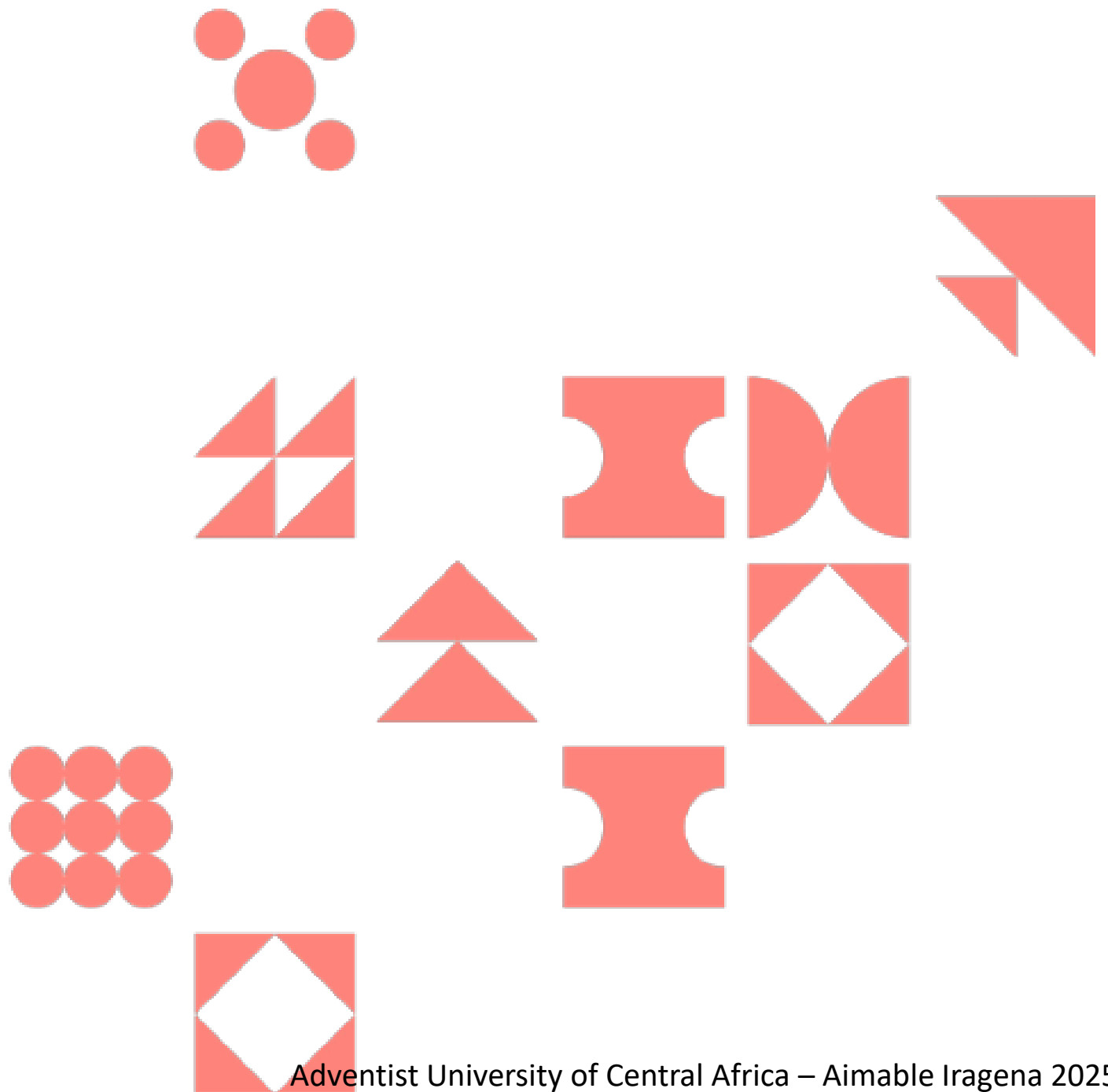
Topics Covered

Evaluate and deliver project benefits and value

- Investigate that benefits are identified
- Evaluate delivery options to deliver value

Execute project with the urgency required to deliver business value

- Assess opportunities to deliver value incrementally



Organizational Culture and Change Management

TOPIC D

Change Management

- Organizations embrace change as a strategy.
- PMOs build and sustain alignment between projects and the organization.
- Whether your organization has a PMO or not, you are a “**changemaker**”!
- Tailor a strategy to circumstances, people and timing
- Use a robust approach



Manage Organizational Change Impacts on Projects

-
- **Assess** organizational culture
 - **Evaluate** impact of organizational change to project and determine required actions
 - **Recommend** options for changes to project
 - Continually **monitor** external business environment for impacts to project scope/backlog



Get to Know Organizational Cultures and Styles

- View of leadership, hierarchy and authority
- Shared vision, beliefs and expectations
- Diversity, equity and inclusion practices
- Risk tolerance
- Code of conduct
- Regulations, policies and procedures
- Operating environments
- Motivation and reward systems



Risk, Culture and Change in Organizations

Risk threshold and appetite are shaped by diverse values of:

- Country/region
- Industry/sector
- Leadership
- Project team

These must be understood with care to:

- Establish effective approaches for initiating and planning projects
- Identify the accepted means for getting work done

Actions to Support Change

DO

- **Coach co-workers to support the business** — patience and compassionate mentoring are key
- **Enable an agile operating system** - Coach team members in agile to facilitate adoption of a change-centered mindset
- **Keep knowledge current** — Continuously improve processes and knowledge

DON'T

- **Force changes** — Involve and consult; aim to secure buy-in to the reasons for change
- **Alienate resisters** — Change can breed conflict, so proceed carefully

Plan for Change

Define the knowledge transfer, training and readiness activities required to implement the change brought by the project

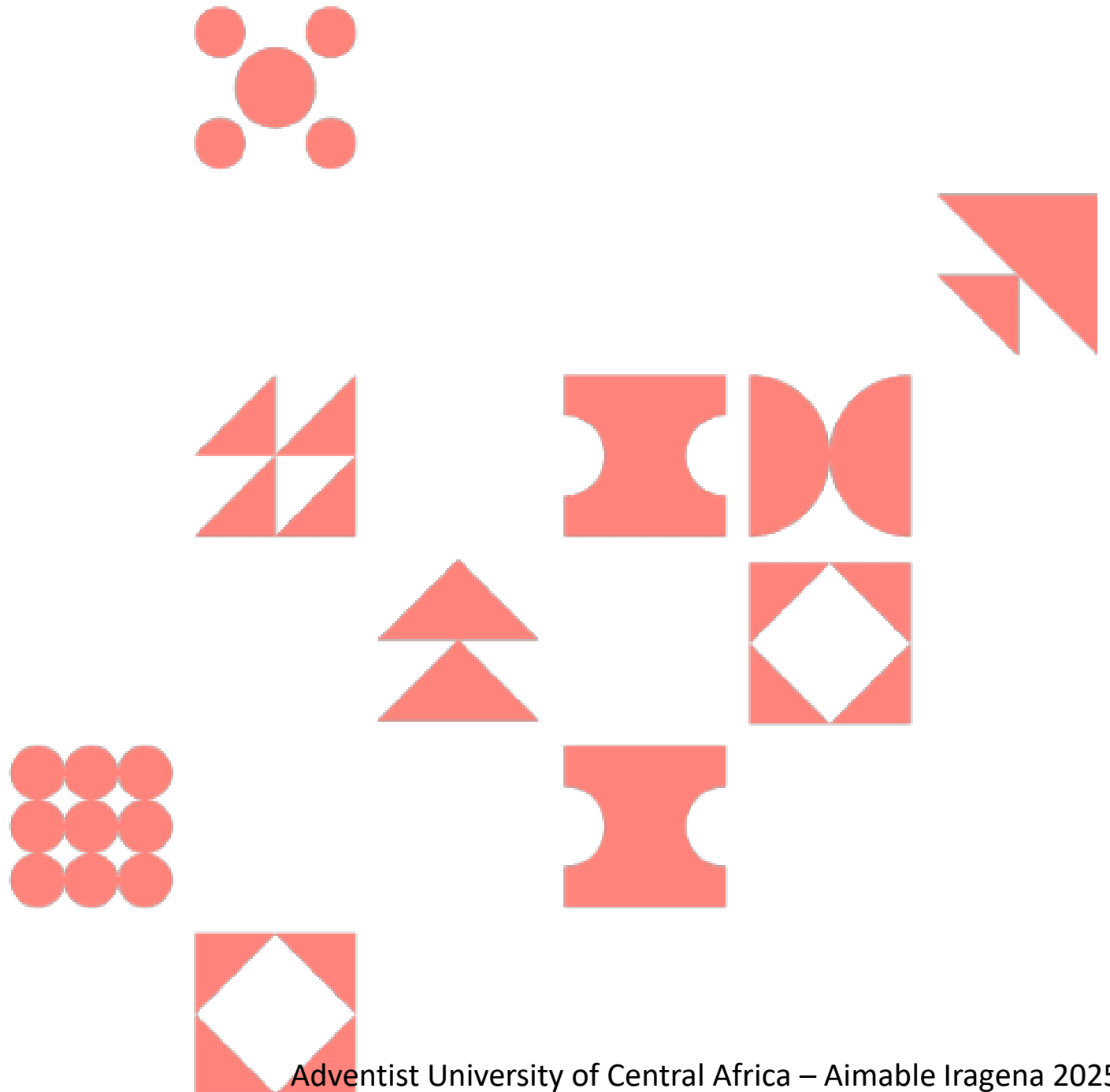
- Include an **attitudinal survey** to find out how people are feeling
- Create an **informational campaign** to familiarize people with changes
- Be open and transparent about potential effects of the changes
- Consider creating a rollout plan



Topics Covered

Support organizational change

- Assess organizational culture
- Evaluate impact of organization change to project, and determine required actions
- Evaluate impact of the project to the organization and determine required actions



Project Governance

TOPIC E

Get to Know Organizational Cultures and Styles

The framework, functions, and processes that guide project management activities to create a unique product, service, or result to meet organizational, strategic, and operational goals.

Key benefits:

- Offers a single point of accountability
- Encompasses the project life cycle



Governance type differs among organizations and projects.



Change Management Framework.

A well-structured **change management plan** helps communicate the benefits of these changes, prepares the team for transitions, and provides support during implementation, **ultimately ensuring the changes are adopted effectively** and the project achieves its goals.



A case for proper Change management:

- Employees may resist adopting new processes or systems, slowing down implementation.
- A key stakeholder opposes changes that weren't communicated effectively, causing project delays.
- Lack of support and communication during change can increase stress and dissatisfaction among employees

“Organizational change requires individual change”

The **ADKAR**® model names five milestones an individual must achieve in order to change successfully:

- **A** – Awareness of the need for change
- **D** – Desire to support the change
- **K** – Knowledge of how to change
- **A** – Ability to demonstrate new skills and behaviors
- **R** – Reinforcement to make the change stick

Change Management Framework

ADKAR Change Management

ADKAR Change Management

Organizational Change Management Activities



Individual Change Management Activities



Project Governance

What Kind and How Much?

Too much governance can annoy stakeholders, while relaxed governance can lead to a lack of stakeholder engagement or accountability.

Governance:

- Is typically already in place – established by a PMO or aligned with organizational policies
- Depends on strategic importance of project, constraints or oversight requirements
- *Critical for managing internal or external business environment change and deviations in budget, scope, schedule, resources or quality*
- *Budget management oversight is a key governance area.*



Project Governance: Components

Processes for:

- Change
- Communication
- Documentation—e.g., project management plan
- Decision-making
- Internal stakeholder alignment with project process requirements
- Review and approval of changes above project manager authority level
- Risk and issue identification, escalation, and resolution
- Stage gate or phase reviews
- Guidelines for aligning project governance and organizational strategy
- Project life cycle and development approach
- Project organization chart with roles
- Project success and deliverable acceptance criteria
- Relationship among project team, organizational groups, and external stakeholders

Governance in Adaptive Projects

Can:

- Document outputs and expectations
- Provide a clear view of project status from:
 - Defined iteration/sprint expectations and outputs
 - Releases tied to specific dates
 - “Real-time” monitoring of project output through daily standups

Iterative approaches enable quicker and less costly identification of value-based outputs than predictive



Governance

Board aka Project Board or Steering Committee

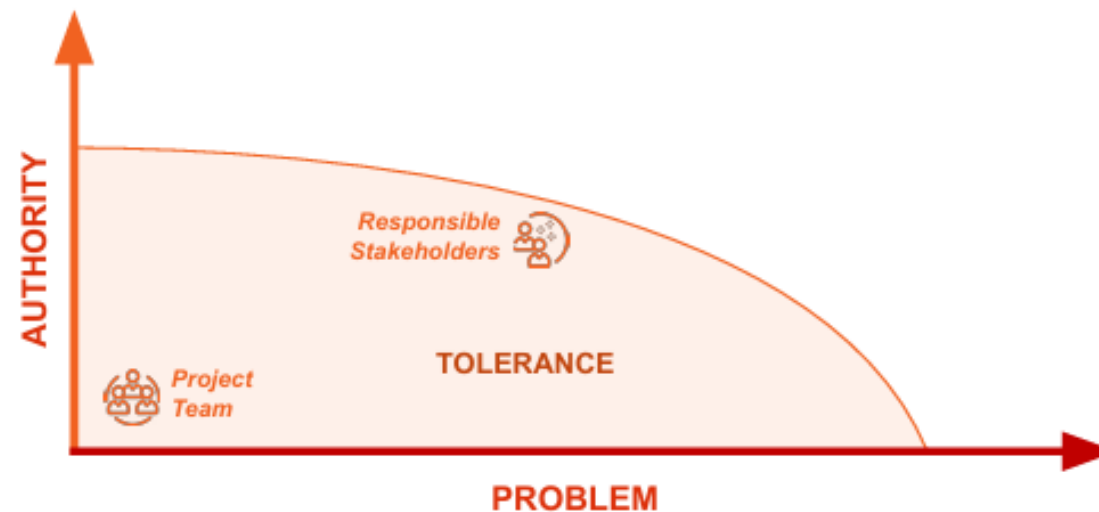
Within an organization, there may be separate or combined committees to provide support to the project manager.

- Provides project oversight
- May include project sponsor, senior managers and PMO resources
- May be responsible for:
 - *Reviewing key deliverables*
 - *Providing guidance for project decisions*

Governance Defines Escalation Procedures

For problems outside a project's **thresholds** or **tolerance** levels:

- Escalate to the responsible stakeholder who is authorized to take action;
- But if an issue is within the threshold, then work with the team to find a resolution.



Governance and Life Cycles

A Systems View

Remember the project management principle

Recognize, evaluate and respond to system interactions

Governance system works alongside the value delivery system — **the project life cycle**.

Why? To enable smooth workflows, manage issues and support decision making.



Value delivery as product of life cycle



Value delivery embedded in life cycle

Governance Checkpoints: Phase Gates and Iterations



Predictive

Split work into **phases**

Review results at a **phase gate** – aka, governance gate, kill point, or tollgate

Decide:

- Continue to the next phase
- Continue with modifications, or
- End a project or program



Adaptive

Split work into **releases**

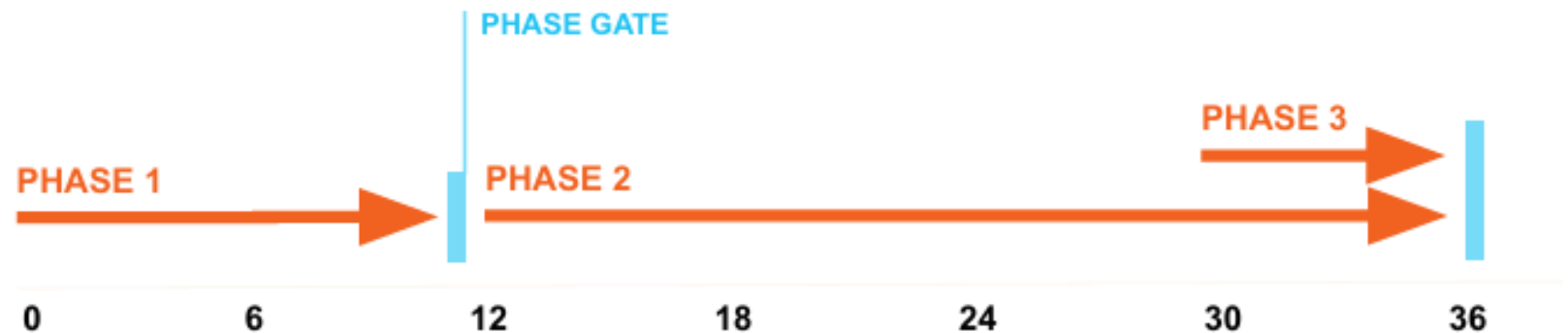
Review results at end of iterations

Gather feedback and take action to improve value in next iteration

Continue until customer's acceptance criteria – e.g., definition of done or **MVP** – is satisfied or project ends

Project Phases Relationships

Phases produce one or more deliverables; outputs from one phase are generally inputs to the next phase. They can have **sequential** or **overlapping relationships**.



Project Phases

They are normally the point at which a decision is made as to whether to continue to the next phase, improve the results delivered, or cancel/defer future work.



- ❑ **Go** means the project team has been given the go-ahead to move to the next phase.
- ❑ **Recycle** means that some additional work may need to be done before moving to the next phase.
- ❑ **Hold** means that the project may still have potential but has been put on hold due to resource constraints or prioritizing other projects.
- ❑ **Kill** means that the project is terminated. During the review, it was determined that the quality, business rationale, or resources did not meet the threshold to justify project continuation.

Apply Governance to Predictive Project Phases



At the beginning of a phase:	<ul style="list-style-type: none">• Verify and validate project assumptions• Analyze risks• Provide detailed explanation of phase deliverables
At the end:	<ul style="list-style-type: none">• Key deliverables produced• Review to ensure completeness and acceptance



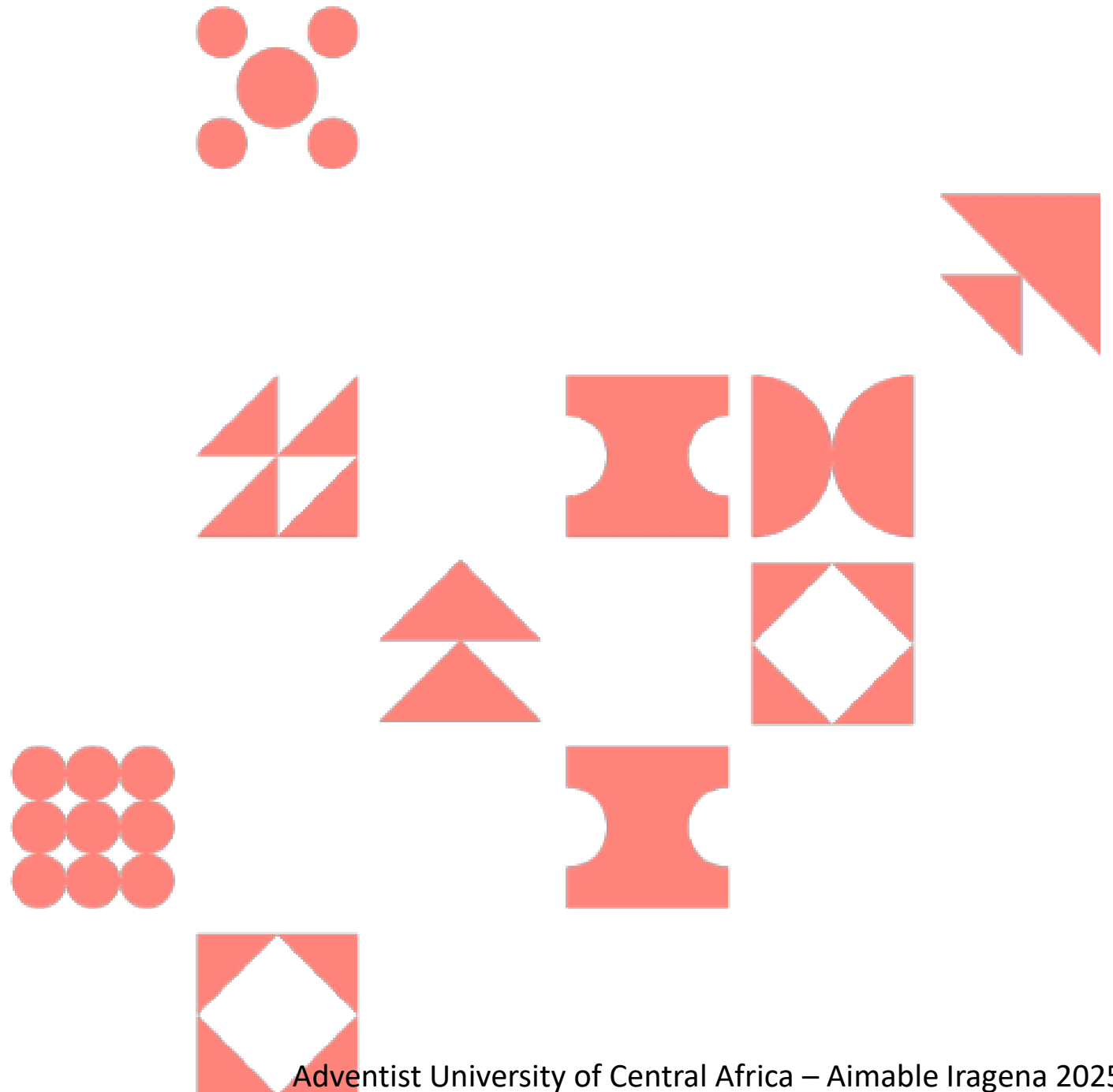
If huge risks are encountered, deliverables are no longer needed or requirements change, a phase or project will be terminated.



Topics Covered

Establish project governance structure

- Determine appropriate governance for a project (e.g., replicate organization governance)
- Define escalation paths and thresholds



Project Compliance

TOPIC F

Compliance

Internal and external standards include:

- Government regulations
- Corporate policies
- Product and project quality
- Project risk

PMO monitors compliance at organizational level
Project team is also responsible for project activity-related compliance, including:

- Quality of processes and deliverables/products
- Procurement and work by vendors

Compliance Requirements.

Legal or regulatory constraints include:

- Requirements for specific practices
- Standards
- Privacy laws
- Handling of sensitive information

Quality: Tailor to your project —
How much process rigor and quality control is relevant?



Compliance Categories Classification

-
- Environmental risks
 - Workplace health and safety
 - Ethical/non-corrupt practices
 - Social responsibility
 - Quality
 - Process risks

Categories vary based on:

- Industry and solution scope
- Unique legal and regulatory exposure

Compliance Threats How to Investigate

-
- Where/who in the organization handles compliance?
 - What legal or regulatory requirements impact the organization? e.g. workplace safety, data protection, requirements for professional memberships
 - What is the organization's **quality policy**?
 - Are the team and stakeholders aware of compliance matters?

Treat Compliance as a Project Objective

- Proactively track and manage risks for compliance requirements
- Be prepared to perform quality audits
- Continuously validate legal and regulatory compliance for deliverables
- Check compliance before the end of the project to avoid transferring issues
- In a risk or dedicated compliance register, include:
 - The identified risk
 - A responsible risk owner
 - Impact of a realized risk
 - Risk responses



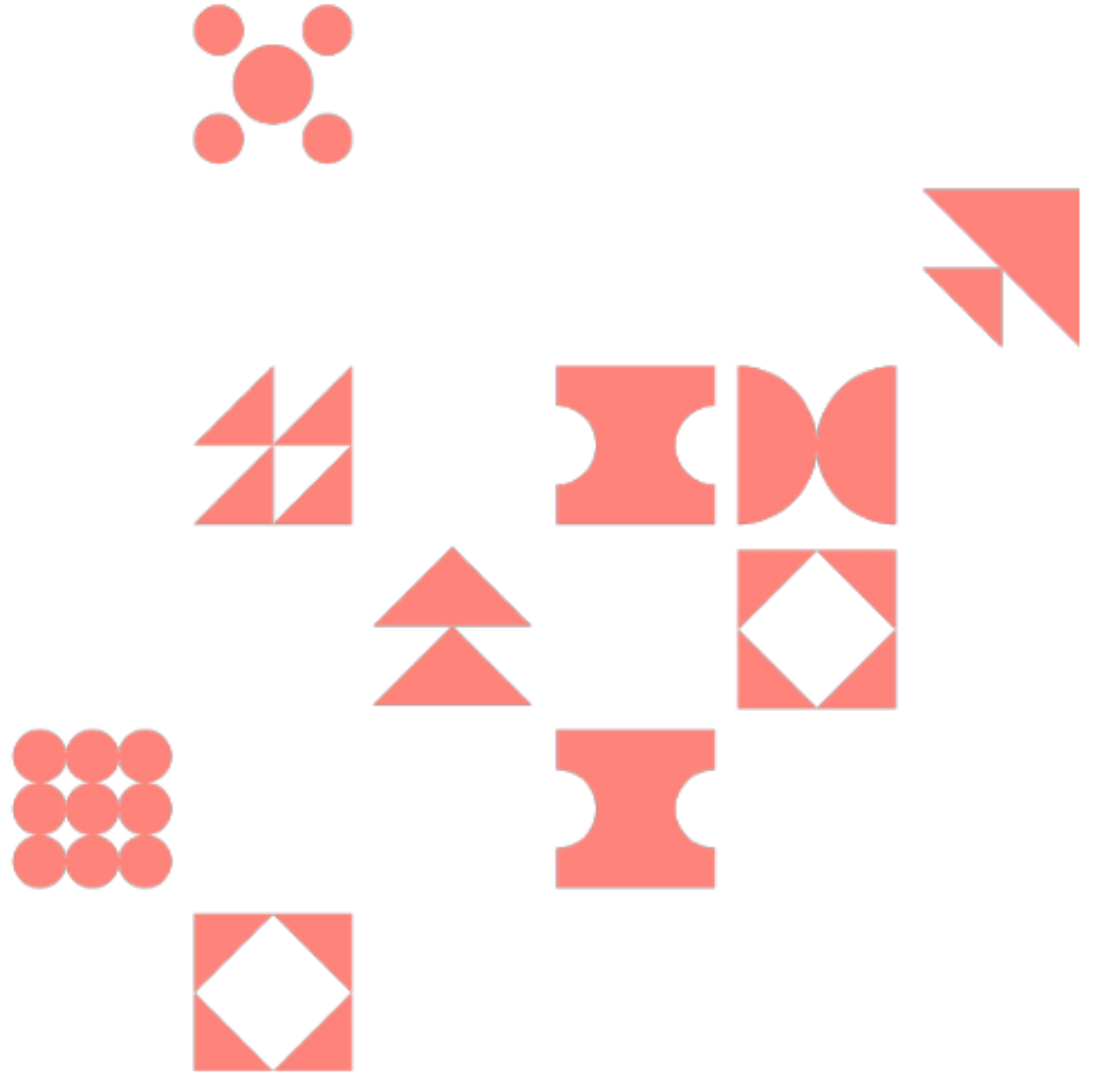
Larger organizations or those in highly regulated industries typically have a compliance department or officer.

Compliance Five Best Practices

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- **Documentation:** Updated compliance needs and risks
 - **Risk planning:** Prioritize compliance in risk planning
 - **Compliance council:** Includes quality/audit specialists and relevant legal/technical specialists
 - **Compliance audit:** Formal process
 - **Compliance stewardship:** It's your responsibility!

Topics Covered

- Plan and manage project compliance
- Confirm project compliance requirements (e.g., security, health and safety, regulatory compliance)
- Classify compliance categories
- Analyze the consequences of non-compliance



End of Lesson 1

