

The Open Group Guide

**Starting an Enterprise Architecture Capability in the
Government Sector**



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Starting an Enterprise Architecture Capability in the Government Sector

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Comments relating to the material contained in this document may be submitted to:

The Open Group, Apex Plaza, Forbury Road, Reading, Berkshire, RG1 1AX, United Kingdom

or by electronic mail to:

ogspeccs@opengroup.org

Contents

1	Introduction.....	1
Part 1: Architecture Practice Organization.....		3
2	Architecture Practice.....	4
2.1	Product or Service Delivered by Architecture.....	5
2.2	Superior Architecture (Implicit and Explicit).....	6
2.3	The What and the When.....	7
2.3.1	Architecture to Support Strategy.....	7
2.3.2	Architecture to Support Portfolio.....	8
2.3.3	Architecture to Support Projects.....	8
2.3.4	Architecture to Support Solution Delivery.....	8
2.3.5	Communicating for Confidence.....	10
2.4	The How.....	10
2.4.1	Leadership, Value Realization Team.....	12
2.4.2	Architecture Teams.....	12
2.5	Outcome and Success Measures.....	15
2.6	Balancing Initiative and Central Needs.....	16
2.6.1	Measures of Effectiveness.....	16
3	Bootstrapping.....	17
3.1	Getting the Lead.....	17
3.2	Enabling for Success.....	18
Part 2: Context and Guidance.....		19
4	Introduction to Part 2.....	20
5	Context and Triggers.....	22
5.1	Why Change?.....	22
6	Outcome Concerns.....	24
6.1	What is Known?.....	24
7	Execution Concerns.....	26
7.1	Accountability.....	26
7.2	Swiftness in Decision-Making.....	26
7.3	Controlled/Planned Transparency.....	26
7.4	Alignment to Annual Budget Cycle.....	27
7.5	Non-Duplication and Spend Control.....	27
7.6	Interoperability.....	28
7.7	Citizen-Centricity.....	28

8	Operating Model for Government Agencies	29
8.1	Public Sector Clarity	30
8.2	Evaluating Change and Outcome (Governance Model)	30
8.3	Doing the Work <i>versus</i> Informing the Outcome (Who should do this and who should know?)	31
8.4	Removing the Blockers and Inhibitors	31
8.5	What are the Completion and Exit Criteria?	32
8.6	Public-Private Partnership (PPP)	33
8.6.1	Strategic Partner	34
8.6.2	Operational Partners	35
9	What is the Practical Guidance? (Good Practice)	37
9.1	Dos and Don'ts	37
Part 3: Reference Materials		39
10	Additional Reading Material	40
11	Stakeholders, Concerns, Objectives Mapping	42
11.1	Who has the Decision Authority? Who to Consult with? Who needs to be Informed?	42
11.2	Stakeholder Decision Rights	45
11.2.1	Strategy	45
11.2.2	Portfolio	46
11.2.3	Project	46
12	Stakeholders, Objectives, Success Criteria	48
13	Architecture Capabilities	49
14	Domain Architectures	51
15	Mapping to the TOGAF Leader's Guide	53

Preface

The Open Group

The Open Group is a global consortium that enables the achievement of business objectives through technology standards. Our diverse membership of more than 600 organizations includes customers, systems and solutions suppliers, tools vendors, integrators, academics, and consultants across multiple industries.

The Open Group aims to:

- Capture, understand, and address current and emerging requirements, establish policies, and share best practices
- Facilitate interoperability, develop consensus, and evolve and integrate specifications and open source technologies
- Operate the industry's premier certification service

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This Document

This document is The Open Group Guide to Starting an Enterprise Architecture Capability in the Government Sector. It has been developed and approved by The Open Group.

The focus of this Guide is to help leaders build a team and create, deliver, and use architectures within the public sector, recognizing the differences between public and private enterprises. The Guide has three parts:

- Part 1 is focused on the functions and structure of the architecture practice, including the outcomes and expectations of an architecture team
- Part 2 is a set of discussions on key considerations that motivate, trigger, and guide the architecture practice
- Part 3 is a set of references aimed at guiding the leaders and the architecture practice in operationalizing the practice

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The Open Group gratefully acknowledges the authors of this Guide.

Dave Hornford, Conexiam

Dave Hornford is the former Chair of The Open Group Architecture Forum. He is a central developer of Conexiam's Navigate Atlas and was a contributor to the TOGAF® 9 standard. Dave serves on the board of trustees of The SABSA® Institute. Based in North America, he works in a variety of industries including financial services, oil and gas, and capital-intensive industry. Dave helps clients develop their EA capability and perform Digital Transformation.

Sriram Sabesan, Conexiam

Sriram Sabesan is an Open Group Certified Distinguished Architect. He is a regular contributor to standards and serves on The Open Group Governing Board. Sri is based in North America, he specializes in technology, manufacturing, telecommunication, and financial services industries. Sriram helps clients to develop and execute strategies in response to digital or economic disruptions.

Pallab Saha, The Open Group

Pallab Saha is Chief Architect, South Asia at The Open Group. He is an adviser to the Ministry of Electronics & IT (MeitY), Government of India, and is a key member of the National Committee for Enterprise Architecture. Pallab has been the Chief Architect to Andhra Pradesh State Enterprise Architecture (ePragati) and Bhutan eGIF. He is the primary author of the Methodology for AGENCY ENTERPRISE ARCHITECTURE (MAGENTA) and Government Enterprise Architecture Guidebook for the Government of Singapore. He has been a visiting researcher at the UN University, an expert reviewer to the ACM Enterprise Architecture Tech Pack, and a guest faculty to the LKY School of Public Policy and Carnegie Mellon University.

Chris Searle, Conexiam

Chris Searle brings deep expertise in developing and managing architecture practices in the public sector. Chris is based in Canada and is a member of Conexiam's Architecture & Analytics team based in Victoria, BC. He specializes in architecture analysis, options analysis, and roadmap development. Chris works with all of Conexiam's practices to provide architecture development and analysis.

Ken Street, Conexiam

Ken Street is the current Chair of the Big Data project and is active within The Open Group IT4IT™ and Open Platform 3.0™ Forums. Based in Canada, he leads Conexiam's Governance and Big Data practices. He works primarily in state government, telecommunications, financial services, and oil and gas, helping clients to develop their Enterprise Architecture Capability, improve their IT organization, and execute architecture-driven transformational programs.

Referenced Documents

The following documents are referenced in this Guide.

(Please note that the links below are good at the time of writing but cannot be guaranteed for the future.)

- Are you Sure you have a Strategy?, Donald C. Hambrick, James W. Fredrickson, November 2005; refer to:
www.researchgate.net/publication/278683016_Are_You_Sure_You_Have_a_Strategy
- DoD Architecture Framework (DoDAF), Version 1.5, US Department of Defense, April 2007
- Simon Wardley's Blog: Bits or Pieces?; refer to:
<https://blog.gardeviance.org/2016/07/how-not-to-fix-government-it.html>
- The Future of the Architecture Practice, Lance K. Josel, April 2017; refer to:
www.di.net/articles/future-architecture-practice
- TOGAF® Series Guide: The TOGAF® Leader's Guide to Establishing and Evolving an EA Capability (G184), February 2018, published by The Open Group; refer to:
www.opengroup.org/library/g184
- United Nations Sustainable Development Goals for 2030
www.un.org/sustainabledevelopment/sustainable-development-goals

1 Introduction

This Guide is part of a series of public sector documents from The Open Group. Each document in the series addresses a specific change initiative – from developing an architecture that forms the backbone of eGovernment¹ and eGovernance² initiatives, to development and governance of the architecture. The Open Group, over a period of time, will address the breadth and width of the eGovernment needs, which could include information security, computing resource management, and government-to-government information exchange.

The focus of this document is to establish, build, and operate an architecture practice. For any enterprise, federal agency, or *quasi*-government agency, their current operating model is an implicit architecture. The target architecture set at their inception was met a long time ago. This target has transformed into what it is today, either intentionally or as a reaction to external *stimuli*. Either way, the intent and the needs have changed with time. Assumptions and conditions that built the current architecture are no longer valid, and a new target is required. Since the current architecture is more implicit than deliberate, it is better to start with building an architecture team, supported by a practice that can deliver useful architecture.

Current operations have been successful, if not ground-breaking, without architectures being created deliberately. The same approach can be extended to embark on the next transformation journey. However, an explicit architecture makes the journey to the target quicker, better controlled, less risky, and less expensive. Several global agencies like the UN, the World Bank, and sovereign nations have created reference architectures and architecture frameworks.

This document is a companion to the reference architecture for governance by the highest body of the government – central, state, or local. Public agencies and enterprises are complex. Multiple uncontrolled external and internal influences can trigger a change to any eGovernment or eGovernance initiative. Accommodating change is costly and time-consuming. Anything from public sentiment to the economic condition of a trading partner can impede the execution of an initiative. While there are many ways to build and operate an eGovernment and eGovernance model, an architected approach dramatically reduces the timeline, risks, and potential mid-project failures, and instills confidence in the minds of the key players.

This document is focused on helping the leaders³ build a team and clearly define the outcomes they want to deliver to the government and the public, using either country-specific reference architectures and frameworks or using generic architectures from global agencies. The leader should understand that they are chartering a team to create, deliver, and use architecture. The Enterprise Architecture team will benefit from reading this Guide to understand leadership expectations and how the architecture practice for a public sector varies from the private sector.

¹ eGovernment is about use of information, communication, and technology services to improve the operational efficiency and provisioning of new services by public sector organizations to businesses and citizens. It covers Administrative Services and services that improve the quality of life of citizens via improved exchange of information between government, businesses, and citizens.

² eGovernance for the purposes of this document is about use of information and communication technology to support the governance of various initiatives of the public sector and initiation of corrective actions.

³ We use “leader” as a short-hand for the people who are accountable for changing their organization, or launching a new initiative. While they have a myriad of job-titles they have one role: to lead.

This document has three parts – it is essential for all audiences to read all of Part 1, but Part 2 and Part 3 are optional for some audiences:

- Part 1 is focused on the functions and structure of the architecture practice, including the outcomes and expectations of an architecture team

This part is about why an architecture practice is required, its reporting structure, the necessary steps to build the practice, and what value it should deliver. This practice is similar in its responsibilities to Engineering Services.⁴ The output of this practice is focused on developing the architecture and solutions for eGovernment and eGovernance. This part will discuss the alignment between the annual budget cycle and operational needs of public sector initiatives.

- Part 2 is a set of discussions on key considerations that motivate, trigger, and guide the architecture practice

This part is focused on guiding the architecture practice team regarding the concerns and outcomes of public sector initiatives. It discusses the types of stakeholders, their influence, and decision rights. This part will touch upon some of the “visible leadership” requirements that may come in the way of the delivery cycle of the architecture practice.

- Part 3 is a set of references aimed at guiding the leaders and the architecture practice

This part provides a list of references and starting material to constitute and operationalize the practice.

This document is written to address the needs and concerns of the decision-maker – the elected representative and the supporting administrative official. It provides sufficient guidance to initiate the practice, empowerment required for the team, and an operating model for the architecture team. This document is written for the non-defense public sector.

⁴ In some countries, the specialized services may be called the Corps of Engineers. Architecture practice is unique and requires a level of maturity, rapid delivery, and long-term thinking that the Corps of Engineers exhibit.

Part 1: Architecture Practice Organization

2 Architecture Practice

The purpose of any architecture is to guide change by establishing a point of view to translate vision and objectives into a well-defined execution path, using appropriate analysis, planning, design, and implementation methods. An architected approach provides a rigorous planning methodology that validates the business objectives, ensuring that they are feasible, deliver the desired business value, and their achievement is cost-effective. A good architecture enables stakeholders to knowingly strike the right balance between any competing set of preferences.

With a useful architecture, the stakeholders can control solution delivery to ensure that it stays on track to enable ongoing operations to deliver the expected set of benefits. Solution delivery allows operations to remain focused on benefit and avoid the distraction provided by project closure.

To enable stakeholders and decision-making, the members who form the architecture practice spend time in *understanding* the body constituted to drive the change, context, scope of change, and value to be realized. This understanding and analysis enable a trade-off between competing preferences and potential changes that carry different costs and different benefits. Trade-off analysis is about balancing the concerns of all stakeholders. Likewise, the practice also takes responsibility for multiple outcomes. Value is not on Return on Investment (ROI) from the primary initiative. The value lies in enabling long-term benefits via secondary and tertiary projects and solutions. That doesn't mean the primary goal can encounter cost and scope overruns. The primary project lays the foundation for offshoots to grow as soon as possible and necessary.

Using an architected approach improves understanding and reduces waste and possibility of failure. The architected approach uses consistent terms, highlighting the fundamental parts and how they interact to deliver the value. Consistent terms enable like-with-like comparison, elimination of potential duplicates in the overall portfolio, and govern the delivery of the solutions via in-house or contracted teams.

Business and IT architectures are no longer straightforward or about local efficiency improvement. Public sector enterprises and private businesses are living, breathing organisms that have symbiotic relationships with other public sector agencies or private enterprises. Maximizing the benefits from such symbiotic relationships requires unique expertise and subject knowledge that can deliver solutions to stand the test of time. Rebuilding often and encountering some waste or inefficiencies in the public sector may be more cost-effective than building something that is durable over a period. However, in the public sector, lifecycles of different architectures will be different. There will always be a backward-compatibility constraint imposed on new architectures and solutions.

“Architecture is nowhere near as commoditized as some may have feared, and only some firms have emerged with strengthened practices focused on fact-based design, end-user research, and technology ... Intellectual Property (IP) is now as valuable as the ideas behind it, even obscuring the divisions between design, construction, and operations. Tools and gadgets will come and go, but we are a profession of ideas ... and who owns and controls that IP will define and shape the practice of architecture.” (Source: Lance K. Josal; see [Referenced Documents](#))

The key to success for public sector entities and their service providers lies in understanding the following:

- Different operating cycles: multi-year planning, annual portfolio and investment spend control, and value realization
- Realize and build steps to account for a learning cycle, as every new project will have a new set of personnel onboarded – needing time and effort to coach and advise each team in using a set of patterns and consistent terms
- Architectures and solutions operate on a set of revocable and irrevocable permissions granted by the law-making body – the architecture should include a review and appeal process for all revocable permissions

Good architecture has the same lifespan as the planning horizon⁵ and has four parts:

1. Define the target (time in the future) and the current in the same terms
2. Articulate the gap – change, effort, and benefit
3. Articulate controls against risks and assets
4. Articulate constraints against choices implementing the target

It may include value utilization transition stages. Value realization stages are common when the duration and effort to accomplish all the goals are spread out across the planning horizon. For the public sector, the planning horizon usually is five to ten years, making value utilization states mandatory.

2.1 Product or Service Delivered by Architecture

The public sector is chartered to work efficiently and provide confidence to the citizens that the members of the public sector continue to have the moral right to administer and govern. Decisions and choices made by the members of the executive and legislative branches are architectural in nature. These choices span everything from the selection of a location to resources used in construction resulting in durability, resilience, and environmental sustainability. Therefore, the primary outcome of architecture is to guide decisions. An architecture practice develops a dossier with just enough information to make an investment or corrective action decisions. The public sector has traditionally operated in well-defined business cycles. Shifting geopolitical and global economic conditions necessitate that decisions are made more frequently than before. The architecture practice works with fixed and variable time-to-market conditions to deliver its decision support information. From that perspective, the product created by an architecture practice is an advice binder that is used often and immediately.

The architecture that enabled the decisions guides, constrains, and improves efficiencies in implementing those decisions. Hence, for a public sector, the secondary outcome facilitated by the architecture practice is providing appropriate foundations for itself and all the implementation projects. In this pursuit, the architecture practice produces structures and

⁵ The planning horizon is the amount of time an entity will look into the future when preparing a strategic plan. In the public sector, factors like time for a tree to mature and deliver results or the time for a water table to replenish and stabilize may extend the duration. It often includes a few years of operations to stabilize and realize value.

solutions which continually improve its operations, avoid unintended dependencies while building or using the solutions, and deliver solutions to improve the life of its citizens.

The third outcome is to enable regular reporting of the use of the architecture and the solutions delivered by the architecture. In creating this report, the solutions and the architectures are measured against its ability to address the concerns of security, nepotism, corruption, resiliency, breadth, and scale. It is essential that the architecture report covers the spectrum of citizens who are not covered by the solution and the impact on the overall governance objectives.

The fourth and last outcome is to keep all participants in the change effort aligned. The architecture should communicate to the decision-maker and the implementer in terms that are relevant for them. The taxonomy used should provide traceability from decisions, directions, and delivery to reporting and control. The architecture recommends the structure and views to be used for communications and specifies the stakeholders to be kept current.

2.2 Superior Architecture (Implicit and Explicit)

Functioning government and its ministries, structures, and projects defined the implicit superior architecture. Why? The architecture that brought this functioning body to fruition was based on a set of assumptions and constraints several years ago. Continuous upgrades and modifications have been made to respond to market conditions. Initial assumptions and conditions are no longer valid, and hence the architecture is not valid in the context of the change initiative. Do not confuse the organizational structure, operational agreements, and use of task force and inter-department agencies as options to deliver the change initiative for the superior architecture. They are part of the implicit architecture. Elements of this architecture have their upgrade and investment cycle, imposing constraints on the new architecture.

Change initiatives require the creation of an explicit superior architecture that addresses current concerns and context. This superior architecture leverages and modifies the existing implicit architecture. A superior architecture constrains, guides, and directs subsequent architectures.

Organizations have been successful without the development and use of explicit architectures. And organizations have failed to achieve their stated goals despite having an architecture. The failures in operationalizing and succeeding with an architecture practice can be traced to lapses in clearly articulating the context, triggers, concerns, and decision rights. Availability of Subject Matter Experts (SMEs) and reference architectures appear almost at the bottom of the list of reasons.

The architecture practice develops an architecture for itself to keep its eye on the ball and to meet all the outcomes mentioned earlier. A well-defined architecture provides traceability to all activities and decisions to the objectives. It also provides a path to success by prioritizing the development of the right things first and delivering the right solutions. A well-architected solution minimizes the risk and effort required to realize the value and meet the objectives.

The operating tenets⁶ for a public sector architecture practice include:

- Think the whole system
- Do more with less for less⁷ (or do better with less)

⁶ Adapted from Simon Wardley's Blog: Bits or Pieces?; refer to: <https://blog.gardeviance.org/2016/07/how-not-to-fix-government-it.html> (see [Referenced Documents](#)).

- Continuous value growth, and grow often
- Support governance with ease (leverage new options)
- Enable evolution of ecosystems

2.3 The What and the When

As mentioned earlier, architectures are created to address a specific need. The content evaluates the usefulness of an architecture and when it is delivered. The characteristics of the content of an architecture were covered earlier. Let us look at the timing based on the four broad and typical purposes of an architecture capability:



Figure 1: Purposes of Enterprise Architecture

2.3.1 Architecture to Support Strategy

Deliver architecture to provide an end-to-end target architecture, and develop roadmaps of change over the planning horizon. In this context, architecture is used to identify structural changes to be delivered via portfolio and programs. It sets the terms of reference, identifies synergies, and governs the execution of strategy via portfolio and programs.

At its most basic, a strategy is simply a “centrally integrated, externally-oriented concept of how to achieve the objectives”.⁸ It is normal to assume that the annual budgeting cycle in the public sector is a license to shift targets. The important element to recognize is that the target rarely shifts; typically, what is shifting is where priority is placed.

Often, an effort to develop this architecture is triggered at the beginning of the fiscal year, mainly to balance the prioritization of existing initiatives and use of discretionary funds. Typically, architecture to support strategy for the public sector will align the development of the overall effort sizing and set the expectations of beneficiaries and sponsoring agencies. Limitations in funding the current fiscal year are not a sign of stretching the development of the architecture through most of the year. It is also not permissible to assume that implementation of the architecture will not be initiated in the current fiscal year.

This architecture defines the organizational structure, governance structure, the infrastructure and integration to be built, value realization stages, and definition of success metrics. This architecture is delivered well before planning for the next investment cycle begins.

When forming a new architecture team and practice, it is best to develop them well before the need for decisions arises. An architecture after decisions is as good as documenting implementation devoid of any traceable data points. Since all architectures are constrained by the architecture to support strategy, form the practice and the team to develop this architecture. Once the change initiative has gone past this stage, the team may not be able to be as effective.

⁷ See More from Less for More, Professor R.A. Mashelkar’s Re-inventing India (see Additional Reading Material).

⁸ Taken from Are you Sure you have a Strategy?, Donald C. Hambrick, James W. Fredrickson (see [Referenced Documents](#)).

Even if the strategy has been formed, it is not too late to create the team and practice. Let the architecture team reverse-engineer the strategy architecture from the objectives and the set of operational challenges. The reverse-engineered strategic architecture provides the foundation for future work.

2.3.2 Architecture to Support Portfolio

Deliver architecture to support cross-functional, multi-phase, and multi-project change initiatives. An architecture for this purpose will typically span a single portfolio. In this context, architecture is used to identify projects, and set their terms of reference, align their approaches, identify synergies, and govern their execution of projects.

The linkage between budget preparation and architecture to support portfolio is one of the most robust ties available. Given a set of change objectives, the organization is embarking on what is a good approach – what work must be funded, what work can be deferred, and what work should be deferred. The fundamental question every portfolio and budgeting process struggles with is priority. Most portfolio and budget cycles are swamped in noise and cheerleading. They desperately need to know what work, in what areas must go forward and why. What work can be safely deferred? What work must proceed as a package?

The architecture team is working to respond to these questions well ahead of the budget preparation. In performing this work, the architecture team reminds all stakeholders of the objectives and the target. The team takes in the feedback from ongoing projects, and changes in technology and environment to build appropriate packages for the planners and decision-makers to consider for investment.

In doing so, the team also defines the appropriate project and budget controls to make sure that the efforts are funded for an even workload throughout the year and until the value is delivered. It also considers fluctuations in the market to provide seasonal adjustments to the implementation plan.

2.3.3 Architecture to Support Projects

Deliver architecture to support the enterprise's project delivery method. An architecture for this purpose will typically span a single project. In this context, the architecture is used to clarify the purpose and value of the project, identify requirements to address synergy and future dependency, assure compliance with architectural governance, and to support integration and alignment between projects.

2.3.4 Architecture to Support Solution Delivery

Deliver architecture that is used to support the solution deployment. An architecture for this purpose will typically be within a single project, or a significant part of it. In this context, the architecture is used to define how the change will be designed and delivered, to identify constraints, controls, and architecture requirements to the design, and, finally, to act as a governance framework for change.

This solution delivery is where most of the work to perform change and implementation gets done. There will be as many solution delivery architectures as there are projects to deliver the last mile of the strategic initiative. Architecture work facilitates the organization's final decision-making about the use of funding and other scarce change resources. The tendency of

implementation teams to focus exclusively on the creation of tactical business value needs to be balanced with the roadmap purpose and value against the target.

In the business cycle, the budget control provides ongoing financial control and benefits realization. Architecture to support solution delivery is directly aligned to the governance of the implementation project. Enabling direct association of spend with benefits realization is the contribution to the budget cycle.

Given that most of the public sector projects are executed via suppliers, the focus of this architecture is about contractual compliance, integration, and clear traceability to value. Contractual compliance is used to govern the solution delivery partner; integration is used to govern cross-solution activity; value traceability is used to ensure that the expected benefits of the overall change are clearly understood by leaders and implementers.

The packages of work are sized in such a way that each supplier can deliver a functioning piece of the overall solutions. The delivered solutions will integrate and function as one single unit when all the packages are assembled. The architecture to support strategy has a longer lifespan as it guides and constrains the architecture to support portfolio and solution delivery. However, it is developed in a short time relative to the overall lifecycle of the change initiative. This nature of the project defines the expertise and the reach of the structure required to create, deliver, and maintain the architectures and solutions.

The architecture created should be presented in such a way that all stakeholders find their concerns addressed. The needs of each stakeholder are different, resulting in multiple views and templates to communicate the same. An architecture contract identifies the responsibility of the implementation team to the target architecture's stakeholders. The most critical items to an implementer are:

- Implementation project context:
 - Where does the project fit within the roadmap, what value or value dependency will the project provide?
 - What strategies or objectives does the implementation project support?
- Scope:
 - What work packages and gaps is the implementation project responsible for?
 - What gaps associated with any architecture components related to the project scope is the project not responsible for?
- Conformance:
 - What is the set of specific architecture specifications and controls the implementation project will be assessed against?

Decision-maker communication will typically be aligned with:

- Timing
- Trade-off decisions
- Status
- Budget

- Compliance
- Confidence

Communication about timing is typically drawn from either the roadmap, the implementation and migration plan, or the findings of governance activities.

2.3.5 Communicating for Confidence

An effectively communicated architecture is one that provides confidence. The importance of confidence cannot be underestimated. It is recommended to build a set of views from these viewpoints:

- Alignment
- Duplication:
 - Of service
 - Of information
 - Of infrastructure
- Value regarding:
 - Benefit expected from the change
 - Risk and uncertainty to realizing the benefit
- Security
- Resiliency
- Scale of operations
- Integration/interoperability of solutions⁹
- Capability and program roadmap

2.4 The How

Let us start by addressing the reporting hierarchy and the constitution of the architecture practice. The purpose of the architecture is to guide decisions. It provides traceability for implemented solutions to strategy and objectives. It creates a cost-effective path of usable solutions. When viewed from this perspective, the alignment question has a simple and straightforward answer.

Are all the activities of architecture practice equal? The answer is no. Some activities are performed all day, every day; those that are performed once or twice within the planning horizon; and those executed with periodic frequency. The skills needed for each of these activities are different. Activities performed to support solution delivery and activities performed to architect and design the solution are different. Activities performed to govern the implementation are different from cross-project coordination and measuring value realization.

⁹ Refer to DoDAF Version 1.5: OV3, OV4, OV5, SV1, SV7, TV1, TV2 (see [Referenced Documents](#))

For activities performed to assess the effort to achieve the target and frame the roadmap, hire an external agency. This activity may be repeated once or twice during the planning horizon. For the activities performed to architect and design the solution, embed the team within the supplier organization that builds the solution. For everything else, develop the capabilities of the in-house team.

The vision and strategy are best directed from a central authority or body. Moreover, the execution is generally managed by respective agencies and their partners. This central body is also required to provide sufficient backing, messaging cover, and assurances that resources will be made available to all relevant players, irrespective of the needs and workloads of each participating agency.

The architecture team that is responsible for coordinating and governing the value realization from the change initiative and its architecture – called the “Value Realization team” – reports directly to the Cabinet Committee (CC), Joint Task Force (JTF), or the CEO/Governor’s council. Because of the level of coordination required across various agencies and ministries, the members of the team should be dedicated to carrying the torch through the finish line. It is this team that acts as the proxy for CC, JTF, or the CEO’s council most of the time. The delegation is required for smooth day-to-day operations. However, this team should be clear that they are not the ultimate governing or decision-making authority.

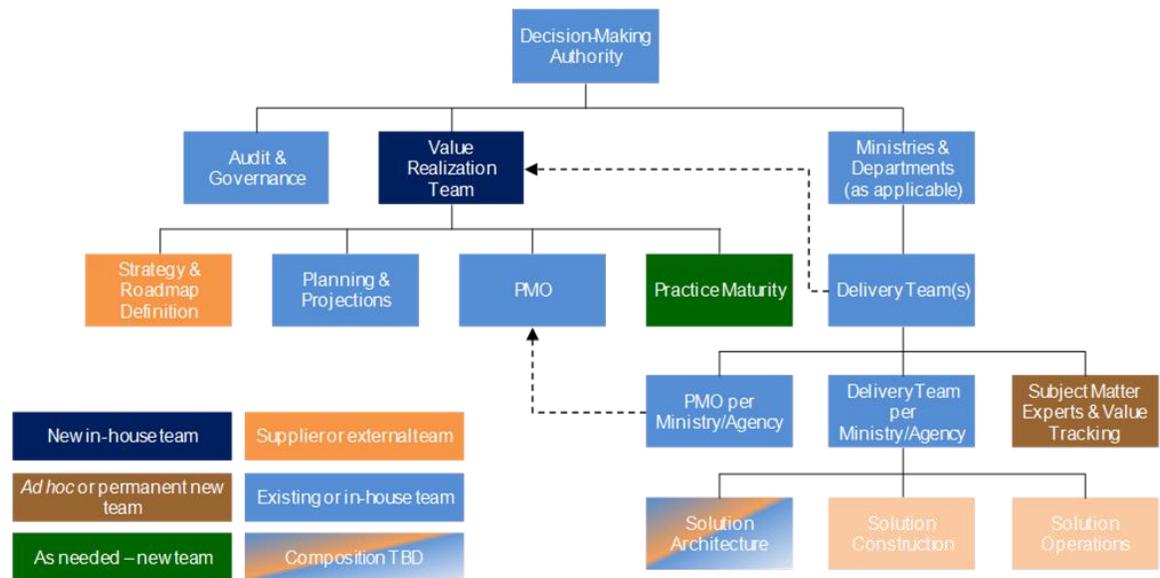


Figure 2: Suggested Alignment Structure of the Architecture Practice Team

The context for change indicates that ensuring effective outcomes requires an inter-agency team that is empowered to decide, coordinate, and direct resources across agency boundaries. The Value Realization team shall not be aligned with any one of the agencies or ministries. Not only does this underscore the importance of the purpose, but it also communicates the commitment to the outcome, collaboration, and supremacy of decision rights.

In Figure 2, all teams shown in blue are likely to exist, say in the form of the Office of the Comptroller and Auditor General, Planning Commission, or the likes of a Project Monitoring Group. Key to note are the boxes that are in other colors.

The teams shaded in orange are better outsourced or contracted. Since the change initiative may experiment with emerging and evolving technologies, processes, or operations, there is a need to hire a set of SMEs from time to time. These experts validate and guide the use of such emerging approaches at scale.

Following a consistent pattern will limit the need for individual public sector initiatives to mature the practice. Most architecture teams require a period to integrate architecture development with the decision-making and governance cycles. Following a consistent pattern and maintaining strong service delivery benefit realization limits the need to mature.

Maturing the practice should not be confused with a need to replicate and scale the practice. External support for new initiatives to strengthen the established engagement will help to ensure consistency and effectiveness.

For initiatives that require the architecture practice to mature, build a team of experts who form the Practice Maturity team. As a consolidated body, there is a propensity to become a backward-looking ivory tower and under-communicate. A central Practice Maturity team must remain a learning and teaching organization – extracting best practices, documenting them, enabling rapid adoption on all projects, and onboarding new projects to the consistent practice. To mitigate the backward-looking and under-communicating challenge, the members of this team should be rotated continuously between architecture delivery, solution delivery, and operations.

2.4.1 Leadership, Value Realization Team

In simple terms, the ideal leader of this team (the Chief Architect) is apolitical, non-bureaucratic, and can articulate the issues in non-technology speak. Just like the level of independence for the team, the leader of this team is employed by the independent body that is leading the change effort, reporting directly to the highest authority. This is a role with a single agenda. Moreover, the agenda is the realization of the mandate and expected benefits. This leader, say the Chief Architect, is passionate about the outcome, value, and the need for this initiative.

This individual will manage a delicate and challenging relationship with all participants in the change effort. Unless the rationale that supported the cause for this initiative has changed, the value and outcome should override all other factors influencing the decisions of this leader. The Chief Architect is someone who understands the duration for which each architecture and operational partners are required. Direct access to the sponsor and independence in decision-making without the fear of scapegoating or reprisal are the cornerstones of assuring success for the change initiative.

2.4.2 Architecture Teams

There are many architecture teams. Below is the list of teams to be formed and where to source them.

Strategy and Roadmap Definition

Required once for the whole initiative. Essential and mandatory. Depending on the scope, the effort may have to be repeated for each agency to get to a level of granularity that is relevant and controllable for the agency. Can be outsourced, and is short-lived. The purpose is to clarify the objectives, success criteria, and develop an end-to-end target architecture. The target architecture and the roadmap to achieve the outcomes set the terms of reference, identify synergies, and are

used to govern the execution of strategy via portfolio and programs. The end-to-end architecture spans multiple change initiatives and is supported by a roadmap that spans a 3 to 10-year period.

Value Realization

This is the central and essential team that sustains throughout the lifecycle of this change initiative. There is an utmost need to demonstrate decision continuity and value monitoring, which this team provides. All delivery-level teams, suppliers, and partners report to this team.

Within this team, hire the practice specialist as an advisor to the Chief Architect. Build a team of experts on call to provide technical inputs to the Chief Architect. To address the ethical issues and to formulate futuristic regulations, the Value Realization team has a constitutional and jurisprudence specialist. The voice of the customer or the beneficiary is vital for the Chief Architect to reduce the risk of unintended consequences.

An architecture practice requires a repository to hold all data points, artifacts, and scenario analysis. Decide upon and buy a repository. However, hire a specialist to configure and hand over the repository for the architecture to use and maintain.

Finally, to provide ongoing inputs related to Governance, Risk, and Compliance teams, the architecture is supported by a permanent member from the Inter-agency Coordination architecture team.

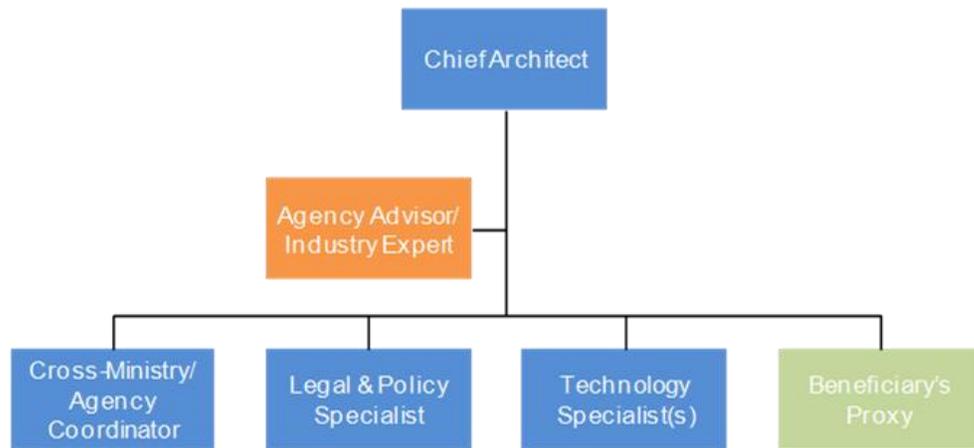


Figure 3: Value Realization Team Structure

Projections and Planning

This is a supporting team. It can be carved out of one of the existing financial and annual planning commissions. Their services are utilized on-demand and for short durations, typically 10-16 weeks per year. They support the resource estimation, planning, and budget allocation process.

Audit and Governance

This is a supporting team and operates as independently as permitted by the law of the land. It can be carved out of one of the existing audit and governance entities.

Delivery

Best formed at the agency level, at least one per agency. As projects are carved out for execution, each agency creates one to manage its command and control functions. These agency teams may employ the services of suppliers and partners to build and operate the products and services the change initiative is driving.

The nature of the change initiative will guide the need for the experts and hence the composition of the Solution Architecture team. Part 3, Domain Architectures lists various domain concerns. Build a team of in-house and external specialists as needed.

Practice Maturity

Success with an architecture team requires the development of practice maturity consistently across three aspects of the architecture capability to be successful:

- The ability to create useful architecture in a timely manner
- The ability to use the provided architecture to support decision-making
- The ability to use the architecture to govern change and future architecture development

Developing practice maturity works well with external support. Experience and best practice support from an experienced service provider help a team avoid predictable errors. Managing the development of all three aspects requires balancing information creation, information consumption, and support for ongoing governance.

Good architecture teams can develop the ability to provide architecture at a pace faster than organizations can absorb architecture and engage in effective governance. A key development activity is aligning a good architecture team's operational cycle with their consumers' decision-making cycle. This does not mean involving the architects in decision-making, rather ensuring that their advisory information is available and accessible during the information gathering and decision-making cycle.

Governing change using a consistently developed architecture requires regular value realization, and solution delivery compliance reporting is the most difficult ability to develop. Solution delivery tends to be discussed regarding the project, not the change initiative. Using architecture-supported reporting keeps the tactical attention of decision-makers considering the project in the same terms as the initiative was approved.

This is a key aspect of architecture support. Good architecture supports decision-making for specific solution delivery focused on overall benefit realization and risk to benefit realization. This governance activity is next to classic solution delivery management, which becomes concentrated in discrete success within the constraints of the solution. Without architecture support, few organizations can sustain an understanding of their roadmap and they become distracted by tactical issues within a solution delivery.

Solution Delivery Architecture

This team is key to the realization and utilization of the solutions. This is where the recipient stakeholders and citizens turn into avid users of the solutions. In public sector solutions, the recipient stakeholders may be forced to accept the solution. The challenge lies in making them love it and self-promote; being cognizant of the multi-linguistic and cultural nature of the

citizenry; and evoking a feeling that there is a right balance of uplifting and directing the motivated to the future. From that perspective, essential specializations in the team are: experience and engagement architecture, innovation and imagination experiments, and preservation of traditional, native, and ethnic practice engineering. These specialization teams can be in-house, outsourced, or hybrid.

Summary

See [Part 2: Context and Guidance](#) and [Part 3: Reference Materials](#) in this document to understand the kind of resources and support systems required for the Value Realization team and the Strategy and Roadmap Definition team.

To summarize, an architecture practice and a specialized team are needed to:

- Develop an architecture that addresses all stakeholder concerns
- Work across multiple decision-making cycles
- Understand the implications of law regarding scale, resilience, and governability
- Provide ongoing coaching and advice
- Reduce the effort to address integration and end-point issues

The architecture practice survives electoral and leadership cycles. The architecture practice must actively avoid becoming the harvester and enforcer of best practice. The practice must know when and for how long they need external expertise.

2.5 Outcome and Success Measures

Outcomes are articulated in purpose – the context and triggers and concerns of the stakeholders. The stakeholder is chartering a team that can create, deliver, and use architecture. As shown in Figure 4, the architecture practice’s work is measured differently between the define, guide, and govern activities.

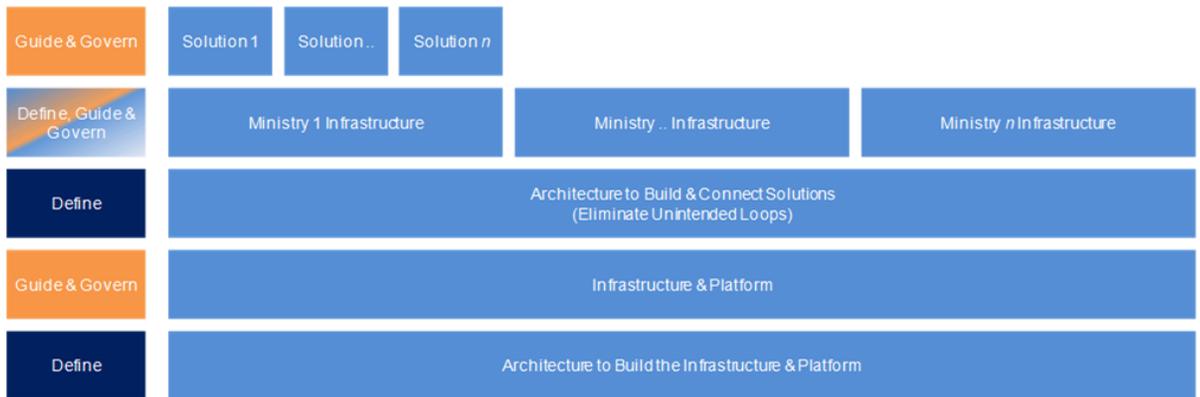


Figure 4: Outcomes Enabled by the Architecture Practice

The first measure of success is the ongoing use of the architecture. The use is reflected in the number of investment and future direction decisions made based on the architecture. Other measures of success are:

- Defining value resting and realization stages
- Number of exponential solutions built on top of the architecture
- Simplification of contractual delivery, spend management, and governance
- Internal consistency to stand environmental changes

2.6 Balancing Initiative and Central Needs

The model outline scales from consolidated decision-making to ministry decision-making to initiative decision-making. The different initiatives need to clearly understand that part of the role of their architecture team is to serve the next higher decision-making authority.

To support superior decision-making evaluate the change, the outcome, and retain confidence that consistent practice and description must be followed. The consistency is required where evaluation will be performed and where a discrete initiative or solution interacts with others.

As the body of initiatives proceeds to operations, implementation experience grows, and technology changes what is useful to communicate, evaluate, and constrain to solution delivery partners and operational teams. A central Practice Maturity team focused on learning and teaching will help maintain currency to support solution delivery and evaluation.

2.6.1 Measures of Effectiveness

The architecture team's effectiveness must be measured against the needs of both the initiative and the consolidated decision-makers.

For the consolidated decision-makers, the primary test of effectiveness is whether the initiative's solutions fit within the complete landscape of the government. Essentially, do the solutions deliver over their expected lifecycle against value and avoidance of remediation for security, resiliency, scalability, and interoperability?

For the initiative decision-makers, the primary test of effectiveness is confidence in benefits delivery over the expected lifecycle in terms of benefit, operational cost, agility, and mandate.

3 Bootstrapping

How do you kick-start the effort? Start with a proxy leader for the Value Realization team and support this individual with a small team. In most cases, the structures required are already available. All that is needed is to define an efficient way to leverage them. For example, there is a planning commission, the Office of the Controller of Accounts to support budget planning and control functions. Depending on the objective, agencies in respective ministries and independent bodies¹⁰ provide adequate support.

3.1 Getting the Lead

The Chief Architect should be employed by the organization, reporting directly to the highest authority. The Chief Architect is someone who understands the duration for which each architecture and operational partner is required. If any of the solution suppliers volunteer to assume the Chief Architect's role, reject. This is a role with a single agenda. Moreover, the agenda is the realization of the mandate and expected benefits.

The Chief Architect is passionate about the outcome, value, and need for this initiative. The Chief Architect must be the guardian of value and entirely committed to the target. Fundamentally, they must remind the sponsor when a change in direction is spotted. Unless the rationale that supported the cause for this initiative has changed, the value and outcome should override all other factors influencing a decision.

The Chief Architect:

- Defends the outcome, not the tools, solutions, methods, and suppliers used to deliver the outcome – must be technically astute across the spectrum of technologies, tools, and construction dependencies for such large initiatives
- Is clear about differentiation of roles and duties of an SME, Enterprise Architect, Project Manager (PM), and Delivery Manager and leverages their in-depth knowledge for the benefit of the stakeholders and the customers
- Is clear about the role and use of standards, yet enables and protects innovation
- Leverages the benefits of a strong team of strategic and operational partners
- Will commit multiple years to help realize value from the initiative
- Should be Open CA Level 3 Certified (The Open Group) and meet SFIA's STPL Level 6 or 7 skill level
- Has an awareness of the IT operations model

¹⁰ These vary from country to country. In Canada they may be called the Crown Corporation. In the US the examples are USPS and Federal Reserve. In India, it includes Reserve Bank or the Indian Railway Catering and Tourism Corporation.

Do not proceed without hiring your Chief Architect. It is acceptable to temporarily use a Chief Architect from an external provider who will support the Practice Maturity team. This option is most useful when your preferred candidate does not have sufficient demonstrated experience. In this case, you must have a clear transition plan to the in-house Chief Architect. The Chief Architect should be deeply involved in selecting the partners. Note that we are addressing this role towards the end, as we want you to know the broad spectrum of activities that happen within an Enterprise Architecture team.

The Chief Architect builds an in-house Enterprise Architecture team that is focused on developing standards, ensuring a seamless flow of information, and promoting innovation. The team should not be focused on how the solution is developed and delivered. It should be focused on how the “parts” integrate with ease, are replaceable, and are evolvable.

3.2 Enabling for Success

The leadership should be very clear about why they employ Enterprise Architecture to deliver on the mandate. The mandate usually comes in two parts. One is to deliver a set of solutions that meet the long-term goals for a better way of life for the citizens, and the second is to find optimal architectures to support those solution delivery efforts. The first step is to be explicit about the objective of the solutions to be delivered:

- Who is being served – the service consumer, the consumer funder, a beneficiary of the outcome of the service?¹¹
- Which customer segment (service consumer) is the initiative targeting?
- What pain points is it eliminating?
- What will the customer gain from the use of this product or service?
- Can the product or service be delivered directly to the customer without any partnership?
- If a partnership is required, is it targeted or does it require the development of an ecosystem?
- Who is going to pay for the product or the service or the development of the ecosystem?
- Will the user of the product or service reap the benefit immediately or over time?

If there is a lack of clarity on any of these, stop. Ironically, at this point, you require architecture to support strategy, but you will struggle with executing the mandate and directing an Enterprise Architecture team. This document assumes you have a clear understanding of the mandate. Without clarity, you are not ready to guide your Enterprise Architecture team or engage the partners who consume the Enterprise Architecture team’s output.

Note the emphasis on understanding partnerships and the ecosystem.

Next is to document the flip-side of the objective – the current pains and constraints. This need not be exhaustive or comprehensive. Document to the extent it creates awareness for all the players in the ecosystem.

¹¹ Understanding this is critical for mandate organizations. Mandates exist and are funded for a reason; often the reason is distinct from the service consumer. Mandate organizations must manage complex consumer, beneficiary, and funder models.

Part 2: Context and Guidance

4 Introduction to Part 2

In simple terms:

- Understand why we are doing what we are doing
- Be clear about exit and outcome criteria
- Build an idea about execution/delivery teams
- Develop an initial understanding of your ecosystem
- Know who needs to be informed and with what frequency
- Identifying a taxonomy and model for transparency, traceability, integration, and operational control
- Prepare to hire and empower a team and a leader
- Hire and onboard a Chief Architect, Strategic Partner, and Operating Partner
- Develop an operating model
- Know what to outsource and what to build in-house
- Validate your target architecture and roadmap
- Keep an eye on time-to-market
- It is all about governance

Architecture governance is employed to ensure that the changes to an organization are well thought out and deliberate and that when the change is made governance ensures that the intended values and benefits are delivered.

Guidance on effective change will take place during the change activities to realize an approved target. During implementation, architecture governance is used by the stakeholders to direct and control those changes. The first part of governance is to direct change activity – aligning the change with the optimal track to realizing the expected value. The second part of governance is to control the change activity – ensuring the change stays on the optimal track.

When following the method to create an architecture for a purpose, to support strategy, portfolio, project, or solution delivery, the entire path is governed. The objective of this governance is to provide confidence to the sponsor, the initiator, and other decision-makers that the architecture change recommendations are well considered, grounded, and that the required work was completed.

Confidence should be provided to decision-makers and implementers that the architecture is well connected with other architectures in the ecosystem and considers time and recency impacts.

The governance expression ensures that the architecture to be developed and the resulting solution will deliver the value intended. There is always more architecture work that could be done than there will ever be time, money, or resources to accomplish. It is important that the architecture done is focused and provides value. The focus of governance is to ensure that architecture and the resulting product or service deliver the impact the initiative was intended to accomplish in the first place.

5 Context and Triggers

5.1 Why Change?

Any public agency is a complex organization serving multiple stakeholders: the elected official, the public service professional, the service provider, and importantly the taxpayer. The services expected, measurement of efficiency, and the mandate for types of service change with time, often with no prior notice. It is often said that good planners and engineers design for a state of change, not a state of stability. To be agile and efficient is to be prepared for change, and handle the transition graciously. Let's begin our architected change journey by understanding the context and triggers that provide answers to why we are doing what we are about to do.

The most common triggers for change in the non-defense public sector are:

- Growth and economic security – includes trade balance and future employment
Economic independence and interdependence provide a level of security for the citizens. The role of the government is to enable economic prosperity, independence, and growth that is at the same level or better than its peers. All that inhibits economic growth needs to be mitigated efficiently and well before it starts to impact the citizenry. Internally, each public agency should be economically solvent to be able to deliver services that support growth.
- Employment and sustainability – includes health and education of the population
Achievement of economic growth is highly dependent upon the sustained and consistent availability of resources, more specifically human capital and natural resources. The public agency may provide services directly, like healthcare, water supply, sanitation, and education. In most scenarios, the agency is an enabler, requiring them to sense and respond proactively or at least with the tides of change.
This may also include measures to address corruption and nepotism. These may affect the quality of the resources developed and utilized within and outside the region. Typically, addressing corruption and nepotism masquerades as the need for transparency and good governance.
- Innovate – includes service-level enhancement
The technology landscape evolves, impacting every aspect of human life – from farming techniques to time to harvesting crops, from mode to capacity of transportation, and from confidence building to emergency response. The services offered by the agency can be delivered in alternate ways and faster with time. Good governance is fueled by anticipating the needs of the citizens and meeting them on time, in the right place, and using a mode that is palatable to the citizens.
- Stay current and modernize – includes reducing time to sense and respond
Funding cycles and time-to-realize value for large public efforts are too long. The processes that provide inputs to decision-makers during funding cycles or operational

control cannot become an impediment. Tools, technologies, and processes used to measure, correlate, and infer should be operating at the same speeds, if not faster than the time it takes for the private agencies and citizenry to notice the need. These processes, technologies, and tools cannot be too expensive either, depleting the availability of funds to deliver value to the citizenry (see previous two bullets).

- Resource optimization – addresses both government and citizen

Every public agency always faces a demand to deliver more than they were funded and designed to deliver. There is a constant demand to prioritize and optimize the resources provided to them. These agencies are also held accountable via periodic audit so that they can demonstrate efficiency and sound judgment.

These triggers build on top of the triggers mentioned before them. The starting point may be different, but the rest follows automatically. Say, if the initiative started with a motivation to address innovation, very rapidly concerns about modernization and optimization follow immediately. Anticipate them and build the required structures. One exception to this flow is:

- Mandate

The mandate comes in three forms: existing mandate, new mandate, and external mandate.

The existing mandate is the legacy of prior decisions. The public sector is often designed around a mandate to deliver a service or perform an activity. Often existing organizations are structured around how the mandate was previously considered. Typically, these mandates are vested in law and assign regulatory authority to an organization. These mandates can be powerful impediments to change.

The new mandate is the statement for change. This may include promises made during an election cycle, passing of a law by a controlling authority, or a trading choice made by neighbors. These mandates come with no warning and may have no buffer time to start delivering. With the nature of such mandates, some of the concerns may outweigh others.

The external mandate is things outside of the initiative's control. Public agencies and governments often borrow resources from, or may be reviewed by, external agencies. Such external agencies require governance and risk avoidance measures to ensure that the resources borrowed are well spent and for the purpose they were meant to be used. One of the techniques they employ to de-risk and govern is to mandate the use of proven methods and models of governance. They also normally demand the use of an efficient method to deliver value.

The external mandate may address economic or social issues, but may demand that the execution be innovative, forward-looking optimized, and use a specific proven method. It is one of the hardest, yet necessary triggers to execute against.

6 Outcome Concerns

One common requirement for any public initiative is the need to lead “visibly” and demonstrate positive impacts “visibly and often”. There is always an unstated requirement for transparency. However, key players like the agency mandating the change and the elected representative, if not the taxpayer, would demand reality.

There are more stakeholders in the public sector as compared to the private or social sector, and the stakeholders are very diverse. Hence their concerns are diverse as well. The success of a change initiative depends on addressing all of the concerns and all of the objectives of the initiative.

Understand that outcomes in the public sector can only be directional, and against a statistically significant sample space. Defining absolute measures against the concerns is the shortest path to failure.

Consider the Country Development Plan that is published by the national, state, regional, or local government in scope for the architecture work. This defines the priorities of the currently elected officials. Considering this will ensure alignment with the priorities of the officials in charge of budget, resources, and direction. The outcome expected should be a direct contribution towards the realization of these stated and published plans.

If your country is not included in the United Nations eGovernment Development index, use it as a benchmark for how nation states regard their image and status in delivering eGovernance services to their people. There are three main components to this: Online Service Index, Human Capital Index, and Telecommunications Infrastructure Index. The outcome expected should be a general improvement towards the scores of the three indices.

6.1 What is Known?

Here is a sample list of measurable outcome concerns:

- Internal economic growth and employment rate
- Transparency of data – availability of resources and resource utilization
- Resource utilization efficiency
- Social upward-mobility
- Consumer Price Index
- Responsivity of services and quality of service
- Cross-agency interoperability
- Time of decision and decision effectiveness

Here is a sample list of intangible outcome concerns, mostly unstated:

- At what point during the lifetime of the effort can “victory” be claimed?
- How is it confirmed that the measures being tracked are the right ones?
- What are the statistically significant measures and their corresponding sample space?
- Will a delay in progress be used as leverage while negotiating future economic deals?
- Is there an early exit option, or an ability to switch service provider or resource provider mid-stream?
- Is this “obviously” targeting a specific segment of the citizenry?
- When is the effort “truly” done, and what next steps would it trigger?
- What is our comparative benchmark, and moreover how can it be delivered against a moving target?
- Are there structures and methods that can be used to accelerate time to “victory”?
- Are there known potential side-effects to the change?

The most straightforward fact is that the delivery method is not as crucial as “publicizing the outcome”. The method and the resources should acknowledge the degree of freedom they have and when to acknowledge the concerns as “facts”.

7 Execution Concerns

All government programs will have to provide a transition path from the old way of doing things to the new way. Citizenry demands services and would like to avail themselves of those services via a well-established and well-understood path. Literacy of citizenry is a mixed bag, posing challenges to the delivery of mass education and training within a few days. The economic impact of adopting the new way may force a long tiresome path to deliver value.

The taxpayer is interested in knowing that their money is spent on just the necessary functions and there is no duplication of effort. The elected official is interested in demonstrating their ability to govern and deliver effectively and on-time.

However, most government departments may not be staffed sufficiently or technically equipped to pull off a substantial change effort. As mentioned earlier, these change programs require several teams and tight control of scope and expenditure.

7.1 Accountability

Let us be very clear. The elected representative is the accountable party. Even for initiatives that are mandated by a third-party funding agency, the elected representative is the accountable party. The leader of the Value Realization team or an administrative service official may be deputized as a proxy for the elected or appointed representative.

Next is the level of autonomy and accountability required at all levels and by all service providers and operators. Either they are mandated via contractual or architectural obligation, or allowed via an escalation path to demand timely action.

7.2 Swiftmess in Decision-Making

With accountability comes the need for timely decision-making. With targeted change initiatives comes the need for a command and control center. Timeliness is not a relative function, as the complexity of dependencies is too large. The information required to understand the implications of decisions is also vast. The time available for decision-makers is too short, and the frequency of their availability may be low.

Enable an infrastructure that provides:

- Ease of concurrent multi-party, multi-modal communication
- Decision support information made available in real-time with an ability to perform on-demand, short cycle-time “what-if” analysis

7.3 Controlled/Planned Transparency

(Note that use of the word “selective” may not send the right signal.)

Think about the de-monetization decision. Multiple agencies, service providers, and decision-makers were involved. However, individually, they may not have sufficient information to piece together the significance or impact of the change. All the decision-makers could track the progress and release details to the benefit and service recipients only when necessary. Large operations may include implied “re-electability” needs or explicit “national security” needs, and anything in-between. Accountability at all levels demands full transparency.

The architecture and infrastructure should address these needs of transparency and secrecy.

7.4 Alignment to Annual Budget Cycle

Objectives for public programs often have a planning horizon of 5 to 20 years. However, the investment is managed via an annual budgeting cycle. The only objective of the Value Realization team is to align all portfolio decisions with the budget cycle. This is a challenge, as the need for overall governance outside the change initiative will often impose demands on the funds available.

Tight coordination is required amongst the participating agencies and team to enable adjustments to annual plans. Within the annual budget cycle, immediate and unforeseen priorities may impact the initiative, and these in-cycle reallocations must be communicated and their impacts managed. Each agency, service provider, or operator request for allocation of resources should state the need, objective, and portfolio alignment in consistent terms and language.

7.5 Non-Duplication and Spend Control

In the public sector, it is always possible for an agency to initiate new efforts that have similar objectives and implementation options to the initiative. Not all public portfolios will be managed via this Value Realization team. Hence, it is imperative that the project objectives, value delivered, and impacted stakeholders should be described and defined using consistent terms and language.

All project spends need to be audited and validated for their alignment with objectives. Layers of autonomy and empowerment are also required to manage variances. More often than not, the variances in each project are additive. Usually, they add up to be a significant number. Rarely do off-setting savings allow them to average out. This is where an *ad hoc* or advanced Enterprise Architecture tool will help with the governance. Such tools provide traceability across all initiatives and projects, and from initiatives to the overarching objective or mandate. Most likely the government has already defined a taxonomy for the content metamodel to describe the architecture, capability, functionality, project, and beneficiary. If none exist, consider starting with the taxonomy. More often than not, the millions in savings generated from Enterprise Architecture initiatives happen in the prevention of duplicative capabilities in the public sector.

A well-defined taxonomy, content metamodel, and architecture description simplify the effort to reconcile projects and investments. Moreover, this taxonomy and content model will have to be adopted by the entire government. The agency auditing the progress and spend should be able to perform the audit as frequently as needed and with absolute independence.

7.6 Interoperability

This is not limited to information technology assets. Most change initiatives involve the construction of physical products and assets. A set of common standards, transparency, and open information flow are pre-requisites to success. There is no room for mutual blame, as it will impact the date of value realization or impact. Supplier replaceability is an absolute need and so is *in situ* product assembly.

Put in place processes to address disputes and extraction of penalties without harming progress. Develop a process and tool that ensures consistent taxonomy and structure is used for progress tracking and contractual information management. Ensure that information security standards for interoperability are in place from Day 1.

7.7 Citizen-Centricity

Every change project is a tradable commodity for the elected representative and the constituents. Most citizens may not be able to appreciate the current or future value of initiatives. Hence, they may demand a different project that provides immediate results. Always keep the objectives centered around benefits to the citizens and the ability of the citizens to contribute to the success of the initiative on an ongoing basis. A well-designed and well-managed communication strategy is key to managing citizen expectation and acceptance.

Change management is one of the hardest hurdles in the public sector. Work with various stakeholder groups as early in the architecture planning as possible. Capture the stakeholder concerns of the ecosystem (citizens, not-for-profit organizations, corporations, other government agencies) and focus on the groups with the highest impact of the change.

8 Operating Model for Government Agencies

It would be unintuitive not to leverage existing organizational design and administrative structures that have been operational for several years. It is best to leverage those structures. Contracting autonomy, operational planning, and domain specialization are best left with each department or agency. These efforts go through distinctive stages.

1. Conception

Identifying the triggers and scope based on the United Nations Sustainable Goals¹² or geopolitically-relevant needs. This stage ends with the formation of an executive search committee. This committee has three objectives. First is to select the leader of the Value Realization team. Second is to identify a team of advisors to the elected representative and the senior leader (the lead bureaucrat from the administrative services). This advisory team may have permanent members if a third party mandated the trigger. The ideal scenario is to have a team that is limited to the elected representative and a couple of senior leaders. The third stage is to onboard the Strategy and Roadmap Definition team.

2. Formation Stage 1

First is the selection of the leader of the Value Realization team. It is best if the lead bureaucrat takes pride in finding the right leader than to be the leader. There is a need for balancing institutional knowledge with the expertise to deliver such a change. The bureaucrat provides the institutional knowledge and steps away from day-to-day leadership challenges. Next, jointly with the leader, the committee completes its third objective: deciding whether to insource or outsource the Strategy and Roadmap Definition team. For two reasons, it is preferable to outsource this team. First is the need for a neutral team that is focused on defining the right set of objectives, target architecture, and a roadmap to achieve. The second is the need for contemporary subject matter expertise. Many governments have found that by outsourcing, two of the major stakeholder concerns are quickly addressed: transparency and objective trade-offs aimed at successful completion of the change.

3. Initial Announcement

The above two stages should not take more than a couple of months. It is best to announce the initiative along with the details of the leadership. The focus of this announcement is about “statesmanship” and sending a message that is “transformative” (as opposed to “transactional and administrative”). Make clear that the Vision-Setting team is being put in position. The conversation it sparks is more important than the speculative nature the conversation could take.

4. Formation Stage 2 or Bootstrapping

This is about creating the Strategy and Roadmap Definition team (see Section 8.6). This team should be able to assess geopolitical trends and threats in formulating the direction

¹² Refer to: www.un.org/sustainabledevelopment/sustainable-development-goals (see [Referenced Documents](#)).

and roadmap. This stage is complete when the planning horizon, objectives and measures, and the architecture to achieve the objectives are defined.

The primary focus of this stage is to streamline the bootstrapping steps, providing a comprehensive list of things to do and consider.

5. Formal Launch

Depending on the nature of the transformations required, this stage will be a public announcement or an internal launch.

Next steps include alignment with multiple planning horizons – say the five-year planning commission programs, annual budgeting cycles; identification of agencies, and ministries to onboard; identifying specific change programs; identifying dependencies; initiating programs at each ministry level; architecture and program governance; and project delivery.

8.1 Public Sector Clarity

Operational effectiveness counts more than the promise of an initial, pre-election year balance sheet – specifically, total debt counts equally with operationalization, and transparent, non-duplicative projects trump projects per electoral district. Understand that the purpose of the audit is to assure transparency, non-duplication of projects, waste avoidance, and fiscal conformance to superior or strategic architecture. The audit process is simplified and injected from conception with use of a consistent taxonomy to describe every movable and immovable part of the change initiative. The naming of projects, outcomes, beneficiaries, sponsors, stakeholders, partners, service providers, contractual terms, quality, and geographies will have to be classified, named, and addressed using a consistent vocabulary.

Almost all public sector projects are architected for the smallest and most challenging unit – a set of citizens who are hours away from any major transport or communication link to the rest of the world. Hence, these change initiative efforts will potentially create three different architectures. The first one is to manage the creation, delivery, and contractual governance of the architectures for the change initiative. The second is to develop the infrastructure required to run such large efforts – mainly focused on communication, coordination, last mile reach, enabling eGovernance of the value delivering projects. If these two architectures and their supporting solutions are already operational, other projects will leverage them. The third architecture is a solution for the goal for which the initiative was created.

8.2 Evaluating Change and Outcome (Governance Model)

Governance is the trickiest process for public initiatives. The first step is to define the decision rights of the players. Decision rights and accountability are closely linked. Typically, the architect or the governance lead will not have decision rights over the architecture. The stakeholders have the decision rights. The stakeholder can delegate certain decision rights to leaders of existing bodies like the engineering civil services under different ministries or retain a technical specialist firm.

As most of the work will be done via service providers (contractors), the focus of governance is about clarity in defining the specifications, outcomes, integration, interoperability, project reporting, and financial control before delegating work to the service provider. The second part

of the governance model is to clarify the model that will be used to evaluate the conformance of the solution delivered against the value objectives and outcomes.

Since the contractual commitments of the service provider will end several months before measurement of value realized is feasible, the architecture shall specify early indicators and instrumentation requirements to enable measurement and identification of value realized, signals for corrective actions to be taken, and an expectation to deliver a set of recommended actions by the service provider.

The nature of these projects may require the service provider to give up their intellectual property and designs for a third party to execute against. This may prohibit the number of competent players to engage as service providers. Early decision and direction about ownership rights and transferability of the intellectual property during design, development, and manufacturing and operational phases of the project is important.

Initiatives that span multiple years and multiple teams will make directional decisions initially. Operational and implementation changes are bound to happen. The governance model must include a framework for identifying, evaluating, and accepting change, including the ability to restate the target. This restatement of the target cannot be taken lightly or on a political whim, as the elected representatives or the bureaucratic leaders are in fact the proxies for the citizens.

8.3 Doing the Work *versus* Informing the Outcome (Who should do this and who should know?)

With a few exceptions, most public change initiatives are “known secrets”. The change work can be fully executed and completed on a different timeline to communicating the change initiative. The date of going to market, using terms like “date of commissioning”, “effective operations”, or “put-into-service” is a function of public relations management.

Every public change initiative is like starting up a new enterprise and handing-off the ownership at the Initial Public Offering (IPO) stage. The outcome happens in multiple stages – creating excitement about a better future, taking corrective actions to perfect the “product”, soft-launching to citizens, and measuring the impact to assure maximum usage. The only difference is that a start-up can afford to fail, impacting a few investors, which public changes cannot.

The elected representative or their proxy selects the timing of informing the outcome to the taxpayer or the funder. They must make public all positive and negative information about the change effort. All other teams are the stage management and background personnel in a theater show.

The process model defined should include a communication protocol, and a model for reverse delegation and exercising the decision rights. It should also define a model to make public periodic and *ad hoc* messages to the investors and beneficiaries.

8.4 Removing the Blockers and Inhibitors

In a democracy, even though there are structures in place to change the set of elected representatives if their services are ineffective, it is hard to exercise that choice. Citizens normally tend to put up with the government for the term they were elected for. This often results in creating a false perception of who the real owner and funder of the change initiative is.

The role of the elected representatives and the administrative services professionals is to “govern” the architecture, design, and implementation of the change initiative, for which the citizen permitted the elected representatives to execute. It is important to understand that the citizens need to have faith in the government and its “moral” ability to govern. Successful projects assure the elected representatives and the members of the administrative services a great deal of benefit. Understand that “success” is perceived and measured by the citizens over a period.

These change initiatives are often funded by the citizens and benefits are reaped by local businesses and citizens. Start with an outside-in view. It is not the government that is creating a new project for the citizens. The elected representatives and the administrative service professionals are the proxies for the citizens to think, conceive, design, and execute change initiatives. Any value and benefits statement or the set of processes and features of a product or service that does not start and end with the citizen is on its path to failure.

Part of governance is to understand the implications of transparency and timing. Mass hysteria or panic can easily be triggered with more and untimely information. In the same way, citizens can turn to law and use of “Right to Information Act” when they suspect information is held back longer than necessary. Either one of them results in the citizens losing faith in the government. When it comes to issues related to security and safety of human life, there is very little degree of freedom. For change initiatives like Unified Payments Interface (UPI) and currency demonetization, absolute secrecy is required, including the ability to masquerade each of the projects in the portfolio as incoherent and unrelated. The spend on the projects needs controls to be set in place. Define the level of transparency, traceability, and accountability at the outset of the change initiative.

These change initiatives often span multiple ministries and agencies. Competition among the ministries and agencies is normal to the government operating model. The digitized flow of information removes the barriers across agencies. It takes a concerted effort to block the flow of information or hinder the ability to deliver a project. None of the existing inter and intra- agency operating models and protocols will work in the world of eGovernment and eGovernance. Set expectations on what parts of the current operating model will stay in place and what is open for change. It is recommended the procurement, Project Management Office (PMO), and SME-based validation be left at the agency level. Everything else should be architected to assure success of this change initiative. A typical ministry or agency-level operation model creates silos when most of the initiatives require non-siloed, well-interconnected operations.

Finally, pay attention to the last mile. Unless the project is as simple as upgrading a roadway in an urban area, projects fail to deliver their impact due to their inability to address the citizens in a village.

8.5 What are the Completion and Exit Criteria?

There is a contractual completion, public announcement of completion, and there is value realization. Almost all public sector projects will reach the value realization stage several years after contractual completion of a project. All suppliers and service providers exit the project at the end of contractual completion. Sometimes they switch gears to engage as “operators”. Most Value Realization teams are disbanded soon after the public announcement of project completion. Use agencies like the Office of the Comptroller and Auditor General to measure and report the value realization.

When a third-party agency mandates the initiative, they may leave a small footprint of personnel to monitor operations and track value realization. It is a practice that can be adopted for non-mandated initiatives as well.

Make sure the architecture for the change initiative specifies a set of performance indicators, corrective actions, and growth accelerators. These performance indicators are to be defined for measurement at the end of one month, six months, one year, two years, five years, and ten years.

8.6 Public-Private Partnership (PPP)

Use a simple template like the one in Figure 5.

The Sponsor/Controller is the person who is funding the initiative. It is possible that the sponsor could be the government agency itself. The sponsor is looking for data on progress and controls whether the money is well spent and the intended outcomes are being achieved. Later in this document we will talk about a couple of key metrics to track and report.

Next is the Knowledge/Tool Provider. For example, if the initiative is about vaccination, engagement is required with medical professionals who can identify and prescribe the right vaccines and dosage. It is likely that such providers are already identified. However, keeping track of them allows the enterprise to be explicit about ongoing engagement/knowledge transfer needs.

Service Locations are likely to vary depending on the initiative. In the case of vaccination, it could be vehicles that travel to each village, township, or housing clusters or well-established locations like schools, hospitals, or primary care centers. In the case of creating electronic payment or remote cash delivery systems, it could be each merchant signing up or a worker who carries cash to dispense them at remote locations.



Figure 5: Ecosystem Map

Examples of Marketing/Promotion Service Providers could be newspapers, magazines, and audio/video service providers. However, they do not act alone. The enterprise will have to engage the services of a marketing content creator or agencies. Include such agencies as well in this group.

The Product/Service Creator includes organizations that produce the vaccine or the dispensing unit (e.g., syringes, inhalers) or accessories like bandages, disinfectants. In the case of a software-based service, it would be the software developer, the intellectual property provider (as in the creation of a centralized registry), etc. Last Mile Engagement Providers could be the people who transport them, such as refrigerated medical vans or Internet/telecom service providers.

It is better to have an incomplete list than to have none. It is OK not to have names of the enterprises that will participate. At least have classifications of such players identified for the initiative. If the effort takes more than one business day, then you are spending too much time; you are drifting toward solutions.

It is common that the sponsor has dictated engagement of named enterprises in the ecosystem. Accept the list. However, create a list of value proposition questions:

- Will the use of this enterprise create a long-term cash/value positive result for the beneficiary?
- Do we need a knowledge transfer agreement with these enterprises?
- Is there room for innovation in the business model?
- What are the standard engagement limitations that are faced by these enterprises in their native markets?
- Are we being asked to modify these engagement rules to accelerate adoption or value realization, or otherwise?

8.6.1 Strategic Partner

Since the strategic architecture is created once and remains stable for an extended period, it is better to outsource the development of the strategic architecture. Typically, you will need long-term skills at architecture to support portfolio and either architecture to support solution delivery or project.

It is also advisable that this strategic partner facilitates your team developing the initial architecture to support portfolio. The skill set required for the initial development of these two architectures is unique, technology-agnostic, but “controlled” capital deployment initiative, industry, and demography-aware.

Once your initial strategic architecture and portfolio architecture are developed, fundamental decisions have been made. The broad path of the roadmap has been framed. Potential options have been narrowed. Bluntly, at the initial stage, you are looking for people who will challenge accepted wisdom.

To select a firm or a team that could provide this service, use the following criteria:

- What is the experience in converting thought into a set of objectives, drawing parallels from international and national agencies like the UN, World Bank, and the Asian Development Bank?
- What is the experience of the team members in using architecture frameworks like the TOGAF® framework, COBIT®, and SABSA®?

- What is the experience of the team members in supporting portfolio and project management models like Project Management Institute (PMI) or PRINCE2®?
- What is the experience of the team members in using risk management models such as Institute of Risk Management (IRM), Enterprise Risk Management (ERM), and ISO 31000 (Risk Management)?
- Is the firm aware of and using purpose-driven architecture?
- Does the firm come with an out-of-the-box toolkit to develop purpose-driven architectures – including reference material for a process model, architecture model, and governance model?
- How does the firm or team approach collection of end-user concerns across a wide geography?
- What is the approach of this team to enable and support your in-house team's development?
- Can they provide at least three different project references to demonstrate expertise in the previous areas?
- How do they guide architecture to support projects via the use of industry and technology domain architectures?

It is technically possible to develop the strategic architecture, portfolio architecture, and a roadmap for the large nation transforming initiative in 12 to 16 weeks, with a team of 10. Bluntly, the time variance is the accessibility of you and other key stakeholders. It will be directionally accurate and might lack specifics on detailed implementation. Any Enterprise Architect or strategic architecture development firm that says otherwise is not helping you.

8.6.2 Operational Partners

Every initiative has the need for SMEs, process and governance specialists (Enterprise Architects and PM), and decision-makers. For this document, we are going to assume that the sponsor and the initiator (you) are the decision-makers. The SMEs are the people who can build the product or service. In this area, you will need two kinds of experts – those who can provide advice to you and those who can execute.

Use the purpose-driven architecture to identify the type of SMEs who can provide advice and govern the execution. It may be early in the lifecycle of this effort to select and employ SMEs who can execute. Most likely such experts will be part of the solution delivery team that you would contract out.

If the initiative is about vaccination of a large population, then medical professionals are needed who have coordinated and guided similar efforts. These professionals have an idea about the effort required and specialists to tap for execution. They are industry and project domain experts. Next is a set of technology domain experts, who can guide you around traps and failure points when using a specific toolset. See Domain Architectures for short descriptions of each of the technology domain architectures.

The project architecture defines operational aspects. You should have at least four project architectures and five governance structures defined – one project architecture and governance structure each for:

- Knowledge/tool development
- Marketing and promotion
- Product or service development
- Last mile engagement

The fifth governance structure supports the strategic and portfolio architectures.

It is very likely that you will need more than one product or service to be developed. You will need as many architectures as there are products or services. You might need as many operational partners as well.

Your strategic architecture should identify your approach to operational partners – whether you use a prime, manage an ecosystem of partners, or tactically augment your resources. Early on the roadmap is confirming your capability to govern your operational partner model.

9 What is the Practical Guidance? (Good Practice)

9.1 Dos and Don'ts

Why model? What to model? And with what tool?

First, a model ties all moving parts together to paint an overall picture. A model allows for the task at-hand to be broken into consumable chunks. It also describes how the chunks are assembled to form the whole. A good model allows the visualization of key interactions and impacts.

Second, models tie things together in consistent ways. The consistent association allows there to be confidence that the target and approach reflect the concerns of different stakeholders and aid communication. Consistent descriptions support decision-making and onboarding of new members to the initiative.

Third, there exists a substantial collection of reference models that will accelerate the maturity and delivery of the effort. Thinking in patterns and solutions to fit the demography accelerates the realization of the solution.

To support decision-making, get the advice of the strategic partner for the overall governance, risk, and control process. Use an architecture framework such as the TOGAF standard, but be fully prepared to replace the TOGAF example deliverables with reference models that best align. Validate that the strategic partner is starting with a set of subject area-specific reference models like FEAF, BIAN, SCOR™, APQC, Frameworkx™, and the IT4IT™ Reference Architecture. When technical solutions are evaluated, selected, and assembled, use of a product and vendor-neutral model is an accelerator to bring all players together.

As the owner of the initiative, you need not know all such models. It is good to be aware of key models that are relevant to the initiative. Let the team that develops the strategic architecture and portfolio architecture finalize them for you.

Pick a tool, any tool that is certified to handle these models. Why? It provides time-stamped records, and traceability for changes and decisions. Make sure rationale and environmental parameters that drove the decisions are documented. If any of your strategic or operational partners fail to support a time-stamped, rationale-driven traceability of decisions and changes, they are hurting themselves and setting up the initiative to fail.

You do not need to revisit decisions. Have confidence that the implication of a decision supports holding firm during execution when tactical considerations have transitory importance.

What is important is that the team that develops the strategic architecture and portfolio architecture can represent all components that would impact the outcome. Likewise, let the same team select an architecture tool. However, it is essential that you demand the following characteristics from the tool.

- Use a metamodel that supports your reference models end-to-end:
 - Use an end-to-end content metamodel as a starting point, such as the TOGAF framework, FEAF, or NAF
 - Support at least one integration modeling notation – Business Process Execution Language (BPEL), XML Process Definition Language (XPDL), Web Services Description Language (WSDL), Interface Description Language (IDL)
- Support versioning, time-series evolution of current-transition-target architectures
- Support visualization to understand, analyze, and report:
 - Support creation of viewpoints and views, catalogs, matrix, and lists
 - Use of modeling notations like the ArchiMate[®] language or Business Process Modeling Notation[™] (BPMN[™])
- Support concurrent modifications and synchronization

The tool should enable:

- Directing and controlling your solution delivery management model; e.g., use of Agile, Scrum, Kanban, Waterfall, Rational Unified Process (RUP)
- Information integration with financial and investment management tools for portfolio and value management
- Publication in an enterprise content management system to build a consistent, accessible location of truth
- Information integration with project controls solutions to ensure consistency in value, outcome and requirement definition, and value realization

Part 3: Reference Materials

10 Additional Reading Material

- American Productivity & Quality Center (APQC); refer to: www.apqc.org
- Banking Industry Architecture Network (BIAN); refer to: www.bian.org
- e-Government Interoperability, Emmanuel C Lallana, United Nations Development Programme (UNDP), 2008; refer to: www.unpan1.un.org/intradoc/groups/public/documents/UN-OTHER/UNPAN032094.pdf
- Enterprise Architecture as Platform for Connected Government – Understanding the Impact of Enterprise Architecture on Connected Government: A Qualitative Analysis, NUS Institute of Systems Science, 2010; refer to: www.unpan1.un.org/intradoc/groups/public/documents/unpan/unpan039390.pdf
- Enterprise Architecture as Strategy: Creating a Foundation for Business Execution, Jeanne W. Ross, Peter Weill, David C. Robertson, Harvard Business Review Press, 2006
- Government of Andhra Pradesh: Andhra Pradesh State Enterprise Architecture (ePragati); refer to: <http://e-pragati.in/>
- Government of the United States: Federal Enterprise Architecture Framework (FEAF)
- India Enterprise Architecture Framework (IndEA), Version 1.1, August 2017; refer to: www.academia.edu/35034694/India_Enterprise_Architecture_Framework_Ind_Ind_Ind_IndEA_EA_EA_EA_for_ONE_Government
- Institute of Risk Management (IRM); refer to: www.theirm.org
- More from Less for More, Professor R.A. Mashelkar's Re-inventing India, October 2012; refer to: www.knowledge-economy.net/uploads/documents/2012/briefs/KEN%20Brief,%20No.%2031,%20Year%2002.pdf
- NATO Architecture Framework (NAF); refer to: <http://nafdocs.org>
- Project Management Institute (PMI); refer to: www.pmi.org
- Supply Chain Operations Reference (SCOR™) Model; refer to: www.apics.org/apics-for-business/frameworks/scor
- The TOGAF® Standard, Version 9.2, a standard of The Open Group (C182), published by The Open Group, April 2018; refer to: www.opengroup.org/library/c182
- TOGAF® Series Guide: A Practitioners' Approach to Developing Enterprise Architecture Following the TOGAF® ADM (G186), March 2018, published by The Open Group; refer to: www.opengroup.org/library/g186

- World-Class EA: Governors' Approach to Developing and Exercising an Enterprise Architecture Governance Capability, White Paper (W178), July 2017, published by The Open Group; refer to: www.opengroup.org/library/w178
- World-Class Enterprise Architecture, White Paper (W102), April 2010, published by The Open Group; refer to: www.opengroup.org/library/w102
- Zachman® Framework; refer to: www.zachman.com

11 Stakeholders, Concerns, Objectives Mapping

11.1 Who has the Decision Authority? Who to Consult with? Who needs to be Informed?

Let us understand the stakeholder types in the public sector before we map the triggers and objectives of an initiative, and the concerns of the stakeholder.

- The **Elected Representative** (or **Politician**) is the person responsible for presenting the voice of the citizens they represent and shaping the change initiative, mainly through approval of the budget

Elected representatives have a symbiotic relationship with the citizenry and a need for “visible” leadership and impact. This person is the highest official of the land, not the representative for an electoral district.

- **Service Recipients** are those who use the services delivered by the public agency, either for their direct benefit or to engage with other parts of the government or to serve the citizenry; e.g., travelers on a newly constructed highway
- **Benefit Recipients** are those who enjoy the positive outcomes of the change initiatives; e.g., businesses who extend their region for selling goods and services and attracting talented staff because of the newly constructed highway
- **Impact Recipients** are a tricky bunch; these recipients may not exist on the day the change effort is initiated or completed

Normally their concerns are voiced via proxies; e.g., citizens who had to be relocated for the new highway.

Note: It is possible that the Service Recipient, Benefit Recipient, and Impact Recipient may be one and the same entity.

- **Operators** are normally proxies or delegates of the public agency who sustain the services
- **Funders** are either internal to the geography or an external entity; e.g., taxpayers, World Bank
- **Senior Leaders** are those with responsibility for management and oversight

This responsibility includes approving and realigning strategic initiatives, tracking a portfolio of projects, ensuring transformative benefits are realized, and meeting operational business goals; e.g., officials of the Administrative Services.

- **Service Providers** (or **Implementors**) and partners are those responsible for the construction and delivery of the products, services, and solutions that the change initiative provides to the citizens; they are also responsible for integrating solutions

- **Budget and Audit** are those who are responsible to inform the elected representatives, funders, and senior leaders that there is no duplication of effort or the funds are not being spent on other things
- **Program/Portfolio Managers** are those with responsibility for management and oversight of strategic initiatives; this responsibility includes approving and realigning projects, tracking project progress, and ensuring project benefits are realized
- **Business Requirements Owners** are those responsible for identifying and expressing business requirements; typically, these stakeholders are responsible for some aspect of business operation
- **Risk Owners** are those who are accountable for a risk
- **Business Partners** are third parties who are engaged to provide services sustaining a customer value proposition

Note: The architecture may not be provided to business partners, but must be evaluated from their perspective.

- **Customers** are those who consume products and services

Note: The architecture may not be provided to members, but must be evaluated from their perspective.

Table 1: Stakeholder Concerns

Primary Concern	Subsidiary Concern	Definition
Agility		What is the ability of the architecture to adapt to future unanticipated change?
Efficiency		How does some aspect of the architecture contribute to the efficiency of operations?
Value		What is the value of the architecture?
	Value Proposition	How does some aspect of the architecture address a value proposition?
	Alignment	To what extent is the architecture aligned with priorities?
	Differentiation	How does some aspect of the architecture address/enable differentiation?
	Customer Intimacy	Is the enterprise delivering products and services the customers want? What is the confidence that a new product or service will be liked by them?
	Return on Investment (ROI)	What is the economic ROI? Are there other measurable ROIs?
	Risk to Asset	What is the risk posed to assets (things of value)?

Primary Concern	Subsidiary Concern	Definition
	Risk to Benefit	What is the risk to benefit (expected measurable outcomes) of the change?
Change Impact		What is the impact, or scope, of a change to the architecture?
Change Cost		What is the impact of a change to the architecture in terms of cost of change?
Confidence		What confidence can be placed in the target?
	Feasibility	What is the probability the architecture will be realized and sustained?
	Security	Will the architecture consistently address the risks and opportunities embedded in operations? Will the architecture consistently address the need to respond to hostile intent of known and unknown entities?
	Specification	What needs to be built?
Continuous Operations		Can the architecture operate continuously?
	Dependability	How will the architecture consistently deliver value and operate safely?
	Resilience	How will the architecture react to unexpected shocks?
	Business Continuity	Does the architecture provide an appropriate level of continuity needs relative to the enterprise's needs?
	Scalability	Can the architecture and the enterprise handle the range of demands and growth cycles?
	Self-healing	How will the architecture self-correct from error, imbalance, or shock?
Ecosystem		
	Compliance (Regulatory/Contract)	How will assets be protected in the architecture?
	Competitive Landscape	How does the architecture improve position in the competitive landscape?
Sustainability		How does the architecture demonstrate sustainability?
Perception		How does the architecture appear? How does the change appear to observers?

Primary Concern	Subsidiary Concern	Definition
	Social Responsibility	Does the architecture provide appropriate social responsibility?
Mandate		How does the architecture support existing and new mandates?

11.2 Stakeholder Decision Rights

An “X” mark in the tables used in this section indicates that the stakeholder has decision rights over applicability, degree of importance of the concern, and compliance of the solution to the concern.

11.2.1 Strategy

	Mandate	Perception	Agility	Efficiency	Value	Value Proposition	Change Cost	Change Impact	Alignment	Feasibility	Dependability	Resilience	Specification	Security	Confidence	Scalability	Business Continuity
Senior Leaders	X		X	X		X		X	X			X		X			X
Risk Owners	X							X		X	X	X	X	X	X	X	
Business Partner			X	X				X		X			X	X	X		
Service Recipient			X			X							X	X			X
Benefit Recipient				X	X		X	X		X			X		X		
Impact Recipient		X						X					X				
Funder	X	X		X	X		X			X					X		
Politician	X	X				X				X		X	X		X		X

11.2.2 Portfolio

	Mandate	Perception	Agility	Efficiency	Value	Value Proposition	Change Cost	Change Impact	Alignment	Feasibility	Dependability	Resilience	Specification	Security	Confidence	Scalability	Business Continuity
Senior Leaders	X		X	X		X	X	X	X					X			X
Portfolio Managers		X	X	X		X	X	X	X	X					X	X	X
Business Requirements Owners			X	X		X		X					X	X	X		
Risk Owners	X							X		X	X	X	X	X	X	X	
Business Partner			X	X				X		X			X	X	X		
Service Recipient			X			X								X			X
Benefit Recipient				X	X		X	X		X					X		
Impact Recipient								X									
Funder	X	X		X	X		X			X					X		
Politician		X				X	X			X					X		

11.2.3 Project

	Mandate	Perception	Agility	Efficiency	Value	Value Proposition	Change Cost	Change Impact	Alignment	Feasibility	Dependability	Resilience	Specification	Security	Confidence	Scalability	Business Continuity
Senior Leaders	X	X	X	X		X		X	X					X	X		X
Portfolio Managers	X	X	X	X		X		X	X	X					X	X	X
Business Requirements Owners	X		X	X		X		X					X	X	X		
Operators							\$	X		X	X	X	X		X	X	

	Mandate	Perception	Agility	Efficiency	Value	Value Proposition	Change Cost	Change Impact	Alignment	Feasibility	Dependability	Resilience	Specification	Security	Confidence	Scalability	Business Continuity
Risk Owners	X				X			X		X	X	X	X	X	X	X	X
Business Partner			X	X				X		X	X		X	X	X		
Service Recipient			X			X					X			X		X	X
Benefit Recipient		X		X	X		X	X		X			X		X		X
Impact Recipient		X						X					X				
Funder	X	X		X	X		X		X	X					X		
Politician		X				X			X	X		X			X		X

Legend

§: For a change initiative involving a public-private partnership or BOOT model, the operators are concerned about change cost when they need to integrate with newer architectures.

12 Stakeholders, Objectives, Success Criteria

	Electability/Popularity	Time to Service	Inflation Rate	Employment Rate	Quality of Life	Currency Stability	Transparency	Birth Rate	Mortality Rate	Eco-Sustainability	Time to Respond	Disaster Recovery	Connectivity	Industrial Throughput	Agri Throughput	Solvency	Availability	Successful Delivery
Senior Leaders	#	x				x	x				x	x						x
Portfolio Managers			x		#	x										x		x
Business Requirements Owners																		
Operators		x								x	x	x	x			x		
Risk Owners			x			x				#		x				x	x	
Business Partner			x			x					x		x			x		
Service Recipient		x									x	x	x				x	
Benefit Recipient	#	x			x			#	#	#	x		x					
Impact Recipient		x			x					#			x					
Funder	x	x	x	#	x		x	#	#	#						x	x	
Politician	x		x	x	x					#				x	x	x	x	#

Legend

x: Always interested in the objectives and success.

#: Interest of the stakeholder depends on the scope of the initiative.

13 Architecture Capabilities

Capability		Description and Purpose
Foundational		The ability to perform standard foundational functions to create and consume architecture that is valued by the enterprise.
	Process Integration	The ability to sustain the integration of architecture development and consumption in the appropriate enterprise business processes.
	Knowledge Management	The ability to manage knowledge within the Enterprise Architecture team as a strategic asset, sharing of knowledge, and organizational learning. Management of knowledge includes capturing, developing, sharing, and effectively using organizational knowledge. It includes the ability to stay current with developments in the industry (vertical-specific and technologies).
	Enterprise Architecture Capability and Governance	The ability to identify and apply relevant reference architectures; maintain separation between reference architecture and specific architecture; monitor and adjust the Enterprise Architecture Capability to stay internally consistent; and align to its charter. Note: This should not be confused with Enterprise Architecture Governance or Architecture Board. Enterprise Architecture Governance is focused on making sure the architectures are produced for the purpose and objectives of the enterprise. Enterprise Architecture Governance may include governance of the Enterprise Architecture Capability.
	Enterprise Architecture Techniques	The ability to perform techniques to develop and consume architecture of the purpose and quality required by the enterprise. It also includes the ability to identify, configure, and maintain appropriate architecture tool(s).
	Architecture Contents (Model)	The ability to maintain a consistent model of the domain and Enterprise Architectures.
	Architecture Contents (Templates & Repository)	The ability to produce and maintain a consistent set of documents that inform the architecture development and describe the architecture to its consumers.
Delivery-focused		The ability to deliver key architectural artifacts, project contracts, and governance. Provide guidance to leadership and align all participants in the effort to protect and deliver value.
	Initiative Strategy	The ability to identify, articulate, and align operational methods of the initiative to enable the department and the enterprise to achieve its overall goals.

Capability		Description and Purpose
	Strategy Governance	The ability to define a set of practices to deal with creation and managing changes to enterprise, departmental, or initiative strategies. It includes the process of creation and implementation of policy in relation to managing changes to goal-setting and organizational capacity.
	Strategy Roadmap	The ability to create a time-based plan to identify where the enterprise, department, or initiative is, the intended target, and the steps to get to the target. It includes the ability to represent enabling organizations, critical assets, their relationships, dependencies, and requirements in a fashion that supports decisions.
	Procurement Support	The ability to create a precise architecture specification, sufficient to initiate estimation of effort from service and solution providers (vendors or internal providers).
	Delivery Governance	The ability to support procurement and operation functions of the enterprise in accepting tools, techniques, and technologies used by the solution provider.

14 Domain Architectures

The Enterprise Architecture team is expected to have personnel and expertise to develop domain architectures at varying levels of detail and to support the different purposes.

Domain	Purpose and Definition
Business Architecture	<p>Focuses on business motivations and business operations, linking customers, products, services, finances, suppliers, and partners. The linkages, relationships, and operational aspects are elaborated using the enterprise's goals, objectives, strategies, business processes, and capabilities along with its rules and controls.</p> <p>Maps the ecosystem of the effort and provides a comprehensive view of all players, constraints, controls, risks, and impact on long-term investments and cash outflow.</p>
Security Architecture	<p>An approach that clearly addresses the necessities and potential risks involved in a certain scenario or environment. It also specifies when and where to apply controls to eliminate or mitigate the barriers to attain the objectives, including sustainability and continuity of business.</p>
Service Architecture	<p>An approach to describe the purpose/method of interaction to get an outcome for the buyer/user. Includes clear articulation of the service availability, location, access control, response expectations, and usage methods.</p>
	<p>Human-Machine Interaction Architecture (aka Customer Experience Architecture and Design)</p> <p>An approach to study and optimize the effort and understanding required by humans to work with machines and applications.</p>
Information Systems Architecture	<p>This is a logical grouping describing processes that are automated. The description includes information accessed and produced, infrastructure used to host applications that automates the processes or communicates across applications, or storing information. This is composed of all information, data, application, infrastructure, communications, and integration architectures.</p>
	<p>Information Architecture</p> <p>A structural design and approach to help users (humans and machines) understand where data (text, audio, video, binaries) is, how to find it, what to expect, and use it to improve the quality of decisions.</p>
	<p>Data Architecture</p> <p>A description of policies, rules, or standards that govern which data is collected, how it is stored, arranged, integrated, and put to use. Organization of data is normally expressed in models.</p>

Domain		Purpose and Definition
	Application Architecture	Describes the behavior of a solution (automated or manual) applied to solve a business problem, how the solution interacts with other such solutions, and its users. It also describes how the solutions are organized, including its structural and behavioral elements.
	Infrastructure Architecture	A description of elements without which core business operations cannot take place. In generic terms, includes buildings and space for parking, power supply, heating, ventilation and air conditioning systems, dining area, and restrooms (in other words, facilities). In the information technology context, covers bare metal computing devices like servers, routers, switches, and disks.
	Communications Architecture	A network of people and machines that connects separate components of an organization. The primary focus of this architecture is to enable the flow of information across the organization and the rest of the world. Normally includes telephony, video conferencing, and automated response systems.
	Integration Architecture	A description of tools and techniques applied to enable applications to interact with each other using appropriate communications and infrastructure architecture. Its focus is on setting rules of engagement between applications including protocols and methods, compliant with the risk and security architecture.

15 Mapping to the TOGAF Leader's Guide

The following table provides a quick mapping of concepts described in the TOGAF Series Guide: The TOGAF Leader's Guide to Establishing and Evolving an Enterprise Architecture Capability (see [Referenced Documents](#)).

Concepts in the TOGAF Leader's Guide	Section Title in this Guide
Define Enterprise Context and Enterprise Architecture Context	Context and Triggers
Define the Business Objectives for the Enterprise Architecture Capability	Outcome Concerns
Define the Governance Framework	Execution Concerns
Define Alignment with Other Frameworks	Operating Model
Define Customized Architecture Contents/Enterprise Metamodel	Execution Concerns
Define the Enterprise Architecture Organization Model	Operating Model
Create Process Model	Operating Model
Define Tooling Strategy	Execution Concerns
Create Roadmap	N/A (Practice Maturity)
Establish the Enterprise Architecture Capability	N/A (Whole Document)
Prepare and Obtain Approval for Request for Architecture Work	N/A (Strategy)

Acronyms

BPEL	Business Process Execution Language
BPMN™	Business Process Modeling Notation
CC	Cabinet Committee
ERM	Enterprise Risk Management
IDL	Interface Description Language
IP	Intellectual Property
IPO	Initial Public Offering
IRM	Institute of Risk Management
JTF	Joint Task Force
PM	Project Manager
PMI	Project Management Institute
PMO	Project Management Office
PPP	Public-Private Partnership
ROI	Return on Investment
RUP	Rational Unified Process
SME	Subject Matter Experts
UPI	Unified Payments Interface
WSDL	Web Services Description Language
XPDL	XML Process Definition Language

Index

accountability	35	mandate, new	32
Benefit Recipients	51	Operators	51
Budget and Audit.....	52	outside-in view	41
budget cycle.....	16	ownership rights	40
budget preparation.....	16	planning horizon	13, 19
Business Partners.....	52	Politician	51
Business Requirements Owners	52	portfolio cycle	16
Chief Architect	20, 26	Portfolio Managers.....	52
citizen-centricity	37	Practice Maturity team	20
confidence	18	Program Managers	52
contractual compliance.....	17	reporting hierarchy	18
cross-solution activity.....	17	Risk Owners	52
Customers.....	52	roadmap purpose	17
decision rights.....	39	ROI.....	12
decision-makers, consolidated..	24	Senior Leaders.....	51
decision-makers, initiative.....	25	Service Providers	51
democracy	40	Service Recipients.....	51
domain architectures.....	60	SMEs	14
Elected Representative	51	solution delivery.....	17
Enterprise Architecture team....	27	strategic partner.....	43
Funders	51	strategy	15
funding cycles.....	31	superior architecture, explicit...	14
Impact Recipients.....	51	superior architecture, implicit ..	14
Implementors.....	51	transparency	33, 41
infrastructure	35	UPI	41
IPO	40	value	17
last mile	41	value dependency	17
mandate	32	value realization stages	13
mandate, existing.....	32	Value Realization team	19
mandate, external.....	32	value traceability	17