

White Paper

Using Architecture Layers to Improve Project Delivery and Execution Success

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In my last white paper, I discussed the need to focus on the architecture basics of leveling your inputs across conceptual, logical and physical levels in order to ensure that you are addressing the right issues and challenges, and supporting executive engagement and commitment.

In this white paper, I will extend the architecture discipline to provide insight on why all planning, scoping and design activities at any level of detail must address, end-to-end, all four enterprise architecture domains of:

- Business
- Data
- Applications
- Infrastructure

Addressing all four of these layers in the planning and scoping phase will significantly improve your chances of project delivery success. End-to-end consideration across the architecture capability layers includes a wide range of inputs;

- Business Architecture: Services, Functions, Processes, Metrics, Business Strategy and Vision, Organizational Readiness, Organizational Operating Model
- Data Architecture: Subject Areas, Entities, Master Data
- Applications Architecture: Application Layers, Domains, Modules, ERP, CRM, Interfaces
- Infrastructure Architecture: Layers, Domains, Networks, Cloud

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Why Visibility Reduces Cost and Complexity

We have all experienced scope creep, lack of funding, uncertainty of value generated and rogue projects that have lost sight of what they are trying to achieve. Often companies find it easier to start a project than to say no. However, assessing all domains and ensuring transparency and traceability across these domains, minimizes the chances of the project hitting unexpected cost, scope and time blowouts when they can least afford it.

Best practice architecture has four conceptual reference models (one for each domain) to enable a consistent baseline and starting point for the scoping of each project. This also enables a simple baseline of all projects and programs to be mapped against the models, thus enabling the portfolio planning and budgeting process to be more effective.

Once projects are in the design, build, and test phases they are at their greatest cost input; deadlines are tight and a little more planning upfront can prevent the large number of project cost and time over-runs that occur across most companies.

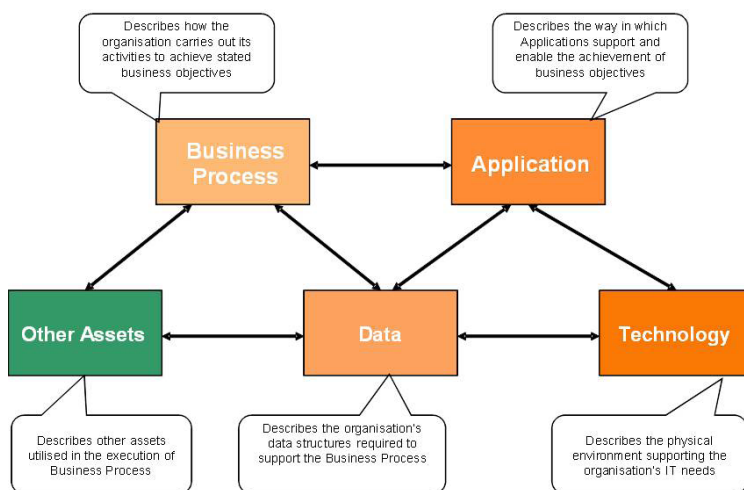


Figure 1: Conceptual Architecture domains

Defining and positioning your architecture inputs against these four reference models is a critical first step. This will ensure early identification of delivery issues, confirmation of cost, contribution and value, ensuring that the correct business outcomes and capabilities are being targeted and achieving sponsorship commitment and funding.

Let me introduce the layers and linkages I am referring to and how they can be applied. *Figure 1* shows a model outlining the key layers and conceptual linkages between each of the domains.

Understand your Business to Deliver Projects more Effectively

Applying architecture across the business layer involves an understanding of the business processes, organizational model, key business outcomes and metrics and the existing capability within the organization. Driving change through an organization is significantly harder and less cost effective if the key business inputs are not recognized or addressed in the initial scoping and design.

The concept of organizational change and change management is also

Case Study

Two airlines merged but failed to address the consolidation of organizational roles and ended up running two separate organizations with the resultant complexity. The airlines were considered equal partners and Programs of change were designed to consolidate the businesses, but were hamstrung by two separate sets of stakeholders. Executives were also hanging onto past behaviour and displayed an inability to adapt to change.

Most of the change projects failed to deliver outcomes due to complexities and difficulties in having numerous stakeholders, Governance Committees that were at cross purposes and a lack of agility in decision making for the Project teams. The airline ultimately failed as losses were amplified by having two different business models, resulting in further losses the combined company could not recover from.

an important input to delivering the project and required capability in the timeframes. Availability of resources, training and execution strength all contribute to the smooth running and optimization of project outcomes.

Awareness of other dependant projects in the portfolio also enables planning for the realization of benefits. In a project by project sense, stakeholders are often engaged multiple times over short periods, and unless some context and dependency planning is provided upfront, they can very easily work against the project team and its delivery objectives.

A case study (left) outlines how organizational capability was not addressed during delivery of change programs, resulting in sub-optimal outcomes.

Delivery Note: Engaging stakeholder teams early across the four domains using a considered and planned approach increases the chance of delivery success, and avoids the “I wasn’t told” or “they didn’t ask me” scenarios that limit project success.

Scoping Data Requirements to Reduce Costs and Integration Effort

Generally the poor cousin of the four domains, Data Management is finally being seen as a differentiator, and is achieving a relevance and maturity amongst organizations who recognize the need to manage ‘Data as an Asset’.

Many projects fail to recognize the relationship between data, processes and services, de-scope the data requirements, fail to cleanse the data or improve data quality, or do not build the necessary business rules into the data so the project can be delivered on time and on budget. This creates downstream analysis paralysis, fails to deliver the majority of the business benefits, and leads to significant data cleansing activities.

Creating an enterprise information model with level 1 subject areas and entities enables a holistic approach to managing data within the organization. Models which run to levels 2/3/4 should only be considered within a specific project scope to support delivery outcomes. Each project should outline what data subject areas and entities will be impacted and the nature of that impact. This enables a critical assessment (architecture governance) of the value created and ensures data principles are adhered to and not compromised.

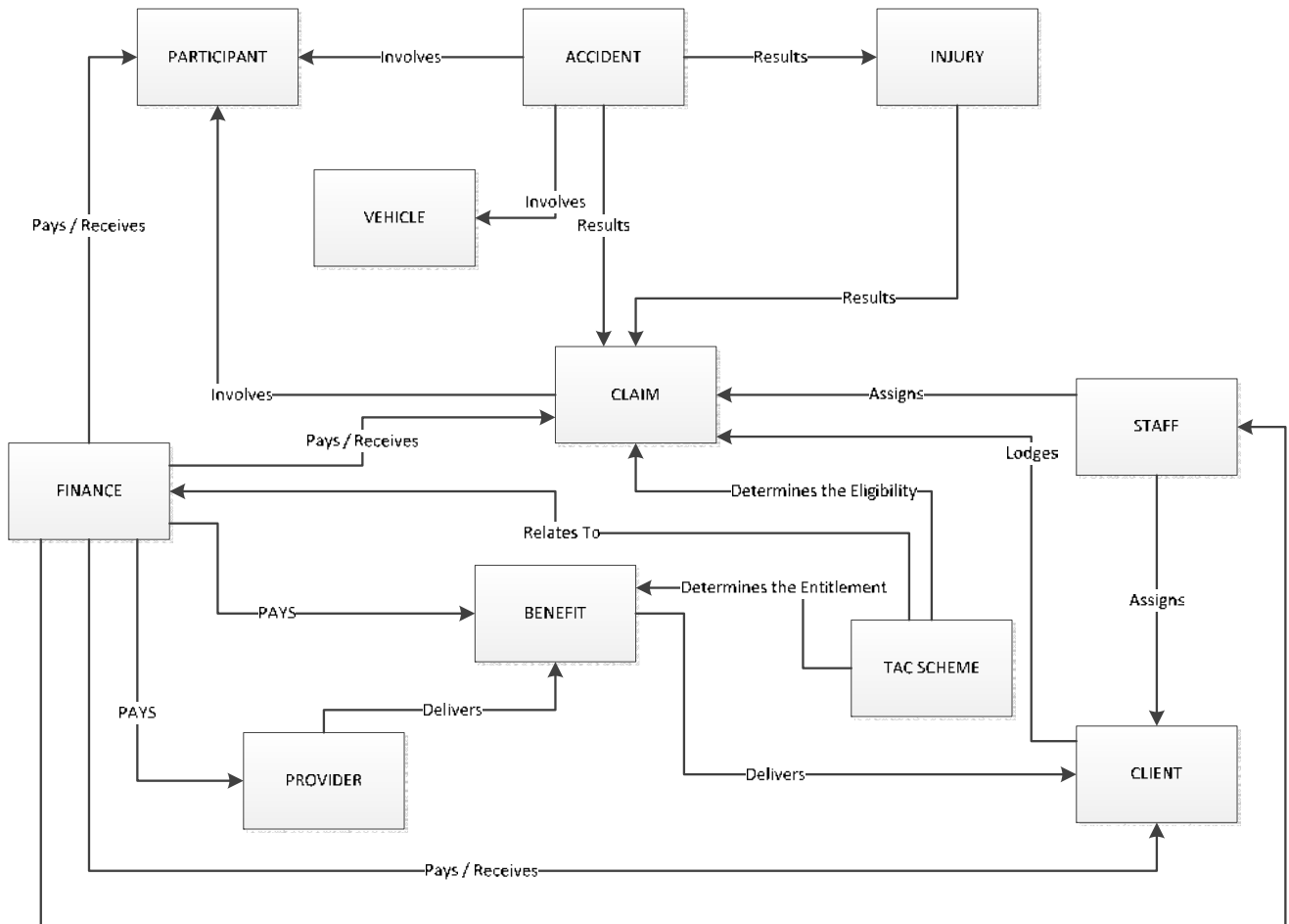


Figure 2: Enterprise Information Model

The enterprise information model shown in *Figure 2* outlines the key subject areas, which along with strong governance and ownership, enables projects to build on the data assets rather than creating further complexity.

Selecting Applications to Reduce Complexity

Why have most organizations developed a legacy environment of interfaces and applications which resemble spaghetti rather than a planned and architecturally precise set of applications supporting business agility and efficient business processes? Why do organizations create one project for every application they intend to build?

A number of answers come to mind, however one recurring theme is the failure of organizations to manage a holistic applications portfolio achieving architectural integrity with applications supporting the processes they were designed for.

Most application development is driven by projects that continue to add layer upon layer of complexity to an already overly complex set of applications and interfaces. Companies that have hundreds of interfaces

make business agility unrealistic, and business changes a nightmare.

Using application models, and carefully selecting applications, enables better understanding across all domains since:

- Applications drive demand for infrastructure capability
- Applications directly support business functions / processes
- Applications store master data and points of truth
- Interfaces drive data / events between applications

Mapping your applications portfolio can be achieved via a number of different approaches depending on the maturity of your organization and acceptance of the architecture function and value. I have used both a business capability model and a specific application reference model to map applications and both have their uses depending on the need to engage the business or manage the organization's IT assets.

Using these models enables a consistent baseline of capability to be developed, tracked and reported. The value of this baseline is that an architect can map capability to business outcomes and achieve true "Line of Sight" from strategy to execution.

Defining Infrastructure Needs to Reduce Total Cost of Ownership (TCO)

To reduce project and organizational costs, it is critical to ensure that the downstream infrastructure impacts are understood and positioned within the enterprise architecture. Infrastructure and support teams across the world are faced with a tsunami of demand from the business and upstream build teams who make the tasks of forecasting support requirements and the delivery of infrastructure extremely difficult to achieve.

In case study after case study, when infrastructure teams are engaged only weeks or months before projects go live sub-optimal responses to projects are made and greater long-term costs are generated. New infrastructure technologies such as the Cloud are improving infrastructure response times and allowing RUN teams to manage costs more effectively. However infrastructure teams need to build this expertise, and addressing the infrastructure requirement upfront puts all IT BAU teams on notice of the particular demands coming from the business.

Using a Technology Reference Model (TRM) to outline the organization's infrastructure on a page also simplifies the task of pin pointing what current infrastructure will be impacted or required to support planning and scoping of projects. *Figure 3* is an example of a TRM highlighting 'Infrastructure on a Page'.

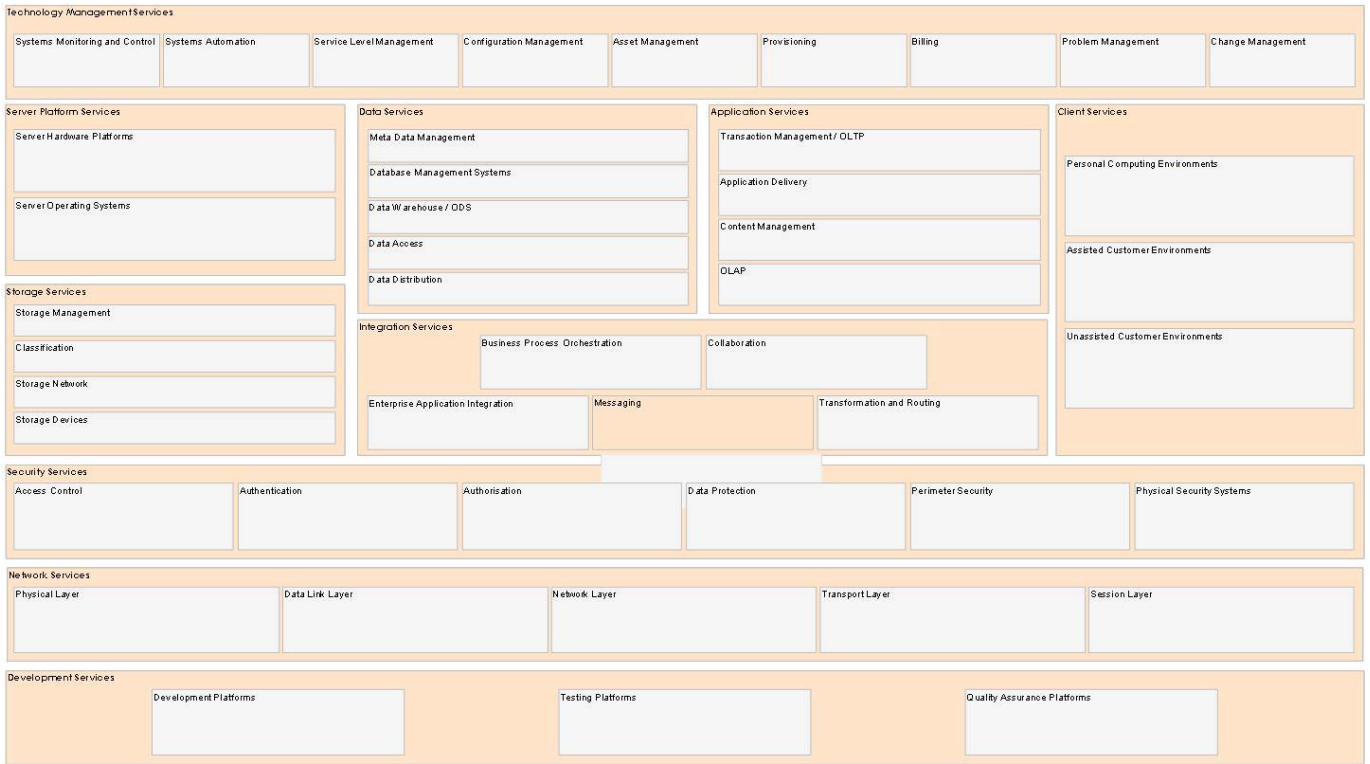


Figure 3: Enterprise Infrastructure Model

Using these models enables infrastructure architects to guide project scoping, design and cost estimates to ensure less nasty surprises during project execution.

Conclusion

Using a consistent set of reference models for all four architecture layers simplifies the planning, scoping and engagement activity, as it pinpoints interaction points for each domain at the conceptual level of detail. These models, once communicated and published, reinforce the storyboard and enhance stakeholder acceptance and understanding.

If you manage each of these four conceptual domains from a top down, whole of business perspective with a logical owner, set of principles and a reference model, and scope your projects according to these inputs, you stand a far greater chance of aligning business change with business and technology outcomes.

Development of your firm's architecture library of artefacts is critical for the company DNA and adherence to some simple layering rules will enhance your architecture value.

In my next white paper, I will expand the depth of analysis using a business capability model and show why the strength of displaying the 'business on a page' simplifies the range of project, cost, conceptual domain and risk management inputs.

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