Introduction

This document outlines the Application Reference Architecture (ARA) as it applies to our department.

What is architecture in general?

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Architecture is the stuff you can't Google. - Mark Richards.
Architecture is the decisions that you wish you could get right early in a project, product
Architecture is about the important stuff, whatever that is. - Ralph Johnson & Martin Fowler
Architecture Style: The combination of distinctive features related to the specific context
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The Application Reference Architecture (ARA) borders on what many would consider an enterprise reference architecture. This document, the ARA, attempts to provide an overview of the enterprise environment with a focus on application architecture elements. - Enterprise architecture documents the whole architecture and all important elements of the respective organization, covering relevant domains such as business, digital, physical, or organizational; and ii) the relations and interactions between elements that belong to those domains, such as processes, functions, applications, events, data, or technologies." - [Wikipedia - Enterprise Architect].
- Application architecture describes the behaviour of applications used in a business, focused on how they interact with each other and with users. It is focused on the data consumed and produced by applications rather than their internal structure. In application portfolio management, applications are mapped to business functions and processes as well as costs, functional quality and technical quality in order to assess the value provided." - [Wikipedia - Application Architect].

This document documents: - existing application architecture within our department - guidelines for technical leaders

This document is intended for: - technical design leads

Out-of-Scope

- This document is neither a vision, nor a strategy nor a roadmap document.

- This document is neither a strategy, nor a department culture nor an development process document.
    - Strategy: What will and will not do, and how govern resources.
    - Culture: People, Processes (Organization / Teams), Communication
    - Execution: Processes, Tools

Business

A common way for the business to communicate what the organization needs and does is through a business capability model (BCM). There are many uses for

a BCM. Product owners can use a BCM to drive convergence in technology and business processes to enterprise standards. Regular review of aligning the BCM with the department strategy and vision can allow enterprise architects and business architects to identify and prioritize the corresponding IT initiatives with business needs. Internal committes, working groups and forums can collaborate to identify reusable business process and push for adoption across the organization. Business capabilities, processes, information flows and value streams should be assessed routinely based on efficiency, priority, and complexity.

Our department has a Business Capabiltiy Map (BCM) describing the main capabiliies required to fulfill our mandate. To help support the business our technology teams provide a broad range of IT capabilities. Our IT department supports many networks both nationally and internationally. Within the IT department, our software development team supports an extensive catalog of applications.

The health of our portfolio needs to improve as identified in our Corporate Risk Profile (CRP). Several leadership principles have been established over the years to provide guidance when addressing business needs. Key principles relating to directing architecture and design are:

1. Rationalization: We have an long queue of valuable business requests and opportunities. During the software development phase, requirements must be rationalized against the original approved project scope and other compete busines needs. The costs of increment application development, both in project costs and ongoing costs must be carefully understood. This is the process of rationalizing business needs and can include the senior management team when necessary. [See Guidance - Rationalization for more informatoin - !!!]

2. Executive Lead / Change Management: Projects and programs need executive sponsors who are committed to the change management and ratinalization required to allow IT to develop a product.

3. Business Architecture and Artefacts: The business plays a key role in shaping the application. Business architecture (capabilties, value streams, information flows, organization model) are essential for successful analysis of the business needs during application development. Significant architecture re-work and design waste result if these are unavailable.

The following are useful: - Business Capability Model (BCM) - [Wikipedia - Business Capability Model] : A diagram that identifies the business capabilities with regards to the application being developed. The GC BCM is a reference, and our department has an internal BCM. The BCM traditional is decomposed into 3-4 levels with descriptions of each level. The application requirements are mapped to the respective BCM capabilities. - Value Streams - [Wikipedia - Value Streams] : Introduced in Lean (1950's) a value stream is a set of actions (workflow) to produce value. Value Stream Mapping [Wikipedia - Value Stream Mapping] is visual tool introduced in Lean Management methodology to display

the value stream with define icons to show delays and inventory stages. An example value stream might be recruitment "street to seat" or "hire to retire".
- Information Flows [Wikipedia - Information Flow Diagram] is a business view of how information flows between business responsiblity centres. *The main purpose of an information flow diagram is so that sources that send and receive information can be displayed neatly and analysed.* - Organization Model / Operating Model [Wikipedia - Operating Model]- An operating model is both an abstract and visual representation (model) of how an organization delivers value to its customers or beneficiaries as well as how an organization actually runs itself. The elements that make up the Operating Model are People, Process and Technology (PPT).

1. Business Requirements: Business requirements for IT analysis, prioritization and design. Business requirements should attempt to be specific, measurable, achievable, realistic/relevant and time-based (SMART). By being SMART, this affords the technology project the ability to effectively plan and analyse.

As our department adapts agile methodologies, incremental value in the project can be obtained by the agile team developing business artefacts.

Technology Environment

Our IT operates in a complex constrained environment.
!!! - add on corporate production details !!!