Travelport

Architecture Playbook

ENTERPRISE ARCHITECTURE AND SCALED AGILE: OPERATING MODEL

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Version History

Version	Date	Description
3.0	21/11/2019	Updated version of the Draft Architecture Playbook v2.2, April 2019. Changes made to incorporate feedback from Architects and to reflect the Architecture Operating Model and Governance / CoE / Portal changes.

1. Introduction

Travelport has adopted the Scaled Agile Framework (SAFe), this has several operating practices to improve the efficiency and flow of Agile software delivery. Architecture has core activities identified within that Framework.

A key function of architecture is to enable an enterprise to achieve the correct balance between creativity and compliance. Creativity and invention do not have to be accompanied by recklessness. Compliance with necessary standards can be achieved without stifling innovation. Architecture is both an enabler and a constraint. It enables because standards help to avoid repeatedly solving the same problem (often in many ways) and free up time to be spent where the innovation is warranted. Where it is appropriate to do so, architecture *should* constrain due to needs imposed by the market, customers and government agencies.

In large and complex enterprises, intentional solution design must be undertaken (and refreshed /refactored) as the Agile solution develops. In a highly mature organization, or an organization that has a simple operating model (such as an eCommerce company) then Enterprise Architecture has a more limited role that is more closely aligned to software development. For Travelport, which has a high degree of business and technology complexity and a rapidly changing business model, Enterprise Architecture has a formidable and highly complex role. It must not only ensure that new capabilities are realized but that alongside these simplification, operability, scalability and efficiency have dedicated focus and sponsorship.

The standard methodology for developing Enterprise Architecture is the Open Group Architecture Framework (TOGAF) and this continues to be the overarching methodology at the enterprise level. The operating model described here aligns Enterprise and Solution Architecture frameworks with working practices to explain how the Solution Architect supports the design and delivery of solutions in Travelport.

1.1.   Purpose of this Playbook

This document describes the accountabilities for Solutions Architects relating to design for software and infrastructure delivery, rather than the strategic or organizational design elements. The accountabilities are described through the operating model for the Solution Architect. The main purposes:

- Source of knowledge for the Architecture team, linking together elements of the Architecture Operating Model and providing context with SAFe
- Provides an overview of the elements of the Architecture Operating Model (AOM) to anyone who has an interest

1.2.   Why do we need an Architecture Operating Model?

The operating model for Enterprise Architecture is a blueprint for architecture in Travelport, aligning architecture activities to delivery consistency and quality outputs and deliver value. Without a consistent approach it is impossible to measure value and quality, and to improve performance.

Driver	Benefit
Consistency of architecture output	Efficiency and completeness of design / process
Quality of architecture output	Better software, greater supportability, maintainability and flexibility, with lower TCO

Efficiency in architecture through reuse of knowledge (3PS)	Faster time to market
Visibility and transparency of architecture design decisions	Quality, time to market, risk reduction
Better and easier creation of documentation and deliverables for Architects	Quality, efficiency, motivation of architects
Clear accountabilities for Architecture, Delivery, Ops and Product	Efficiency of the end-to-end process, motivation of colleagues

1.3. What is in this Playbook?

- A description of how Architecture operates at Travelport in the context of other technical and non-technical functions
- An overview of the elements that form Travelport's Enterprise Architecture Operating Model and how these are used to deliver solutions,
    o Sets of principles, policies, patterns and standards
    o Non-Functional Requirements
    o Templates and stencils
- Guidance on where to find resources
- Guidance on tools available for use to speed up creating and maintaining architecture artefacts.

The playbook will continue to evolve with feedback and improvements, and will in future address additional topics, including:
- Working with Platform Architecture and Group Technology Services
- Adoption of SAFe Lean Portfolio Management at Travelport and alignment with Architecture
- Integration of architecture and delivery with release management, in particular off-train development

2. Enterprise Architecture Operating Model

At the core of the Operating Model is the solution intent, providing the guiderails for development. The design must satisfy the needs of the business stakeholders, and operate within the strategic aims of the enterprise, and meet the constraints of both 3PS – patterns, policies, patterns and standards (3PS) and the Non-Functional Requirements (NFRs).

Development of solution intent is collaborative, and it is iterative. Each stage needs to provide just enough to enable delivery teams to progress. Emergent architecture will build out from the solution intent, and delivery of the solution will form the architecture runway.

The Operating Model assumes engagement and support (including design input) from stakeholders in security, operations and support areas, and other areas of compliance such as legal.

The following schematic summarizes this:

Figure 1: Architecture Operating Model Overview

The Architecture Lifecycle at Travelport is described in the following process diagrams, each covering a phase of the lifecycle:

- Architecture Portfolio Management
- Developing Solution Intent (Solution Architecture/High-Level Design)

Note that further releases will include Release Management (to be completed in conjunction with Ed Hubbard)

Travelport has recently moved to adopt SAFe as the main development lifecycle methodology, particularly for product development, but also in some other areas. Other areas, especially in ECS, will continue use more traditional lifecycles, for example when sourcing new solutions with a need to provide a degree of upfront clarity in order to agree contracts, or when a supplier methodology is used for implementation.

The EA Operating Model expands on the SAFe architecture framework, to provide detailed guidance on how architects should work alongside SAFe trains. The concepts and approach will also be followed for non-SAFe development, with the degree of detail in the Solution Intent varying, and the ceremonies and interaction with project teams operating differently. Please see later sections on Architecture and Delivery team interaction.

Regarding the software and infrastructure delivery, the primary accountabilities for the Solutions Architect are the development of Intentional (Enterprise) and the Emergent (Agile) solutions design throughout delivery and software release. This occurs within the context of strategy and portfolio management, and these are included here for completeness.

The Solution Architect usually has responsibility for multiple Agile Release Trains (ARTs) within their pillar and may work on ARTs that cross pillars. In terms of the SAFe configuration, the Solution Architect has responsibility at both the Large Solution and Program level. The Solution Architect has responsibility for the design of a specific business solution. Specialist Architects such as Security, Network and Platform Architects have responsibility for design of enterprise-level solutions that support many business solutions. The Solution Architect works collaboratively with specialist Architects as required to assemble a design that works within the constraints of the enterprise.

The EA portal provides guidance, details and links to all the elements of the operating model, link: EA Portal.

2.1. Architecture Portfolio Management

The process below describes the creation and management of the Architecture Portfolio, providing context for the activities of the Solution Architect in developing intentional architecture. Portfolio management may require enablers to be carried out by the Solution Architect in order to assess the impact and architectural significance of an Architecture Portfolio item.
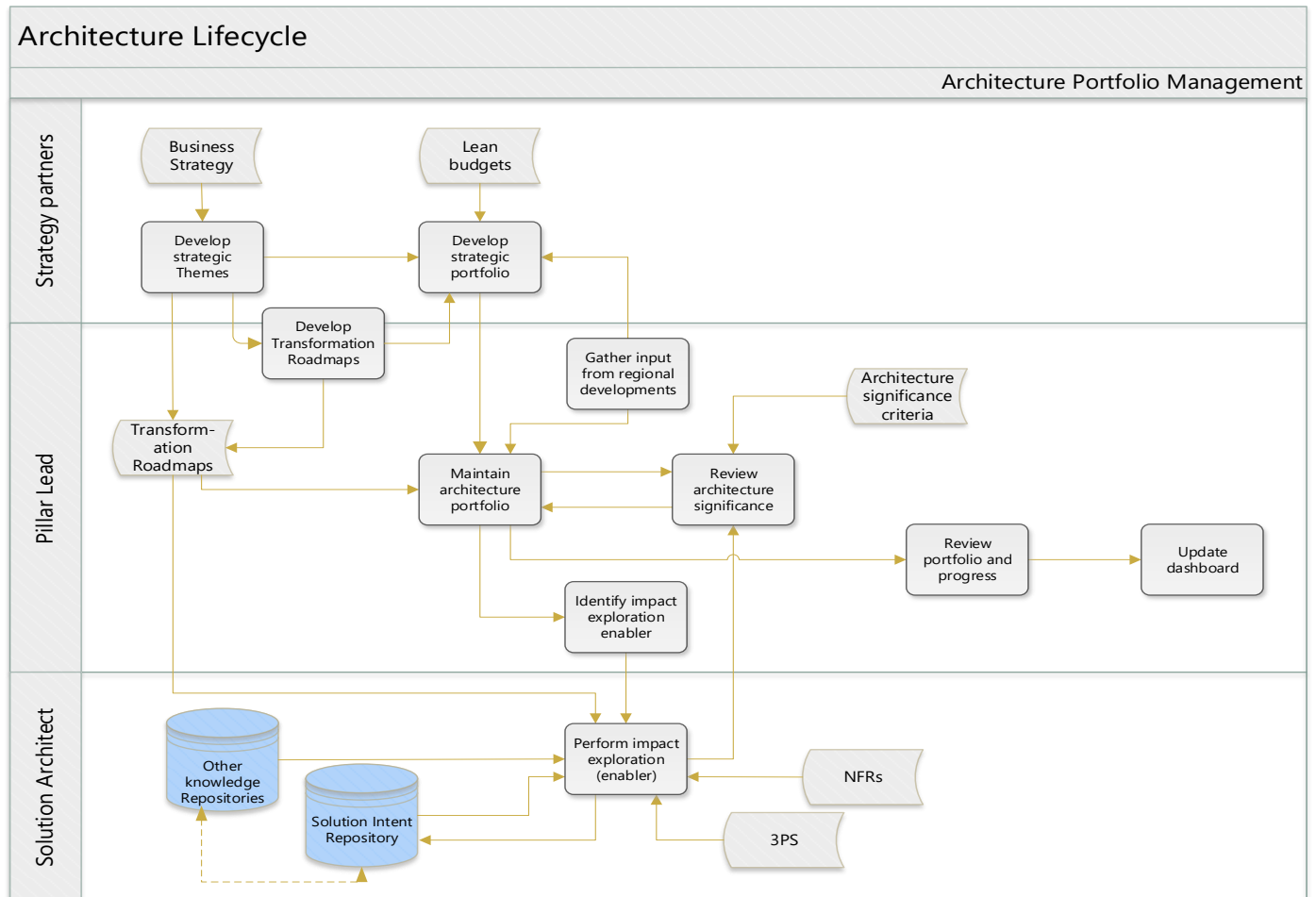
Figure 2: Architecture Portfolio Management

Develop Strategic Themes and Business Strategy

These steps are outside of the scope of the Solution Architect and are managed at enterprise level. These activities are where funding decisions and development prioritizations are agreed. Architecture has key membership of this senior group of decision makers and it is where Architecture ensure that the right decisions that impact simplification, cost, operability, scalability, and security as well as enablers that deliver next generation customer capabilities are discussed and balanced outcomes are achieved.

Develop Transformation Roadmaps

This involves developing a sequence of technical building blocks for delivering strategic themes. The pillar lead will consider the existing architecture, high level requirements (epic backlogs) and work with the strategic partners to produce a roadmap for delivering the strategic objectives described in the strategic themes.

Develop Strategic Portfolio and Lean Budgets

The strategic portfolio is a view of the IT initiatives that will occur in the next period with costs associated. The aim is to define a portfolio of work that can be delivered with available resources in the near to medium term. This then sets the direction for initiating development work or continued investment in ongoing work (e.g. agile release trains). This is the plan to deliver the strategic theme.

Gather input from Regional Developments

Regional developments have historically been separated from an architecture perspective, this process recognizes that ALL architecture (regardless of group or location) follows a standard delivery lifecycle using the same assets and processes to ensure consistency. These developments are recognized, tracked and managed within the central Architecture Portfolio process.

Maintain Architecture Portfolio

The process introduces the concept of a formalized and managed portfolio of architecture work to be completed by the teams, organized by pillar and holding key information such as task description, deliverables, start date, finish date and the accountable Architect. The portfolio is organized to show the stages of work from pending through to completion. The portfolio is accessible on the EA portal. Link: Architecture Portfolio.

Figure 3: Architecture Portfolio View

Review Architectural Significance and Architecture Significance Criteria

In this model, new solutions are assessed to establish if they have 'Architectural Significance' or not. It is likely that most of the items on the portfolio will have some architectural significance (in that they are delivering or changing something that can impact NFRs) but in the future when there is a greater degree of reuse (e.g. reusable patterns, code, reference architecture etc.) then this will become more common. If the solution does have Architectural Significance then whatever is required to be 'solutioned' to ensure the capability is achieved from a functional, security, cost, operability or scalability perspective is within scope of the Architecture accountabilities to resolve.

Note that previously there has been a distinct 'Full' & 'Lite' architecture process and governance model, this did not work effectively, and the new Architecture Operating Model does not make this distinction.

Architecture Significance is an indicator of complexity, risk, scale, impact and priority and is a judgement made by the Head of Architecture and pillar leads based on knowledge of the impact and/or the result of the impact exploration enabler (see below). The Architecture Significance Criteria are a working set of criteria and may in time be documented to assist in managing the portfolio.

Work with high Architecture Significance will, by definition, be prioritized within the portfolio and the output will be reviewed more widely and by senior technical leadership.

Identify Impact Exploration Enabler

Enablers are specific pieces of work undertaken during the execution of SAFe to resolve design concerns. At an early stage before architecture work has started, it may be necessary to undertake work to assess the impact in terms of scope, complexity, technology etc., providing understanding of the architectural significance and the architecture work required.

(If the architecture work is for an area of development that will not use SAFe methodology, then the impact exploration will also be a work item to be carried out in order to understand the impact. This may be a planned feasibility study, or technical investigation and the work added to the relevant project plan.)

Perform Impact Exploration Enabler

The enabler will be performed in order to determine the scope and impact of the architecture work. This process may be through a SAFe Agile Release Train or may be investigative research / a feasibility study for areas not working under the SAFe methodology. The Architect will use information from a number of sources, primarily the Solution Intent Repository (SIR), other repositories, 3PS and NFRs, and these are covered below in the process descriptions for 'Develop Solution Intent'.

Review Portfolio and Progress

The progress against work in the portfolio is reviewed regularly by pillar leads with their teams. Portfolio items may change in scope and size as architecture work progresses.

Update Architecture Dashboard

The Architecture Dashboard is a live view of all the key architecture metrics that are generated by the 'Architecture Machine' most of the data is from operating the process but some elements (such as the 'Architectural health' of a particular area is agreed and documented (along with what is required to correct any deficiencies) with the pillar Troika to be surfaced by the dashboard. Link: <ins>Architecture Dashboard</ins>
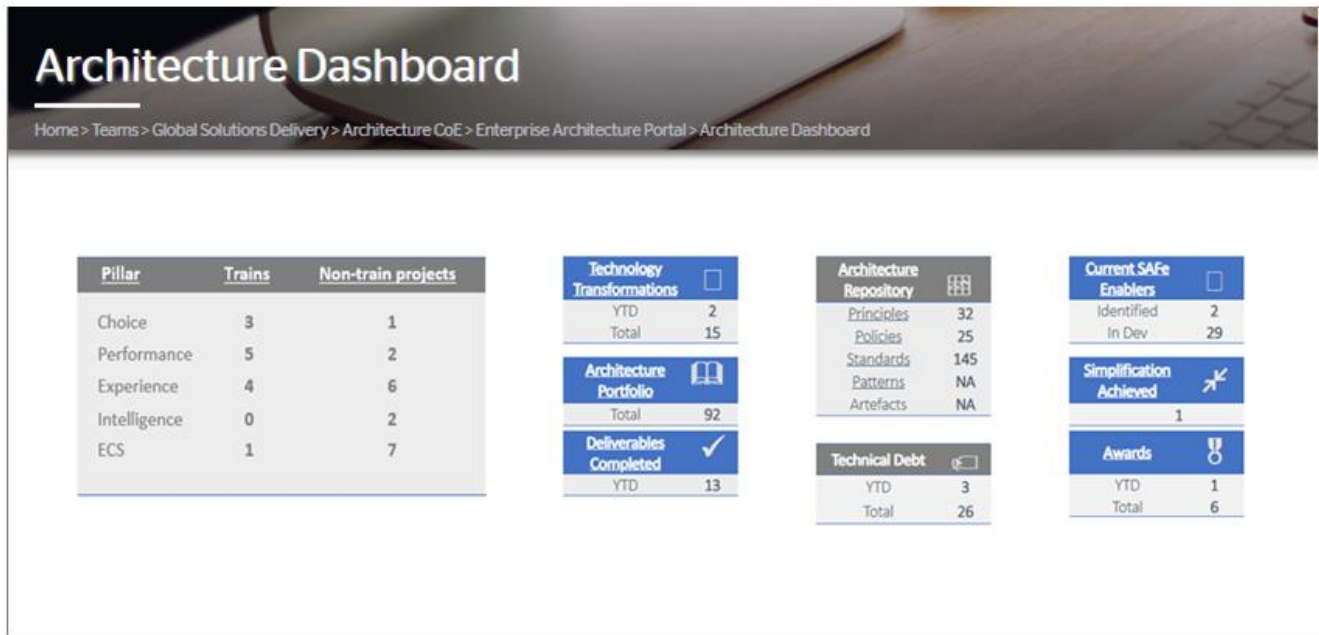
Figure 4: Architecture Dashboard View

2.2.   Develop Solution Intent

The purpose of intentional design is to:

- Understand at a high level how technology will deliver the required business capabilities
- Propose how the capabilities will be implemented as early as possible
- Ensure that all design concerns are addressed (including strategic and non-functional concerns)
- Gain buy-in through co-creation, early engagement, review and approval for the solution, from all key stakeholders
- Eliminate the need for a specific Architecture approval process prior to delivery (such as the now defunct Travelport Enterprise process (TEP) gate 5)

In a non-SAFe delivery environment, solution intent aligns to solution design and has the same objectives as above. The principle of 'just enough' still applies, however the level of detail will be determined by the expected means of delivering the solution, the detail required in order to ensure a quality output, the needs of procurement, and any 3rd parties involved in delivering the solution.
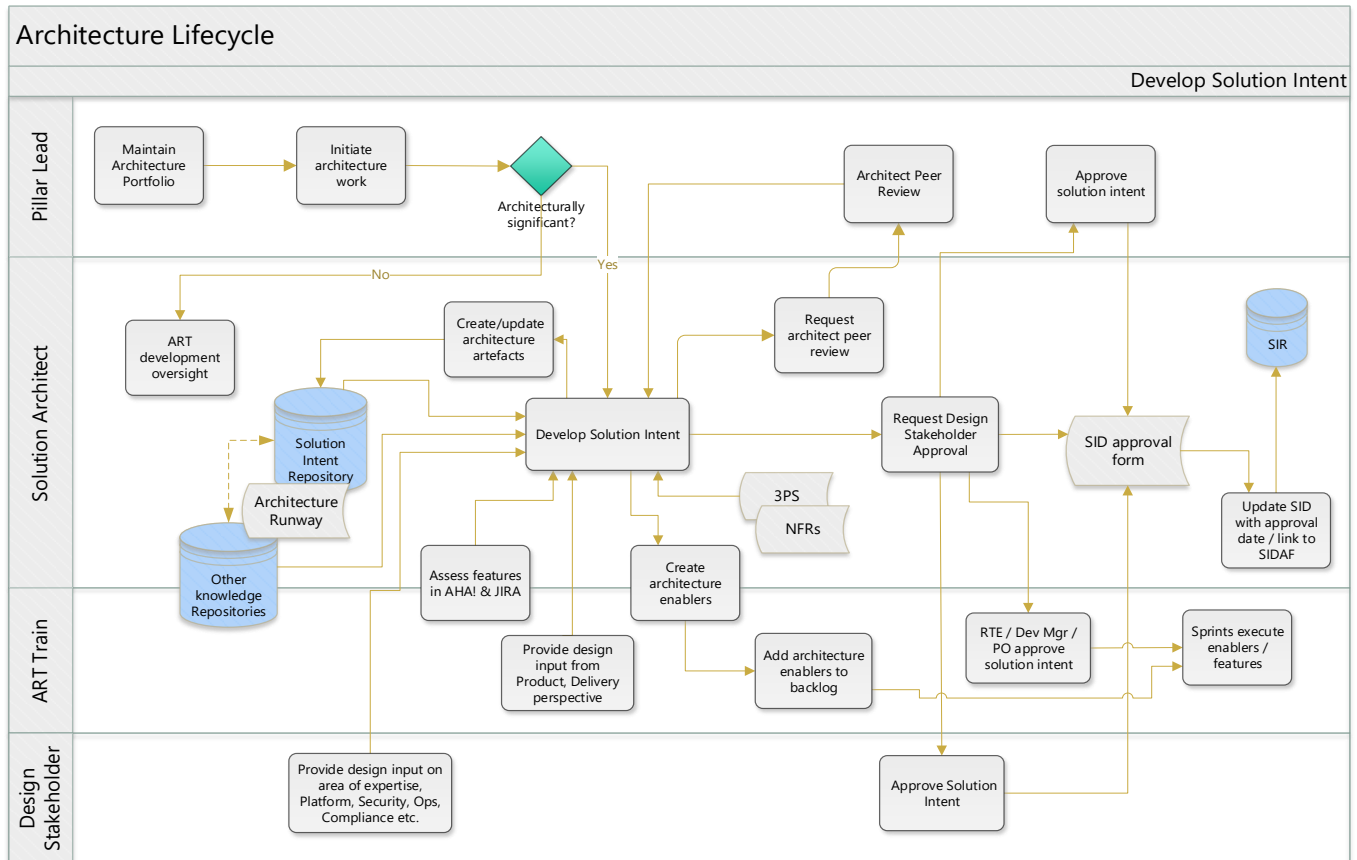
Figure 5: Develop Solution Intent

Initiate Architecture Work

Pillar leads will assign architecture work from the portfolio to the Solution Architect, with a discussion on the scope, key areas to address, expected outputs and timescales. If the work is architecturally significant then the Solution Architect will work to develop the Solution Intent. If it is not significant then the Architect will provide oversight to the ART development train, or project, providing support and monitoring the development work and considering any impact on NFRs or 3PS.

Develop Solution Intent

For any given scope of architecture work the development of the intentional architecture is at the core of the Architectural responsibilities 'to deliver and be accountable for solution design'. This sets the guiderails for solution delivery. Architects must also support emergent design as the detailed delivery work is undertaken (as part of program increments on a SAFe project, or on a traditional project lifecycle delivery phase), and evolve the intentional architecture to reflect the emergent design.

This is achieved through the production of a high-level solution design, the solution intent, the breadth and complexity of which (and the amount of work required) is entirely dependent on the scope of the solution that must be developed.

This IS NOT big up-front design (AKA BUFD) but rather the lightest weight design exercise that allows the intent of the solution to be articulated, to the extent that the part(s) of the organization who are impacted or must support it, are able to understand, support and approve what is being proposed without ambiguity. These are

the big decisions, those that will cause problems if they are improperly managed through to delivery and ultimately release. By undertaking a collaborative approach, and addressing concerns early in the solution design, the requirement for a major communication, review and approval exercise, often undertaken late in the lifecycle, is avoided. Early engagement and application of constraints such as 3PS, NFRs (see below), helps drive alignment with technical strategy and early identification of design concerns.

This collateral will evolve as the emergent design evolves, and where that emergent design impacts either a new stakeholder (such as cloud operations, security, capacity management etc..) or changes direction in terms of solution, or refines variable aspects of the solution intent, then this is captured in the Solution Intent Document and associated artefacts. A new version of the Solution Intent Document is approved by the impacted stakeholders.

As previously stated, solution intent will be influenced by the constraints of the 3PS repository and the NFRs but also will take into consideration the following items (where these exist)

1. Technology Transformation Roadmap and strategic plans
2. Enablers on the backlog / work in progress
3. Existing architecture artefacts (including as-is)
4. Architecture runway

At the point where the solution intent delivery this enduring design document will be stored (in the solution intent repository) and available for reference. It is a living document and will be updated in line with changes in design as these arise in future.

Create / update architectural artefacts

The solution intent is captured in a set of standard Artefacts that allow an architect to efficiently and consistently describe elements of solution design. The Solution Architect is responsible for producing the following key artefacts:

- Solution Intent Document (SID) – a word document describing the high-level solution design
- Diagrams (produced in Visio, Cacoo or Sparx) – to describe the solution design
- Solution NFRs – Product/project specific NFRs, documented in Excel or within the SID

There are a number of other artefacts relevant to development of the solution design, some will be available as inputs and owned by others. The Solution Architect will work with business and technical SMEs in producing artefacts.

There is a standard list of artefacts that should be used in solution intent. These are described in the table below with the owner (i.e. who takes the lead in creating the deliverable and owns the deliverable), and the format. A template and guidance for the Solution Intent Document (SID) and stencils and examples for Visio diagrams are available on the EA Portal in the Solution Intent Repository (SIR). Link: SIR.

Artefacts			
Type	Format	Owner	Description
Solution Intent Document (SID)	Word (template)	Solution Architect	Captures the solution intent (solution design), bringing together relevant standards, NFRs, enablers to deliver business needs within a strategic enterprise context.
Solution NFRs	Excel/word	Solution Architect	Specific NFRs that apply to a Product (or solution), produced in collaboration with stakeholders using agreed standard NFRs as a start point.

Enablers	Confluence/ Jira	Solution Architect	Enablers are created to deliver the architecture and are a result of development of the solution intent. Product owners and Delivery agree the enablers and accept onto the backlog.
Diagrams	Visio/Sparx EA/Cacoo	Solution Architect	A relevant set of diagrams to support the solution intent / solution design. See below for full list of diagrams and minimum set. Although the solution architect is the primary owner, some may be provided by others e.g. business analyst, technical lead.
Principles, policy and Standards	SharePoint	CoE	Library of standards for the enterprise, guiding design. Includes the approved technologies available for use at Travelport.
Transformation roadmap / strategic plan	PowerPoint	Pillar lead	High level presentation outlining vision, architecture direction, investment levels and capabilities delivered
Business area definition	Word	Pillar lead	Documents the overall product direction for the domain, and a high-level roadmap of proposed deliveries and proposed technology. Supplemented by the Lean portfolio canvass and lean business case.

Table 1: Key Architectural Artefacts

Diagrams are required to explain the design to a range of stakeholders, including delivery teams and the architecture community. A standard set has been defined, and templates/stencils produced for Visio diagrams. Enterprise Architect / Sparx is used in some areas (particularly in ECS). Cacoo is used in Dublin teams where Visio is not available. See table below for details.

Solution Design Diagrams			
Type	Format	Owner	Description
Business capability models	Visio	Solution Architect (with Product Owner input)	Map of the business capabilities that the architecture delivers, could be related to a single product or a number of products across a domain. Different type of Business Capability diagram templates with some examples are provided including, 1. Business Architecture Based Capability Model 2. Business Capability Model as per Capability Cube 3. Business Capability Model with Heatmapping 4. Hierarchy Based Business Capability Model See note below.
Use case diagram	Visio / Sparx	Solution Architect	Standard UML diagrams of human and machine actor, process and outcomes. Three types of Use Case Diagram templates with some examples are provided with a common stencil for use. 1. Simple Use Case diagram 2. Use Case Diagram with Dependencies 3. Use Case Diagram with Subsystems
Process diagrams	Visio / Blueworks / Sparx	Solution Architect – may be provided by	BPM type diagrams showing process flow for green path and failure paths

		Business Analyst	
Logical application diagram	Visio / Sparx	Solution Architect	Diagram showing systems and applications at an abstract level, joined together with data or process flow paths. Different Templates and examples are provided for various areas such as 1. Conceptual Logical Diagram 2. Web Application Logical Architecture 3. Microservice Logical Architecture 4. AWS Microservices Logical Architecture See note below.
Sequence diagram	Visio / Sparx	Solution Architect	Captures the key interactions between the components of the system, from the perspective of different use cases.
Logical data entity diagram	Visio / Sparx	Solution Architect	Data viewpoint showing the logical data schema, only applicable if the architecture change involves implementing a new database or data schema
Technology heatmap	Visio	Solution Architect	Diagram showing a scope of applications or infrastructure with traffic light categorization to demonstrate where areas of the estate are sub-optimal due to compliance, resilience, cost, licensing or other NFR concerns (TBD)
Logical technology component diagram	Visio / Sparx	Solution Architect	Logical Architecture diagram from a technology product viewpoint. Shows protocols and internal and external interactions
Physical Architecture Diagram	Visio / Sparx	Solution Architect	Comprised of technical drawings, diagrams, specifications, and models that document the structural design solution. The structural design solution addresses the configuration of structural units and components, as well as how they are assembled and integrated into a single product. Some of the example templates provided are 1. Cloud Physical Architecture 2. Hybrid Physical Architecture 3. On Prem Physical Architecture A common stencil is provided to draw the above templates. Additionally, a stencil for Microservices Physical Architecture diagram is also provided however a template/example is not available for Microservices physical architecture at the moment (TB)
Note: A common stencil is provided to create all the Business Capability templates/examples and is not restricted to the usage of shapes in the stencil alone.			

Table 2: Diagrams

It is not necessary for all of these diagrams to be used in every solution design. The use of each is at the discretion of the Architect who must achieve a documented solution design with enough detail and clarity to get agreement and sign-off from key stakeholders. It is however important to note that architect peer review, pillar lead / Architecture SLT review, and potentially TLT review (dependent on criticality) will be applied, and ultimately the solution architect must ensure that the solution intent and design artefacts have the right

(consistent) content and format. This is a judgement made by the Solution Architect, with input from pillar leads, delivery teams and design stakeholders (e.g. Security).

Solution Intent Repository (SIR)

A key feature of the architecture process is the Solution Intent Repository (SIR), which is a SharePoint site. This repository houses all the architectural artefacts generated for all the Architecture engagements, stored and tagged in a manner that enables maximum accessibility and future re-use.
Solution intent is recorded in the Solution Intent Document (SID), and along with diagrams, and specific NFRs, this is stored in the SIR. Guidance, templates and stencils for diagrams are also found in the SIR.

The SIR landing page is accessed from the EA Portal, via link: Link: [SIR](#).

Other repositories

The Solution Architect may require information, artefacts, backlogs and references that are held in other repositories, such as Confluence and Jira. In future, the EA Centre of Excellence team will be reviewing tools and repositories to consider the most effective way to share and access knowledge, however it is likely that there will continue to be a federated approach to knowledge management through a small number of shared repositories.

Principles, Policies, Patterns and Standards (3PS)

Principles, policies, patterns and standards are key inputs to the design process as a primary source of governing information for solution design and the Architecture approval processes. Architects must ensure that whatever is solution is within the scope of what is approved OR they must instigate the process that adds new elements to the 3PS repository.

The process for generating and maintaining corporate Principles, Policies, Standards and Patterns (3PS) is described in Appendix A.

This is a major input into the design and approval process. The 3PS documentation, process and guidance can be found on the EA portal, link: [3PS](#)

Non-functional requirements (NFRs)

Non-functional requirements are quality attributes such as availability, performance, security, scalability. These satisfy key stakeholder concerns relating to security, operability, scalability and cost.

A set of NFRs has been developed with accountable design stakeholders as a start point for architects to consider project-specific NFRs. This has benefits in terms of efficiency of the overall architecture/delivery lifecycle (reuse of agreed NFRs speeds up solution design and stakeholder approval, improved quality of solutions through ensuring NFRs are fully addressed in a consistent manner early in the lifecycle).
NFRs are downloadable (to an Excel workbook) to allow architects to create a working set of NFRs for the specific product / solution in design. The NFRs should be considered with Product Owners, Delivery team and NFR stakeholders.

When the architect has defined specific NFRs for their solution, these may require enablers to be created on the backlog to implement the required NFRs. The Solution Intent Document will reflect the rationale for the enablers and provide traceability for enablers on the backlog. The specific NFRs are stored in the Solution Intent Repository along with the Solution Intent Document.

As with 3PS, NFRs are key inputs to the design process and a primary source of governing information. SAFe is clear about the importance of considering NFRs and the need to reflect these in the backlog through enablers.

The NFRs are available for use on the EA portal, along with a detailed guide for use. The process for developing specific NFRs is described in Appendix B in more detail.

The NFRs landing page is accessed from the EA Portal, link: NFRs

Create Architecture Enablers / Add Architecture Enablers to Backlog

The solution intent document will only contain design elements that are not produced by other mechanisms. SAFe has the concept of 'Enablers', specific point pieces of work undertaken during the execution of SAFe to resolve design concerns. As part of any solution design, if an enabler is defined and satisfactorily covers the stakeholder concerns and relates to a non-functional dependency, then it should just be referenced in context within the solution intent document. This provides the rationale for the enabler, and traceability to show how design concerns have been addressed.   This is a and therefore and enabling design to be approved.

Enablers are proposed by the architect and agreed with the Product Owner, Delivery Manager and relevant design stakeholders, and they are then accepted onto the backlog.

(If the architecture work is for an area of development that will not use SAFe methodology, the above concepts still apply. The architect proposes the development work that is required to address design concerns and in agreement with the solution owner, delivery team and design stakeholders, the work is added to the project plan.)

3. Governance

Governance provides a structure for aligning IT strategy with business strategy. SAFe recommends a continuous approach to compliance, coordinating ongoing compliance with relevant standards. The Architecture Operating Model seeks to embody this approach through the early consideration of enterprise design constraints embodied in Principles, Policies, Patterns and Standards (3PS) and Non-functional Requirements (NFRs). In addition, the collaborative engagement with design stakeholders to agree the Solution Intent aims to build a compliant design requiring only light-touch governance.

Governance Practice Principles:
- Simple, light-weight design document to articulate the intent of the solution
- Accountability for compliance lies with the Solution Architect
- Address design concerns with stakeholders early
- Simple, light-weight approval process (enabled by the above)
- No process-driven sign-off or 'gate' with associated meetings and last-minute delays

Governance is built into the Architecture Operating Model through the following mechanisms:
- Through adherence to principles, policies, patterns and standards, there is alignment to enterprise architecture
- Use of standard NFRs, developed and agreed with stakeholders from areas such as Cyber Security, Ops and Support, Compliance – Legal, Audit, GDPR etc.
- Design stakeholders are engaged from the outset and the SA works with stakeholders to ensure all design concerns addressed early

Figure 6: Architecture Operating Model and Governance

When the architect has sufficiently defined the solution intent to enable development to proceed it is ready for review and approval.

Key elements of the governance approach are
- A peer review of the design with the Architecture team ensures alignment with transformation roadmaps, cross-enterprise initiatives and strategic intent
- SID Approval form provides a record of design approval from all stakeholders above
- Go live checkpoint provides final sign-off for design integrity before deployment

3.1.   Architecture Peer Review

The peer review confirms that the design is fit for purpose and has considered any interdependencies.
The SA shares the SID document with the Architecture team for review, with a maximum 2-week period for feedback from the team. The architect should consider the timeframe for this in context of the overall project timescales and plans, e.g. PI planning events, project plans etc.

The Architecture team (including Pillar leads & Head of EA) provide comments in the SID document, which the SA has shared from the solution intent repository. At each weekly pillar lead meeting the pillar leads will check progress of any solution intent / solution design documents in review, to raise and discuss any concerns and ensure that feedback is timely.

The architect will action the feedback and resolve queries, and finalize the document version for final sign-off through the Solution Intent Document Approval form.

3.2.   Solution Intent Document Approval

The SID approval form gathers together all the necessary attestations from stakeholders in a single form. All individuals on the form will already have been engaged in developing the design and have seen the SID. The form records that the high-level design has addressed 3PS, all concerns, including NFRs and business needs, and provides traceability for design approval from Product, Delivery, NFR stakeholders and Architecture.

The EA portal provides access to the Sharepoint SID Approval Form template and a repository of approval forms.

The Governance landing page is accessed from the EA Portal, Op Model and Governance landing page, link below: Governance

4. Working with Delivery Teams

4.1. SAFe Agile Release Trains

Architects working with SAFe ARTs work closely with technical software engineers/development teams in guiding emergent architecture and evolving the intentional architecture as the agile teams build out the architecture runway. The architect also works closely with RTEs and Product Managers in identifying overlaps and dependencies, architecture enablers and risks.

The SAFe methodology is dependent upon participants taking part in several activities (often called ceremonies) and adopting certain behaviors. Key to this are the SAFe planning and implementation ceremonies that take place throughout the program development lifecycle. In an ideal world, all participants would be co-located. SAFe recognizes that this may not always be possible (see for example the distributed PI planning template). Leveraging good quality video conferencing and building on key learnings from previous planning meetings is recommended.

It is important that Architecture take a proactive role in the SAFe ceremonies, realizing the value from them is achieved if they are approached in the right spirit. Lead by example and set the highest standards for Architecture, the teams and the Train. Promote the concepts of "Relentless Improvement" and transparency. Take the lead in making difficult decisions and surfacing uncomfortable facts. Critique the system. If something appears to be broken or suboptimal find the right forum in which to have open honest dialog. Coach and lead according to the mantra "the facts are friendly". Often the right forums for this are the I&A (inspect and adapt) sessions and the iteration retrospectives. There are five major program-level ceremonies which require Architecture attendance and active participation either physically or remotely via video:

Program Increment (PI) Planning

This is a key ceremony within the train, at the heart of the ARTs. The SA must attend PI planning and should present the architecture runway / solution intent and architecture enablers to be included in the PI scope. Architects also work as intermediaries for governance, interfaces and dependencies and provide knowledge to size features, e.g. through an understanding of the as-is landscape and complexity of change.

The architect should also actively participate in deciding what is brought to the ART for planning. It is crucial that PI Planning meetings are formally and professionally chaired meetings with appropriate etiquette to ensure that key views from stakeholders are properly aired regardless of whether they are physically in the room or not.

Inspect and Adapt / System Demo (once per PI)

All parts of the I&A meeting require Architecture participation, there should be keen interest in the demo. The quantitative metrics should be helping to guide the overall assessment of the progress, quality and process being followed. The problem-solving workshop is a valuable opportunity for architects, to surface important challenges, problems and needs of the ART, and depend on the capabilities of the ART to problem solve them.

The system demo is a key element of the I&A ceremony. The system demo is an important focusing function for synchronized, fast feedback loops. The Solution Architect is a key participant in the system demo. The solution intent should be shared at this event, highlighting any key aspects, enablers/features delivered. The system demo is an opportunity to confirm alignment of development with SID.

Agile Emergent Activities

The intentional architecture is a superset of activities to inform and support the emergent design generated by SAFe increments. Intentional solution design is an enabler to ensure the Architectural runway is developed in an informed way, within the guiderails of the design, thereby ensuring the solution fits within the broader enterprise strategy and standards. If the more detailed emergent designs generate the requirements for changes to existing or new enablers, or resolve variable aspects of the design, then there is a requirement to revisit the high-level solution intent (to revise and secure buy-in for the changes and the associated approvals from the accountable stakeholders).

Pre-Deployment Review

The pre-deployment review is undertaken by the Architecture pillar lead, who having reviewed the solution design and ensured that the system demo is consistent with that, can attest to operations that the solution is architecturally fit for deployment and that all dependent non-functional elements for the solution have been signed off by key stakeholders. (Sign-off is electronic for traceability & audit)

Backlog

Enablers to address design concerns and NFRs will be created by the SA, in conjunction with the PO and RTE/Delivery Manager. The Solution Architect participates in grooming the backlog.

ART Sync (once or twice per week)

This is an important opportunity to both listen to and communicate with ART and team representatives.

A key question should be "how are we progressing with the PI Objectives). It is here where architectural challenges and concerns can sometimes surface. This is also an important forum for an architect to surface their specific concerns and needs. Resist the temptation to turn this into a solutioning session. (note: sometimes there may be two separate Scrum-of-Scrum and PO-sync meetings held. It is recommended that a combined ART sync be conducted.

Backlog refinement

While not formally called out as a ceremony in agile and SAFe, it is the responsibility of the solution architects to participate in backlog refinement sessions. While they will be critical to the discussions related to Enablers – it is also valuable for them to be present while future business needs are being discussed. Architects need to be proactive in these sessions. The overall health of the backlog is a primary indicator of the health of the train and health of the teams which comprise it.

Daily standups

SA should use judgement in determining whether to attend daily stand-ups. Considerations will include – features/enablers in work, complexity, risk etc.

4.2.   Working with non-SAFe Delivery Teams

Whilst Travelport has moved to embrace SAFe as the primary delivery approach, particularly for development of products, there remain a few key areas where SAFe is not wholly applicable and SAFe would not be the best approach. Examples of these are the projects within the Enterprise Corporate Systems (ECS) area. These are primarily commercial off-the-shelf systems (COTS), potentially implemented by 3rd party system integrators or the vendors, with varying degrees of integration.

Architectural guidance of solution sourcing, development work and deployment must address the same design concerns (alignment with 3PS, NFRs) as described in the Solution Intent process. However, there is likely to be the need to address additional constraints, e.g. from suppliers, system integrators, procurement, legal compliance. The principles of 'just enough' design still apply, but this may entail more up-front design detail to provide appropriate guiderails, and more than would be necessary where the development team working as an agile team under SAFe.

The Architect is expected to engage with the design and delivery of the system in key planning and review meetings, work closely with project delivery teams at both the management and technical levels.

5. Resources for Architects

5.1.   Enterprise Architecture Portal

Resources for Architects to use in their work are accessible through the Enterprise Architecture Portal. The portal gives access to guidance and training, as well as the 3PS, NFRs, the Architecture Portfolio and the Solution Intent Repository (see below). The Architecture Operating Model and Governance section provides an overview and also provides a link to this document. Link: <u>Enterprise Architecture Portal</u>
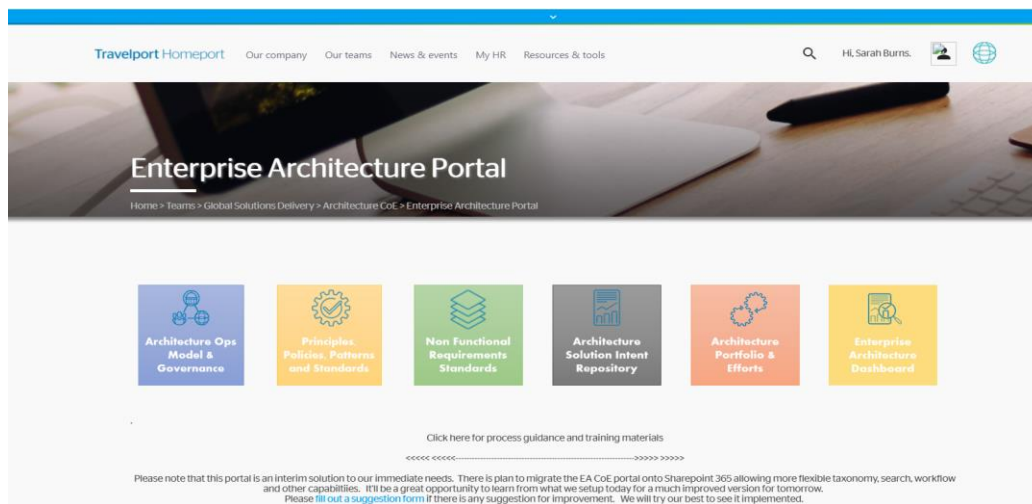
5.2.   Centre of Excellence

The Centre of Excellence (CoE) is a pillar within the Enterprise Architecture team, in Global Solutions Delivery. It is led by Andrew Doran-Smith. The CoE is responsible for development of the Architecture practice within Travelport. The CoE is also responsible for measuring the quality and performance of Architecture.

The CoE team maintain the Architecture Portal, act as librarians for key resources such as 3PS and NFRs, extend and develop Architect resources (including this playbook and training material) and provide training, consultancy and support for Solution Architects.

See EA Portal for CoE contact details

5.3.   Training and Guidance

There is a training course for the Architecture Operating model. This is a one-day course and is essential for Solution Architects, and recommended for others working with Architects such as Product Owners, RTEs, Delivery Managers and Technical Leads / Solution Engineers.

The training material is available on the portal for reference. FAQs have been developed and are also accessible from the portal.

5.4.   Solution Intent Repository (SIR)

The Solution Intent repository is the Design layer from the SAFe definition, see diagram below. The SIR holds Solution Intent Document, NFRs, Standards and Diagrams for a solution. It also acts as a source of reference material for development of solution designs. It holds templates for the SID, and templates / stencils for Visio diagrams. It is organized by Pillar and ART / program / project / product.
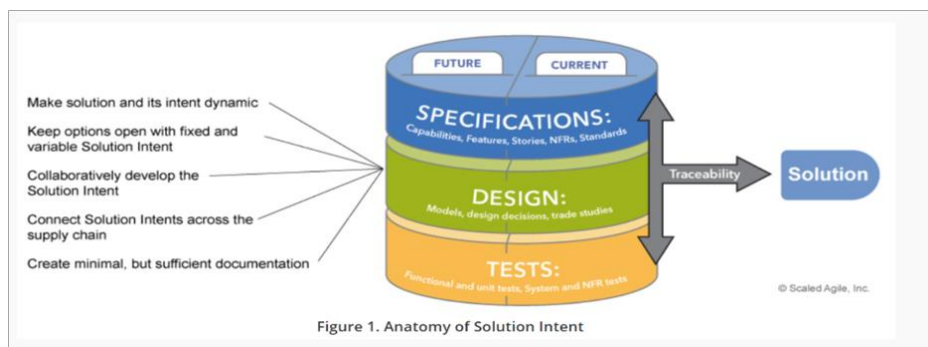

Figure 1. Anatomy of Solution Intent

Figure 7: SAFe Solution Intent Repository

The solution intent is a living repository of knowledge representing the system's single source of truth on requirements, design, structure, behaviour, and all other architectural concerns.
Solution intent includes the decisions, patterns, models, and other technical information to serve as minimally sufficient documentation.
And the solution intent captures system constraints including Non-Functional Requirements (NFRs). Like all other requirements, NFRs are validated continuously with automated tests to ensure quality and compliance. Emergent design provides the technical basis for a fully evolutionary and incremental implementation approach. This helps developers and designers respond to immediate user needs, allowing the design to evolve as the system is built and deployed.

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Appendices

Appendix A: Generating and Maintaining Corporate Principles, Policies, Standards and Patterns (3PS)

Architecture has specific accountabilities to ensure there is information to guide the nonfunctional requirements elements of development specifically in relation to resilience, operability, compliance cost and security.

The intent of this is to:

- Provide a single source of truth regarding the intended and actual behavior of the solution.
- Record and communicate requirements, design, and system architecture decisions.
- Facilitate further exploration and analysis activities Aligns the Customer, Dev Team, and Suppliers to a common mission and purpose.
- Supports Compliance and contractual obligations.

Solution Intent

Whilst there will be support from solutions architects to the delivery trains to support their development of all the required Engineering components (*to assist consistency, best practice and conformance with enterprise standards*) Architecture has specific accountability for ensuring the development of a number of Enterprise components to support consistent delivery within the Agile teams

- **Principles -** The set of actionable and enduring guidelines, required to safely and consistently enable the execution of enterprise efforts as well as aligning to enterprise strategic aims.
- **Policies -** The set of enforceable statements that command how standards are utilized, in alignment with the guidance of the principles.
- **Standards -** The complete set of technological tools and components adopted by the business, ensuring visibility and transparency of the enterprise's technology landscape.
- **Building Blocks or Patterns** - patterns address various issues in software engineering, such as computer hardware performance limitations, high availability and minimization of a business risk.
- **Non-functional test cases NFR's**– a reusable library of testable non-functional criteria that accelerate design and aid attestation from key stakeholders.

These will be generated and maintained through close collaboration with a number of key stakeholders, in fact anyone can suggest or even develop new additions to any of these classes of solutions repository content however in order to ensure that there is complete enterprise agreement a process is required to:

- Create new entries
- Amend existing entries
- Agree to waive compliance where appropriate
- Removal of any entries as they become obsolete

At an elevated level, the process that supports the architectural inputs to the Solutions Intent Repository has the following attributes:

1. Published and clearly articulated minimum viable process to achieve stated aims.
2. Widescale targeted communication of new elements or changes.
3. Structured asynchronous consultation with key decision makers for new elements or changes.

4. Easy enterprise-wide access to this information.
5. Ongoing support though both Solutions Architecture engagement (*day to day*) and right weight governance (*only when appropriate*).
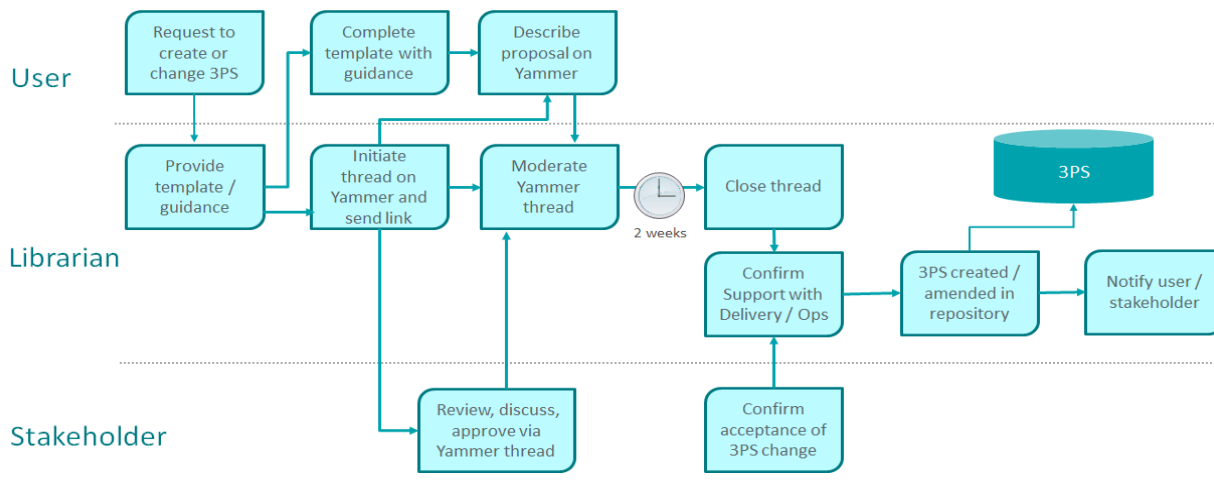

Figure 8: Create/change 3PS process flow

Appendix B: Working with NFRs

The Non-functional requirements are quality attributes such as availability, performance, security and scalability. SAFe refers to NFRs as those that affect a solution's overall fitness and uses the "FURPS" categorization: Functionality, Usability, Reliability, Performance and Supportability. Addressing NFRs is fundamental to successful product release, and it is essential that Architects consider how the design impacts ('bruises') NFRs from the outset.

The Operating Model in includes a set of standard NFRs to give consistency and provide stakeholders with confidence that NFRs are being fully considered early. By optimizing application of NFRs we can speed development, reduce cost, and provide better quality implementations.

The CoE has worked closely with stakeholders to develop / agree sets of NFRs as a start point for architects, with NFRs agreed for Cyber Security, Ops & Support and GDPR. New topics will be added as required − legal, finance in consideration.

The central EA repository holds the set of NFRs for each topic, accessible to all. The NFRs are accessed by topic or as a set, on Sharepoint, and are downloadable to Excel to allow architects to create a working set of NFRs with specific criteria for their product / project. See link below for NFRs and guide for details.

https://homeport.travelport.com/OurTeams/Global-solutions/Architecture/EAP/Pages/NFR.aspx
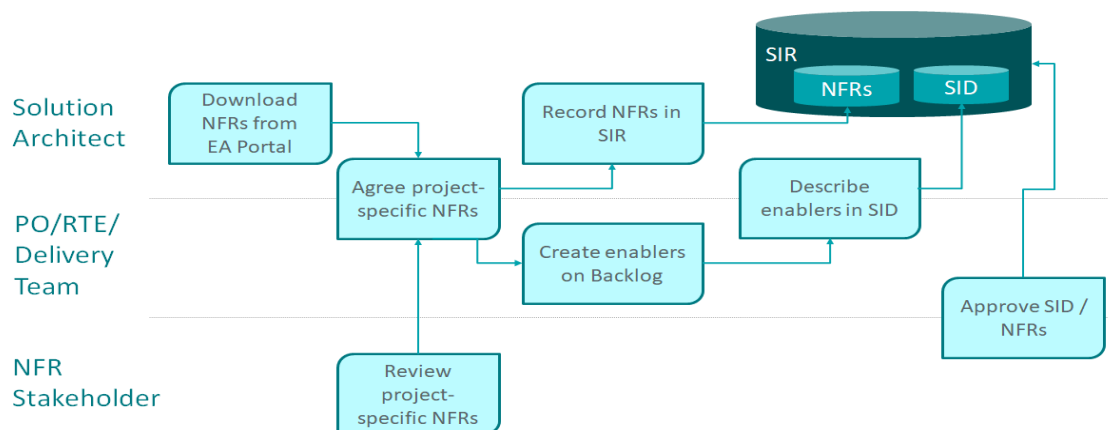

Figure 9: Applying Standard NFRs to Solution Intent process flow

The details of the process are:
- The Solution Architect is responsible for creating a set of applicable NFRs
- NFRs and stakeholder contact names are available in the EA portal
- Solution Architect discusses the NFRs with the product owners and the RTE to agree what specific NFRs apply to the solution
- Solution Architect also discusses the solution-specific NFRs with the owning NFR stakeholders and ensures these cover all the required topics, are addressed by the solution enablers adequately
- Features / stories / enablers are added to the solution back-log
- The project specific NFRs are saved in the Solution Intent Repository with a link to these from the Solution Intent Document
- The Solution Intent Document reflects a summary of the NFRs and a link (or contains the NFRs in detail) and describes the enablers and rationale.

Appendix C: Technical Governance

The governance function must:

- Ensure that the proposed developments meet the aims of the funding that was allocated for it.
- Ensure that the delivery meets all nonfunctional concerns such as security, operability and efficiency criteria.
- Make sure that unfunded work is not taking place
- Protect against activities that adversely impact nonfunctional requirements such as cost or operability
- Ensuring that all stakeholders have appropriate information and accountability
- Controlling technical debt

These very crucial elements are not well managed today and SAFe is an opportunity to both increase empowerment, agility and simplicity whilst at the same time resolving the issues above. The best way to do this is to involve the Enterprise Solution architect in the SAFe product design process and ensure that they are accountable for the proposed architecture enablers. The enablers being the non-functional technology solutions that are introduced or developed by the program that is being funded.

Figure 10**Error! Reference source not found.** shows the SAFe product design process, this follows the large e nterprise 2PI duration planning cycle but is an iterative process carried out between the product teams, enterprise architecture, solution architecture and the development lead before detailed planning starts around the next Program Increment.
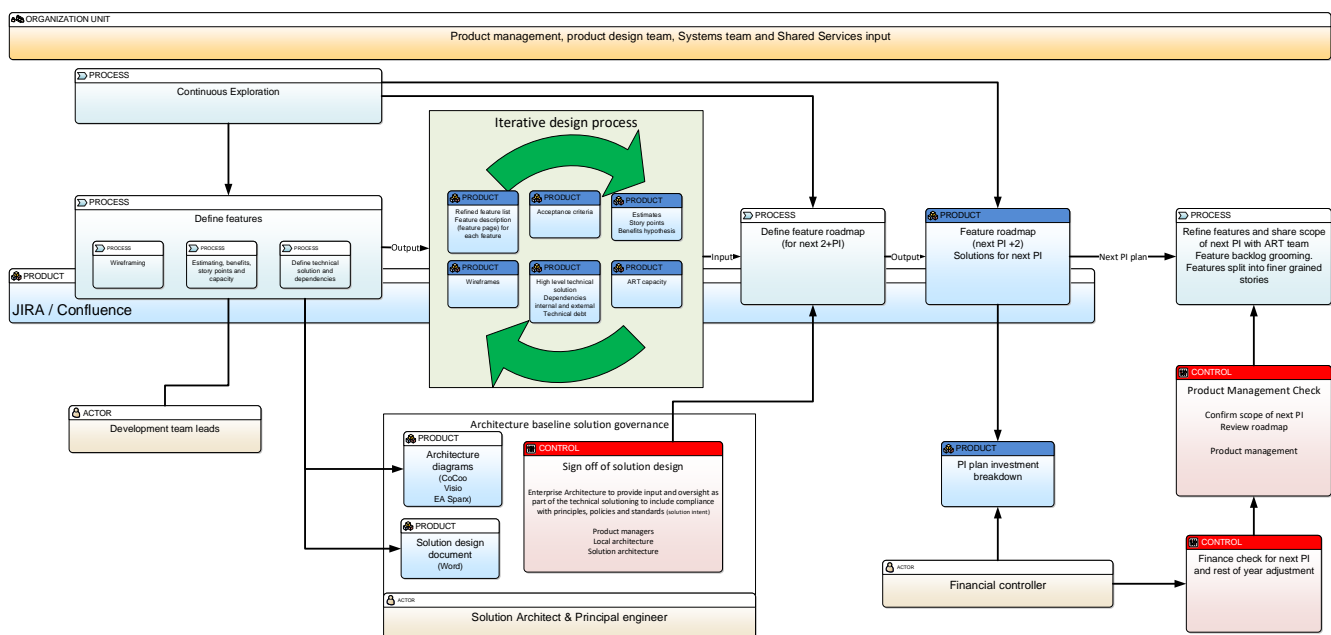

Figure 10: SAFe design cycle and PI Roadmap to take the program to next PI
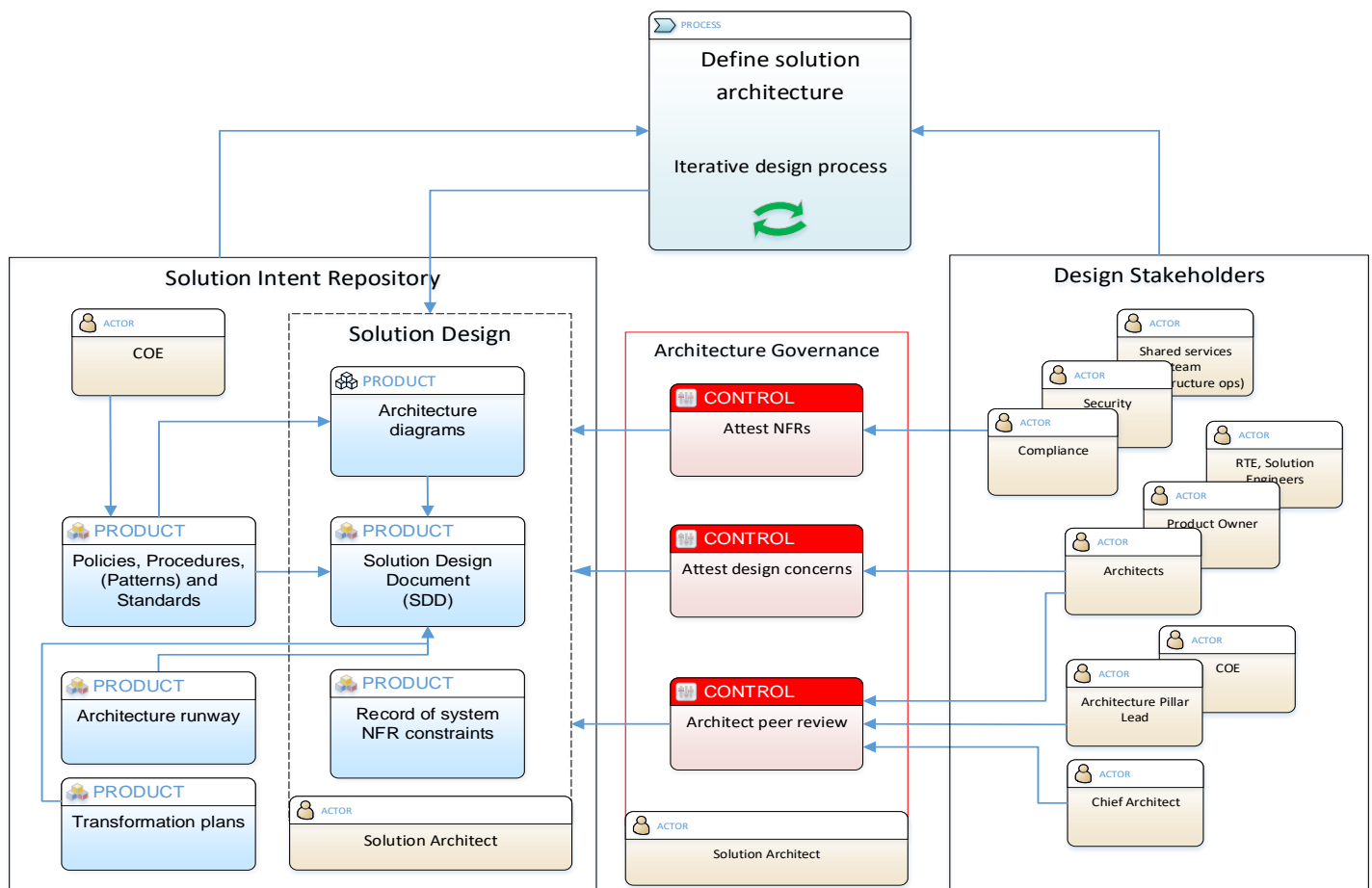
Figure 11: Solution Intent Governance

The design process is fed from the epics and enablers defined at the value stream level. Led by the principal engineers, program managers and program office there is a feature definition process which wireframes solutions, estimates costs and benefits and defines the technical solution at a high level. Architecture will provide input and oversight into the technical solution ensuring that it complies to Travelport's defined principles policies, patterns, standards and NFRs.

The process places the accountability onto the Release Train Engineer with full support from the Solutions Architect & Systems Engineer to agree that attestation around the technical solution and generate the required content into a solution design document. The solution design document is a document that links together any other architectural artefacts, enablers, diagrams, lists etc. as the enduring single version of the truth for that delivery. It only contains entries where they are required to describe deliverables that are not based on standard patterns.

When a solution is developed that impacts one or more non-functional elements then it must be documents in accordance with meeting the testable criteria contained in the NFR library and then working with the associated stakeholder agree and gain attestation that criteria has been met.

Where there is deviation from standard patterns that has nonfunctional impact, this must be documented with support from appropriate stakeholders to form the basis of an agreement that the design is fit for purpose and those stakeholders attest to that by signing off the design (*electronically-email*). When this occurs, it is likely that a new non-functional test should be added to the NFR library following the approved process.

It is the Release Train Engineer's responsibility to ensure the involvement of the stake holders that the solution architect has determined need to be involved. For the delivery plan to succeed, the RTE needs commitment from them that the design can be delivered, and they need to be accountable for validating the operability, robustness and scalability of the architecture, not just the solution architect.

The final design decisions that were made should be reflected in the integrated system demos at the end of each program increment (after 4 sprints). This is the final check that what has been delivered reflects what was committed to in design.

With attestation of a suitable high-level solution, the roadmap for the next program increment and the following 2PI can be finalized. At this point there is a further product management check to ensure that the next PI meets their scope and needs. Finally, finance can ensure that the cost estimates for the next PI are on track to meet the program budget for the year and adjust forecasts and actual spend accordingly.

The solution design and attestation replace all previous Architectural governance processes, these documents are peer reviewed within Architecture and in some cases by technical leadership. 'Go-live' will attestation from the Architecture pillar lead will require that this design document has been completed and attested by relevant stakeholders which should happen incrementally as the design emerges not at the end of the process.

Appendix D: Generating & Maintaining the 'Enterprise Transformation plans'

Generation of the Enterprise Strategic themes to meet the objective *"Connect a portfolio to the strategy of the Enterprise. They provide business context for decision-making and serve as inputs to the Vision, budget, and backlogs for the Portfolio Level. The primary purpose of transformation plans is to drive portfolio innovation and differentiation"* **– Source SAFe 4.5** in any large organization this is only possible by undertaking a structured exercise that ensures all relevant information is obtained and factored and that all the required experts and stakeholders agree (*undertaken in alignment to the Corporate Strategy (5-year plans), in SAFe terms the Solution Portfolio Strategy Formulation*).

Figure 12: Solution portfolio strategy formulation

Travelport is already using a maturing methodology that supports Agile architecture with the generation of what are called 'Transformation Plans'

The Transformation Plan methodology used now at Travelport for the evolution of all existing technology strategies is exactly the same methodology used in British Airways, a highly mature and universally recognized agile development organization (*2012 National Audit Office cited* HERE) At British Airways that process was called 'Strategic Themes' a process known to have been evolved and running from September 2011 to present.

At an elevated level, the Transformation plan methodology has the following attributes:

1. Ensures that all the required stakeholders and experts are identified.
2. Creates traceable opportunities.
3. Generates a compelling vision and scope for the theme and ensures this is agreed/aligned with the senior leadership (*CEO and his SLT*).
4. Generates high-level cost estimates and a matrix of benefits (*Quantifiable, Non-Quantifiable & Legal Mandatory*)
5. Generates a 3-year roadmap of capabilities that are required to achieve the vision with the specific goal of answering the following questions:
   a. What will this achieve in terms of customer benefits?
   b. How much is this going to cost next year (to inform integrated planning)
   c. How much is the whole journey going to (so SLT & CEO understands the journey they are committing to)

6. Secures buy-in and sign-off for the Strategic Theme as the best possible enterprise view of the "*Strategy of the Enterprise*", through structured communications and engagement with all relevant stakeholders and experts

7. This is a living best possible view at a moment in time, therefore the strategic theme is re-baselined annually (or as events require) to understand any new opportunities and factor any changes or delivery failures that have happened during execution.

This process will form the basis of the Vision and input to the Portfolio backlog (in the form of Strategic Themes and Epics).

It is important to note that whilst this process is as comprehensive as possible and represents the strategic intent at a point in time, it is highly possible that whilst the funding may have been secured in principle through the annual integrated planning exercise that it may not be exercised due to prioritization factors. This is the reason for the Architectural input into the PI planning process so that informed and balanced decisions can flow into the programs.

It is also recognized that some elements of strategy will be generated or triggered from the cyclic SAFe framework activities and these where appropriate will be factored back onto the Strategic Themes through engagement with Solutions/Enterprise Architecture.

The following outlines the process, accountabilities and deliverables for development of 'Strategic Themes'
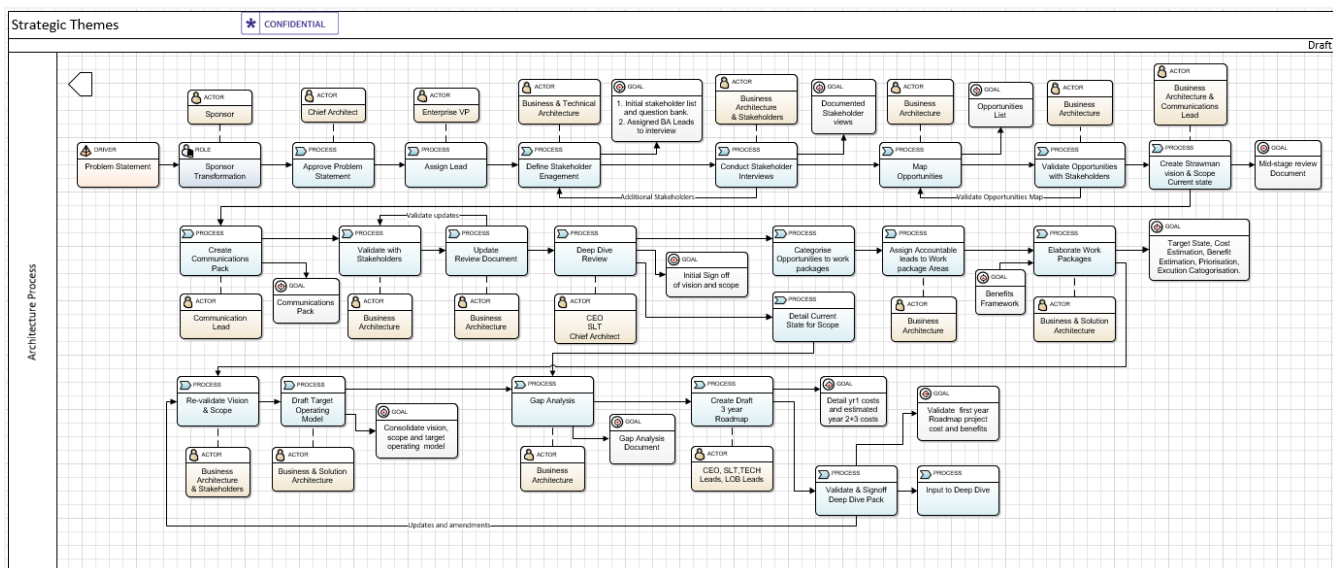

Figure 13: Strategic Themes - (Contained in Scale Agile Architecture Processes Repository)

Note that further work will be undertaken in this area with the adoption of SAFe Lean Portfolio Management in Travelport, with the aim of aligning and refining Enterprise Architecture Transformation Plans with Lean-Agile portfolio planning practices.

Appendix E: Architectural Participation in the portfolio investment and Program Increment (PI) planning

PI Planning is an important part of the Value Stream management concept in SAFe. A Value Stream is a series of business activities that delivers some value to the customer. Value streams look at the functional roadmaps for products and the capability maturity of the products that will be delivered. Value streams consider portfolio level 'Epics' which describe large segments of product capability, and 'Enablers' which describe the technical capabilities required to deliver them.

PI planning is described in SAFe as taking place on a 10-week cycle (*5 sprints*), and is a detailed exercise planning the stories around the next increment, a funding check can take place as part of the PI planning exercise to check run rate, spend and full year forecasts, but the principle of SAFe maintains that PI planning is not a gate process for funding. However, for enterprise scale implementation of SAFe it is prudent to plan and review the next 3 program increments in a 2PI+1 (20-week cycle). The first part of this cycle is concerned with reviewing the portfolio epics and enablers with respect to the value streams. This is a more strategic planning process and could drive funding of large chunks of value stream delivery. For this exercise it is important to get Business Architecture participation to check that the investments being made for each PI align with the strategic objectives outlined in the relevant strategic theme.

The creation of the value stream roadmaps is in the Aha.io tool. Where value stream development is identified as being required, or to increase the maturity of the value stream, a lean business case document should be written to scope the intended development and identify the funding streams required for the next program increments.

Figure 14: Value Stream Management and Link to Investment Approval

Figure 14 shows the process for creating and maintaining value streams. As they are strategic, these are managed by the Product management leadership team, through a process of continuous exploration which considers a number of external drivers. The output of the process is a set of value stream roadmaps maintained in Aha, with lean business plan template around each proposed value stream development. From these a set of functional Epics and architecture enablers can be derived to feed into the design process.
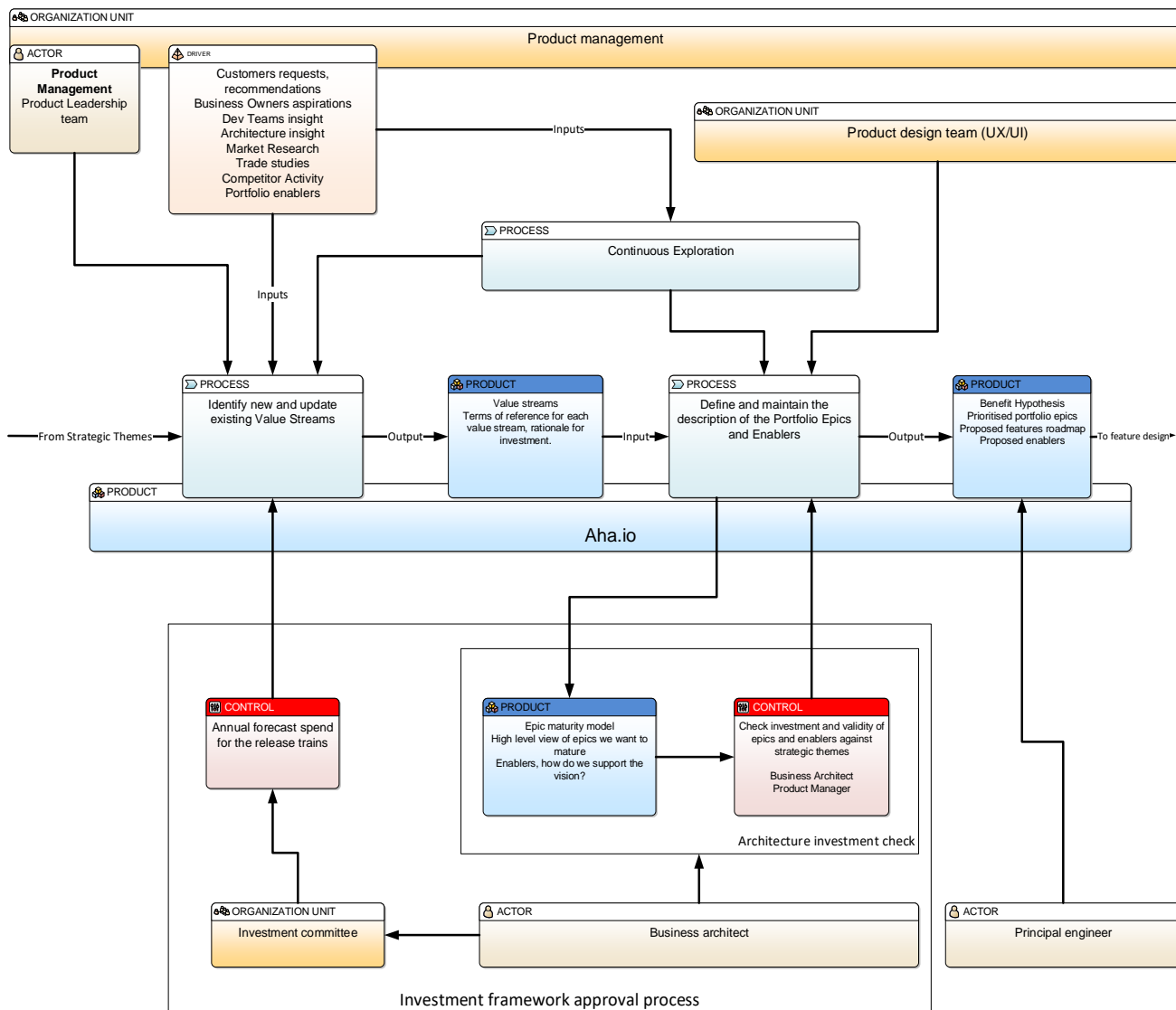
Figure 14: Value Stream Management and Link to Investment Approval

There is an opportunity here to ensure that the strategic investment proposed is taking the product in the right direction. Business Architecture will ensure that the planned epics and enablers are in line with the investment agreed in the Strategic themes. This control will be integrated into the investment framework (IF) process, the person who raises the IF request will need to identify which transformation plan the investment aligns with and which business architect created the transformation plan. The output of this process feeds into the feature design process and comprises of the benefits hypotheses from the value streams and a set of prioritized feature epics and enablers that can be maintained on a product roadmap in Aha. At the end of this stage the program team should have a set of prioritized epics and enablers covering the next 3 program increments. These should be traceable back to the value stream roadmap and the transformation plan. Lean budgets should have been secured at this point, using the IF process, for the value stream to take it through the next 2PIs. Any identified changes to the strategy or transformation plan can be fed back by product management and governed by Business Architecture.

Appendix F: Overview of SAFe and Architecture at Travelport

SAFe, whilst comprehensive, is a framework and therefore only indicates the high-level flows and responsibilities and not the underlying detailed activities, accountabilities or deliverables. To operate effectively the following must be understood:

What are the individual accountabilities of each of the SAFe roles?

What are the underlying activities and ceremonies?

What are the deliverables (and who is accountable for each deliverable)?

What are the 'right weight' control processes?

What is required in terms of 'enablers'?

Like all Frameworks, SAFe has been tailored to meet Travelport's environments and objectives, Jennifer Fawcett SAFe fellow and Director of Service Delivery for Scaled Agile Inc stated, "It is unlikely that any two SAFe adaptations will match" not for example a company writing software for video games to develop, would not deploy software in the same manner as a one creating software for autonomous vehicles.

The Architecture practice at Travelport is fully aligned with the SAFe. As a framework, SAFe provides guidance on what steps the organization should take to deliver Agile at scale. The Enterprise Architecture Operating Model explains how the steps are actioned, within the specific context of Travelport. There are many references in SAFe to the concepts described in the operating model.

Similarly, the operating model supports more traditional software development lifecycle, such as ECS requires to work with 3rd party suppliers of commercial of-the-shelf solutions (COTS). This is most evident in the amount of detail to be included in the solution design work. The guiding principle of 'just enough' still applies, however, and the architect must make a judgement in terms of what it is essential to define at each stage of the delivery lifecycle.

The standard methodology for developing Enterprise Architecture is the Open Group Architecture Framework (TOGAF) and this continues to be the overarching methodology at the enterprise level. More information on TOGAF and SAFe alignment can be found in the Open Group's white paper W194: Link.

The Architecture Capabilities in SAFe

The SAFe term 'Agile Architecture' is used to define a set of values and behaviors that support the active evolution of the (emergent) design and architecture of a system. Organizations must respond simultaneously to new business challenges with larger-scale architectural initiatives that require some intentionality and planning. As a result, emergent design alone cannot handle the complexity of large-scale system development. We need *both* intentional architecture and emergent design.

Within the context of rapidly developing valuable software these principles are entirely appropriate and will be fully supported.

To support this at enterprise scale there are several Architecture-enabled capabilities that must be in place:

1. Activities to establish the 'enterprise strategic themes' previously referred to in Travelport as 'transformation plans'
2. Activities to ensure a value-based mix of 'feature function' versus strategic investment and development

3. Activities to protect Travelport from legal, commercial and operational risks
4. Ensure the right assets are available in the solution intent repository (*e.g. standards and patterns*)
5. Activities to identify new 'innovational enablers' (*beyond the Innovational activities within the scope of the Agile Release Trains (ART) outlined in SAFe*)

SAFe recognizes the following Architecture roles:

1. **Enterprise Architect** – Maps to Architecture family - 'Business Architecture'
2. **Solutions/Systems Architect/Eng**. - Maps to Architecture family 'Technical Architecture'

At Travelport, Solution Architects operate in both the SAFe Solution Architect and System Architect roles. Although Travelport has not implemented Solution Trains, the Solution Architect works across several inter-dependent systems, within the same Pillar or across Pillars.
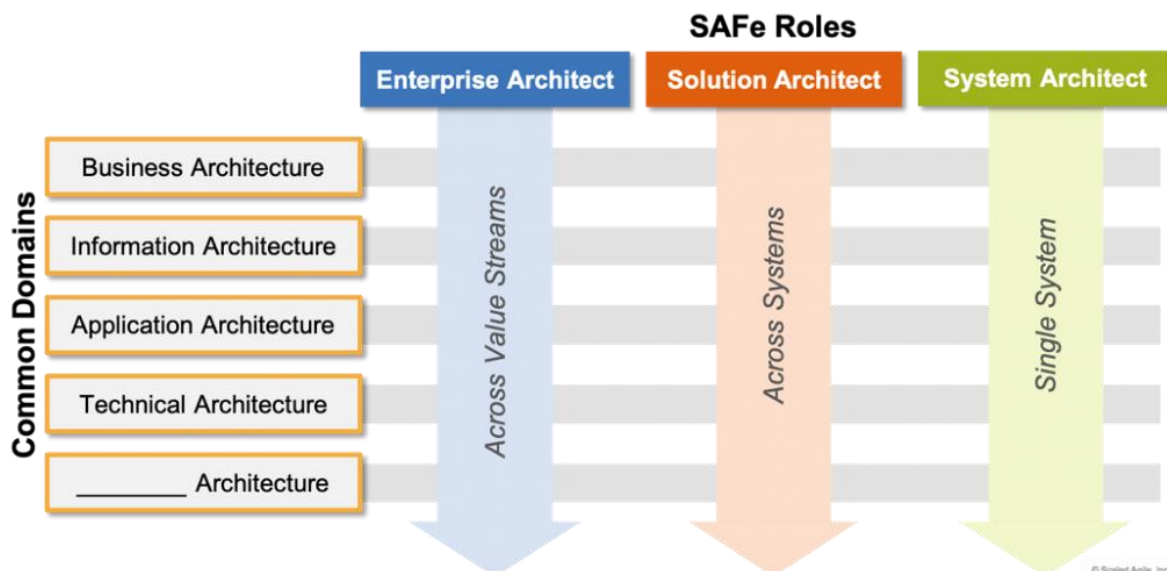

Figure 15: SAFe Architecture Roles

The Role of Architecture in the Agile Enterprise

Adaptability as a core competency

Greater enterprise adaptability can be realized by delivering solutions in smaller batches. Traditionally we delivered at the theoretically largest batch size (the entire project). The agile enterprise delivers iteratively and incrementally. Conducting good design in the context of iterative and incremental delivery is a major challenge which agile brings to the architecture role. While the opportunity to conduct Big Design Up Front (BDUF) is no longer there, it should not be concluded that there is no prior design at all. Instead the agile enterprise will build incrementally with fast, integrated learning cycles (SAFe Principle #4). These learning cycles bring greater emphasis to the value and benefit in an as-yet incomplete and partial solution. How soon can a hypothesis be proven (or challenged) becomes a key question in the agile enterprise. The answer to that question should be informing the decision to either persevere or pivot. Organizational adaptability will be tested when the need to pivot arises.

Assuming variability, becoming more comfortable with uncertainty

Agile enterprises assume change and use it to their advantage. With the likelihood of change and something being learned – the value of deferring certain decisions and preserving options becomes clearer. This is in stark contrast to traditional approaches which forced the choosing between options early (often under pressure to pass a stage gate). Plans will evolve as they are executed and a key shift for architects and the organization, is to become much more comfortable with uncertainty.

Accelerating delivery of value

Given that systems will be delivered earlier and can produce fast, integrated learning cycles … organizations must rethink some of what used to work when using traditional approaches. The flow of value can be interrupted due to questions of architecture. Balancing the delivery of value with ensuring good design and ensuring that compliance is being achieved is an ongoing challenge. This can be a new perspective to bring when architects are being asked to make difficult choices or propose changes in design. The goal to deliver not just better software, but better software sooner becomes a key influencer of how the organization designs and delivers its systems.

Compliance and audit

The major shift in this area is that as the system itself is created and tested incrementally - compliance is also being established iteratively and incrementally. The best example is that of the documentation. In some industries and for some customers there is simply no choice but to deliver certain documentation. While such a mandate can be common, it is rare that the approach to its creation will be inflexible. Whenever possible, organizations should be making a shift to build the documentation incrementally as the solution evolves. Compliance (as with quality) should be built in and part of the development process.