AN INTRODUCTION TO THE NEW

IT4IT™ STANDARD

Background

THE CONSEQUENCES OF NOT HAVING A COMMON IT INFORMATION MODEL

The IT organization typically lacks a single system of record to find all relevant IT information. Today many different fragmented repositories exist in which IT data resides. A common data model for IT has been lacking for many years.

What does this really mean?

It means an IT organization typically doesn't know what applications are running on which servers. It doesn't know who is using them, or what it cost, or what licenses have been purchased. It has no idea how the application is performing, what capacity or IT resources are needed to run the application, who owns the application, which suppliers support them, when the contract ends or needs to be renewed.

A lot of productivity is lost by having IT employees spending time searching for information, updating the wrong version of a document, disturbing other colleagues, waiting for the data, and creating their own reports (or version of the truth), or due to the frustration of not having access to accurate and complete data. In other cases, there is just too much information that is not relevant any more or even incorrect, as it cannot be maintained.

SYMPTOMS OF A FAILING MODEL – ARE ANY OF THEM FAMILIAR?

The following list provides examples of key symptoms indicating gaps and issues with the current IT management environment. Ask yourself, are any of these familiar?

- The presence of a complex IT management tooling landscape with many different management tools, data repositories, and interfaces (or, conversely, a near-total lack of IT management tools)

- The lack of cost transparency of IT service delivery

- Different teams having different tools, selecting and implementing their own

- The existence of many customizations and homegrown tools

- High workload and stress for IT specialists (with business complaints that their priority items are not addressed on time)

- Large amount of unplanned (or ad hoc or emergency) activities

- No single repository with the entire service/application portfolio

- Lack of standard integrations with different external service providers

- No adequate information available to support the decision-making process (or a lot of effort to find relevant information)

- IT administrations are not up-to-date (for example, the CMDB, license, and contract management

- Most IT activities are still performed through manual procedures

- No agreed unified IT management architecture

- No formal ownership in the IT organization for the IT tools; ownership is fragmented around different departments and teams, each developing their own processes and practices

- A huge amount of waste; for example, due to rework and over-capacity (or underutilized IT resources and licenses)

- High costs to maintain and implement IT management tools

- There are many administration gaps in IT (for example, what licenses have been bought, what applications are deployed, who is using them, and so on)

- No clear communication with the business in case of outages or planned new releases

- A lot of data and (manually created) reports but not much insight

- Heavy dependency upon email and spreadsheets to manage IT activities and performance as well as the trusted data source – it seems like the IT is managed using spreadsheets

THE IT4IT STANDARD – A NEW IT OPERATING MODEL

In conclusion, the IT organization needs to do more – and coordinate more than ever before. Thought leaders realize that a fundamentally different approach is needed to create, organize, and manage IT in the era of digital transformation. We have seen that this new approach should be based upon end-to-end value streams, which are in contrast to the currently used, often-fragmented process and tool approach. The new approach is characterized by:

- An end-to-end IT Value Chain – The important theme of the IT4IT approach is that the entire plan-to-operations lifecycle must be viewed as one end-to-end value chain composed of individual value streams

- Integration and rationalization – The IT4IT standard defines a structured approach for collaboration and automation

- Common information model – The IT4IT standard defines a common information model for the data and metrics needed to manage IT

- Supplier integration – Ability to orchestrate and coordinate IT service delivery amongst the many service providers.

This, then, is the case for the IT4IT standard.

An Introduction to the Open Group IT4IT Reference Architecture

INTRODUCING THE IT4IT REFERENCE ARCHITECTURE

The IT4IT Reference Architecture standard comprises an architecture and value chain-based operating model for managing the business of IT. The operating model defined by the standard serves the digital enterprise with support for real-world use-cases (e.g., cloud-sourcing, software-defined datacenter, Agile, DevOps, and service brokering) as well as embracing and complementing existing process frameworks and methodologies (e.g., ITIL, COBIT, SAFe, and the TOGAF standard).

The IT4IT Reference Architecture provides a prescriptive framework to support the value chain-based IT operating model and service-centric management ecosystem. Think of it as describing all information you need to run and optimize IT, defining the automation you need to support end-to-end value streams, and the standard and open integrations with the external service providers. The IT4IT Reference Architecture also provides a standard blueprint of all IT solutions needed for managing a modern IT organization.

It offers great value to any company that takes managing the business of IT seriously, and especially those with an interest in business and IT transitions. It allows the IT function within an organization to achieve the same level of business discipline, predictability, and efficiency as other functions in the business.

The standard is focused on defining, sourcing, consuming, and managing IT services by looking holistically at the entire IT Value Chain. While existing frameworks and standards have placed their main emphasis on process, this standard is process-agnostic, focused instead on the information (or information systems) and automation to manage a service through its lifecycle. It describes the functional components (IT management software) that are required to produce and consume the data. Once integrated together, a system of record fabric for IT management is created that ensures full visibility and traceability of the service from cradle to grave.

THE IT VALUE CHAIN

The IT4IT Reference Architecture is built around the concept of a value chain. The IT Value Chain is the series of activities that IT performs to add value to a business service or IT service.

Each value stream is centered on an essential element of the Service Model and the constellation of key data objects (Information Model) and functional components (Functional Model) that support it. Together, the four value streams play a vital role in helping IT holistically manage the full service lifecycle.
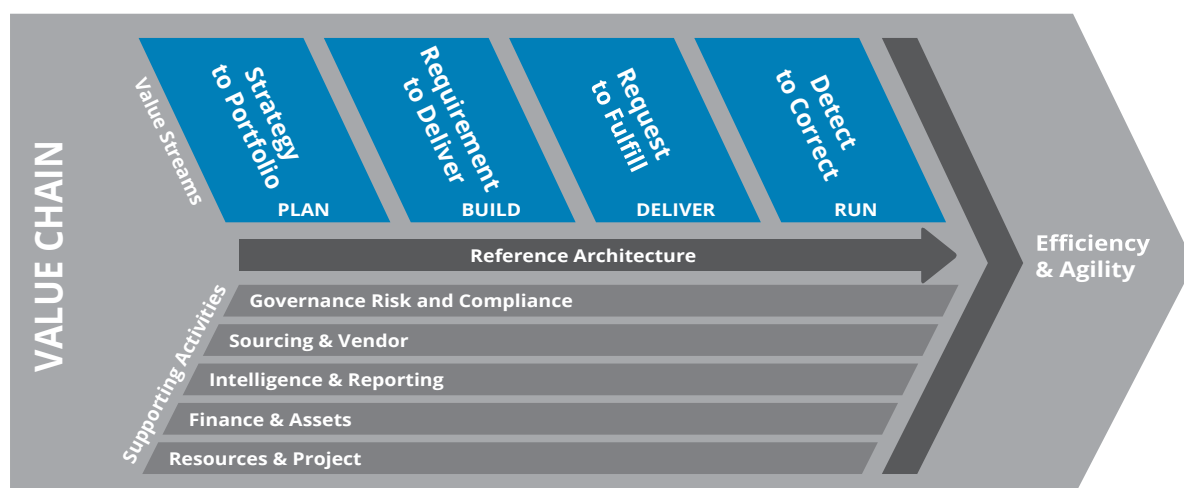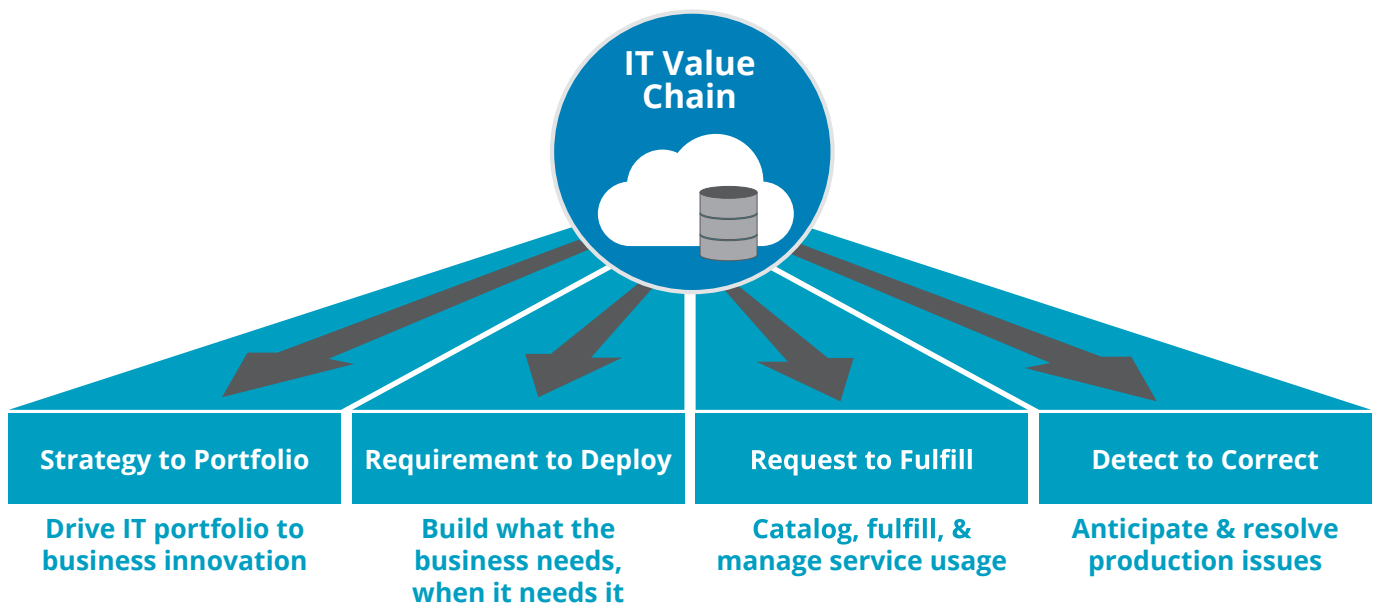
The IT4IT standard breaks down the IT Value Chain into four (4) value streams to help IT consume the IT4IT Reference Architecture more easily. Each value stream represents a key area of value that IT provides across the full service lifecycle.

Each value stream is centered on a key aspect of the Service Model, the essential data objects (Information Model), and functional components (Functional Model) that support it. Together, the four value streams play a vital role in helping IT control the Service Model as it advances through its lifecycle.

The four primary value streams are as follows:

- Strategy to Portfolio (S2P)
- Requirement to Deploy (R2D)
- Request to Fulfill (R2F)
- Detect to Correct (D2C)

IT Value Chain			
Strategy to Portfolio	**Requirement to Deploy**	**Request to Fulfill**	**Detect to Correct**
Drive IT portfolio to business innovation	Build what the business needs, when it needs it	Catalog, fulfill, & manage service usage	Anticipate & resolve production issues

STRATEGY TO PORTFOLIO (S2P)

The Strategy to Portfolio (S2P) Value Stream receives demand for a new or significantly improved service from the business and develops the Conceptual Service Blueprint to represent the new or enhanced business/ IT service that is requested. The Conceptual Service Blueprint is the bridge between business and IT in that it provides the business context for the service along with the high-level architectural attributes.

"Invest in the right services and align your IT portfolio with business strategy to make sound investments."

REQUIREMENT TO DEPLOY (R2D)

The Requirement to Deploy (R2D) Value Stream consumes the Conceptual Service Blueprint and triggers service design work. This results in the creation (or modification) of the Logical Service Model that contains more detailed requirements that describe more technical aspects of the service. The R2D Value Stream is where sourcing, development, builds, tests, and releases are created, resulting in a deployable service (expressed as the Service Release Blueprint data object).

"Define, build, test, and deploy new IT capabilities, at the right time, at the right cost (and with the right quality)."

REQUEST TO FULFILL (R2F)

The Request to Fulfill (R2F) Value Stream receives the Logical Service Blueprint after it has gone through development, test, and release approval. For repeatedly consumable services, the R2F Value Stream transitions the service into production and makes it consumable for its users. Also it creates a Service Catalog Entry.

"Source and provision quality services, enabling seamless consumption and usage monitoring."

DETECT TO CORRECT (D2C)

The Detect to Correct (D2C) Value Stream is engaged and begins monitoring once a new service is put into production and when the business requests another instance of a service in the Service Catalog to create and manage the Physical or Realized Service Model. This is the Physical Service Model that contains information used in the creation of a service instance (realized service) such as technology and platform choices, locations, configuration settings, and supplier requirements.

"Anticipate and resolve business execution issues, enhance results and efficiency. Create a feedback loop to go back to your portfolio and invest in the right services."

FUNCTIONAL COMPONENTS AND DATA OBJECTS

Each value stream encapsulates the capabilities that are necessary to manage the service lifecycle. These capabilities are realized as a set of functional components and data objects.

A functional component is basically a software building block (or IT management tool). It represents the smallest unit of technology that can stand on its own and be useful as a whole to an IT practitioner (or IT service provider). Functional components must have defined inputs and outputs that are data objects and they must have an impact on a key data object. Data objects represent tangible, non-trivial data items that are owned, consumed, produced, or modified by functional components. Key functional components drive core activities within a value stream.

A functional component can be supported by (or automated with) one or more IT management tools; but one tool can also support multiple functional components. The challenge is to select and implement a portfolio of IT management tools that optimize the activities and integrations provided by the functional components within the IT4IT Reference Architecture.

Why Use the IT4IT Reference Architecture?

ISSUES WITH THE TRADITIONAL APPROACH

The IT4IT standard is for those organizations that realize a fundamentally different approach is needed for managing the new IT. The new IT organization is characterized by sourcing and orchestrating IT services from many internal and external service providers such as cloud vendors. The current fragmented approach of ownership of processes, tools, data, and controls inhibits continuous improvement and prevents IT from performing its new role as a transparent and added-value business partner.

COMPLEXITY AND ISOLATION

Traditionally, the implementation of IT management solutions required a large amount of configuration and customization before these tools could actually be used within the IT organization. IT tool vendors have long been offering proprietary solutions for specific functions within the IT Value Chain, but without any real standards for integration. Although IT management tool vendors and IT organizations use best practices and standards such as ITIL, the actual implementation varies considerably between organizations, and interoperability between tools is still cumbersome.

There are still a lot of detailing and design choices to be made before ITIL can be operationalized and supported by automated tools. As a result, IT organizations are forced to build these themselves in isolation and typically at huge cost. This is simply unsustainable given the increased move towards cloud and outsourcing providers, and is a problem that the IT industry as a whole needs to fix. This traditional approach often results in a complex mesh of products and solutions requiring countless point-to-point integrations to accommodate the variations in process.

WHAT THE IT INDUSTRY NEEDS TO FIX

The new IT organization also relies more on automation of IT activities supporting these end-to- end processes. Unfortunately, there is not a single tool (or solution) or best practice that covers all IT management capabilities needed to run an IT organization as a business.

Therefore, we need to carefully select IT management tools and best practices to be implemented in the IT organization. To equip and empower the IT employees with the right set of tools (to automate end-to-end workflows) and provide information to support decision-making, a blueprint or reference architecture is required defining how to manage the business of IT. This integrated model supports the IT4IT value streams that are needed to significantly improve the performance of IT and to facilitate the transition to a Lean, Agile, and streamlined IT operating model supporting a new multi-vendor IT ecosystem. This is in contrast to how IT management has been executed up to now, which was basically an unplanned and ad hoc approach to implement IT management tools and IT processes.

THE FOUR PILLARS OF IT4IT

Four pillars anchor the IT4IT Reference Architecture approach for the IT Value Chain:

- The Service Model, defining how services should be managed in the portfolio

- The Information Model, defining what information we need to operate IT

- The Functional Model, defining the IT management systems we need to automate and support IT activities

- The Integration Model, defining how processes, data, and systems need to be connected to deliver value to the business. These pillars, when captured and modeled correctly, remain constant regardless of changes to process, technology, and/or capabilities.

The goal of the IT4IT standard is to guide the improvement of the entire IT management capability of an IT organization using a value chain approach. Most CIOs and IT managers have realized that losing sight of the big picture due to the imminent urge of the daily details is blocking them from improving the IT function. Instead of improving specific processes, tools, or information needs, the focus should be on improving the system as a whole.

WHAT IT4IT WILL DO FOR YOU

Use of the IT4IT Reference Architecture will:

- Provide the capabilities for managing the business of IT that enable IT execution across the entire IT Value Chain in a better, faster, and more cost-effective manner, while reducing risks

- Reduce expenditure on IT management tooling by using tools that are IT4IT compliant and therefore easier to integrate

- Increase resilience and efficiency in operations by better information provisioning and a higher degree of automation

- Increase agility in development by providing quicker and better feedback

- Increase throughput from development to operations by providing an end-to-end framework

- Reduce risk and therefore increase predictability by providing more comprehensive information about assets and activities across the whole value chain

- Reduce costs, management attention, and staff disruption associated with reorganization by using an inherently stable IT operating model

- Optimize investments in new IT services for the business by better insight into the capabilities of the current information systems

- Provide to ability to continuously improve IT services by providing improved information and insight in IT performance

- Provide improved interoperability, collaboration, and orchestration across the new multi- sourced ecosystem by having standards to enable seamless integration

- Provide a complete holistic IT4IT solution for managing the business of IT by leveraging existing standards and best practices

THE GOAL OF THE IT4IT STANDARD

The goal of the IT4IT standard is to guide the improvement of the entire IT management capability of an IT organization using a value chain approach. Most CIOs and IT managers have realized that losing sight of the big picture due to the imminent urge of the daily details is blocking them from improving the IT function. Instead of improving specific processes, tools, or information needs, the focus should be on improving the system as a whole.

Relationship With ITIL and Other Practices and Standards

WHAT ARE THE OTHER STANDARDS?

There are many different best practices, frameworks, and standards related to IT management such as ITIL, COBIT, PMBOK, PRINCE2, ISO/IEC 20000, ASL, BISL, to mention a few.

While these best practices and frameworks have placed emphasis on process, the IT4IT standard is process-agnostic, focusing on how the IT function can be

automated and supported by the right information (or data) to do the work. In addition, the IT4IT Reference Architecture provides the bigger picture of how IT services should be managed, throughout the entire lifecycle, by looking holistically at the entire IT Value Chain.

POSITIONING ITIL AND THE OTHER STANDARDS AGAINST IT4IT

ITIL and COBIT are the most commonly used process-oriented best practice frameworks for IT management. Both describe a broad range of processes and activities to be performed by the IT function throughout the service lifecycle. However, ITIL does not cover all processes and activities within the IT function, such as Enterprise Architecture, Project Management, IT Governance, Risk Management, or Service Development. Domain-specific practices such as the TOGAF methodology for Enterprise Architecture, PMBOK or PRINCE2 for Project Management, and CMMI and SCRUM for Service Development can be used to complete the process model. In addition,

there are numerous other standards and practices required to support specific controls, such as related to security management (ISO/IEC 27000 series) or risk management. These different practices and standards are typically defined at a high level, defining the requirements and activities to be performed within the IT organization. However, before they can be used in day-to-day practice they require a significant effort of design and detailing, often resulting in reinventing the wheel by each individual organization. As a result, the IT organization is challenged to create an overarching IT management model bringing it all together supported by an integrated IT management system.
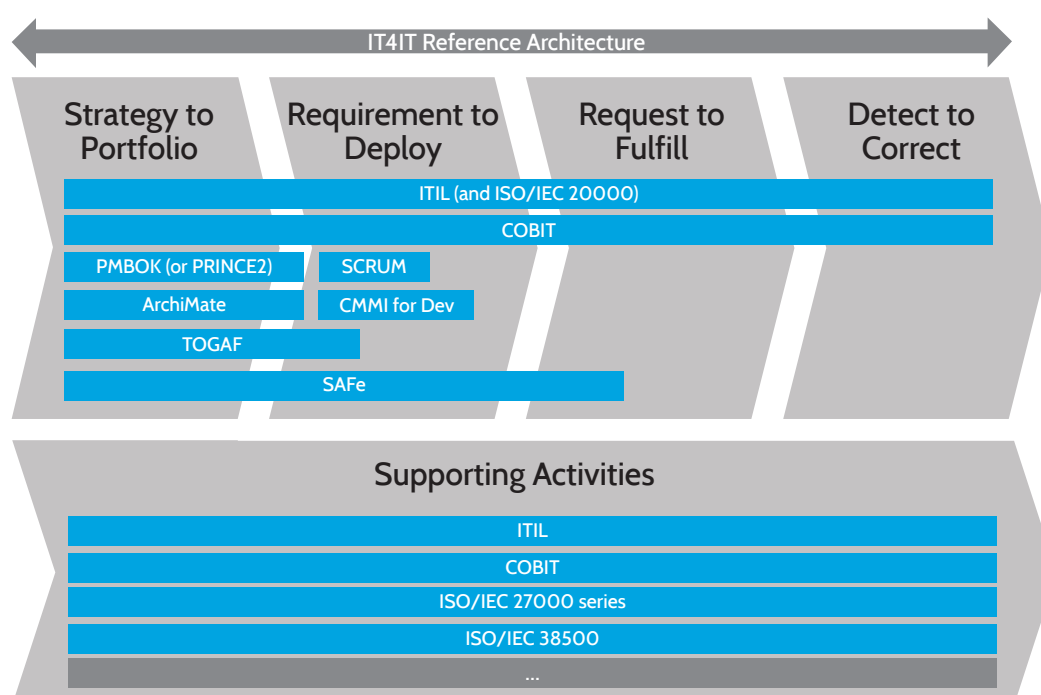
THE TYPICAL CHALLENGES WITH THE EXISTING STANDARDS

Typical challenges with these existing standards and best practices:

- Lacking full coverage of the entire service lifecycle; typically, multiple standards and practices need to be combined to provide a full management model. Standards are not "aligned"; each using their own terminology and data models.

- Lacking standard information (or data) models to enable data integration between IT management tools to increase transparency and improve decision-making.

- Focus on individual processes and activities but not defining consistent end-to-end workflows to deliver value to the business.

- No overarching model to melt the different best practices, frameworks, and standards into actual solutions that can be used to support day-to-day activities.

- Not prescriptive enough to guide how activities should be performed to enable automation and interoperability between IT management tools and service providers.

HOW IT4IT FILLS THE GAPS

To transition the IT organization to become the IT service broker and integrator, a reference model is needed to provide a framework of what is required to run this new IT environment. The IT organization needs to design, build, and implement a solid IT management capability that supports all IT processes through the lens of the IT4IT value streams. The IT4IT standard enables the implementation of this integrated IT management system (or IT4IT management system) to provide an optimized work environment for the IT employees as well as for the business to interact with the IT organization. This IT management system consists of all IT management tools, information, and interfaces to support all IT management activities; enabling fully automated workflows across the many different technologies, teams, and service providers.

HOW IT4IT SHOULD BE USED IN COMBINATION WITH ITIL AND OTHER PRACTICES

At the top layer the IT4IT standard provides an integrated and holistic view using value streams. This layer is process and technology-agnostic. It provides the model of how the IT function should be working from an end-to-end perspective. The value streams can also be used as a governance model to assign ownership for IT management capabilities to support, evaluate, and continuously improve IT management practices. Every IT organization will benefit from the first step on the journey by adopting this holistic end-to-end view based upon the IT4IT value streams.

Next to that, a selective set of best practices needs to be chosen such as the TOGAF standard, ITIL, and PMBOK (or PRINCE2). These practices further refine the requirements for specific areas such as project management, service development, and IT Service Management. The IT4IT Reference Architecture then provides the glue to incorporate these practices into an IT operating model that can be used to implement the entire IT function supported by automated tools and interfaces using a standard information model. ITIL can therefore still be used to define additional specifications for IT activities to be performed. COBIT can also be added to extend ITIL with specific controls and practices that can be audited and assessed from an IT governance perspective.

ITIL AND THE IT4IT STANDARD

ITIL and the IT4IT standard are complementary. The IT4IT standard provides the bigger picture to integrate multiple practices needed to manage IT such as ITIL, SCRUM, and PMBOK. In addition, the IT4IT standard provides the architecture to define the target state IT operating model covering a prescriptive definition of how IT needs to work.

The IT4IT Reference Architecture is not based on greenfield thinking. IT4IT components can be added incrementally to existing practices to integrate, orchestrate, enhance, and enable the current way of working.

SUMMARIZING THE RELATIONSHIP

Summarizing the relationship and unique proposition of the IT4IT Reference Architecture compared to existing frameworks and best practices:

- The IT4IT standard provides the overall end-to-end model of how the IT function should be managed using an IT Value Chain approach.

- The IT4IT standard helps to combine existing practices (such as ITIL) as well as emerging practices (such as SAFe) into a new IT operating model.

- The IT4IT standard provides new IT management practices such as DevOps, Agile, Lean software development, and Continuous Delivery.

- The IT4IT standard details how IT activities can be automated and supported by IT management tools (by defining a standard information model, functional components, and its interfaces).

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