ITGC & TTF Overview
Summer 2021

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Summary

We have 3 enduring governance authorities that are tiered and decentralized

Purpose – To clarify the roles of the various governing bodies

Technology Task Force (TTF) – Recommend changing to Technology Advisory Board (TAB)

Mission = Weekly review and approval of high risk tech decisions that have broad impact to the entire IT org. This includes Technology, Ways of Working and IT strategy. A keen focus is placed on principles and polices that impact entire IT org strategic direction (e.g. Broad strategic technical direction like "GridStack", WiPro for Data Center hosting or new CNI Partner). Its about the "**IT Strategy**"

IT Governance Committee (ITGC)

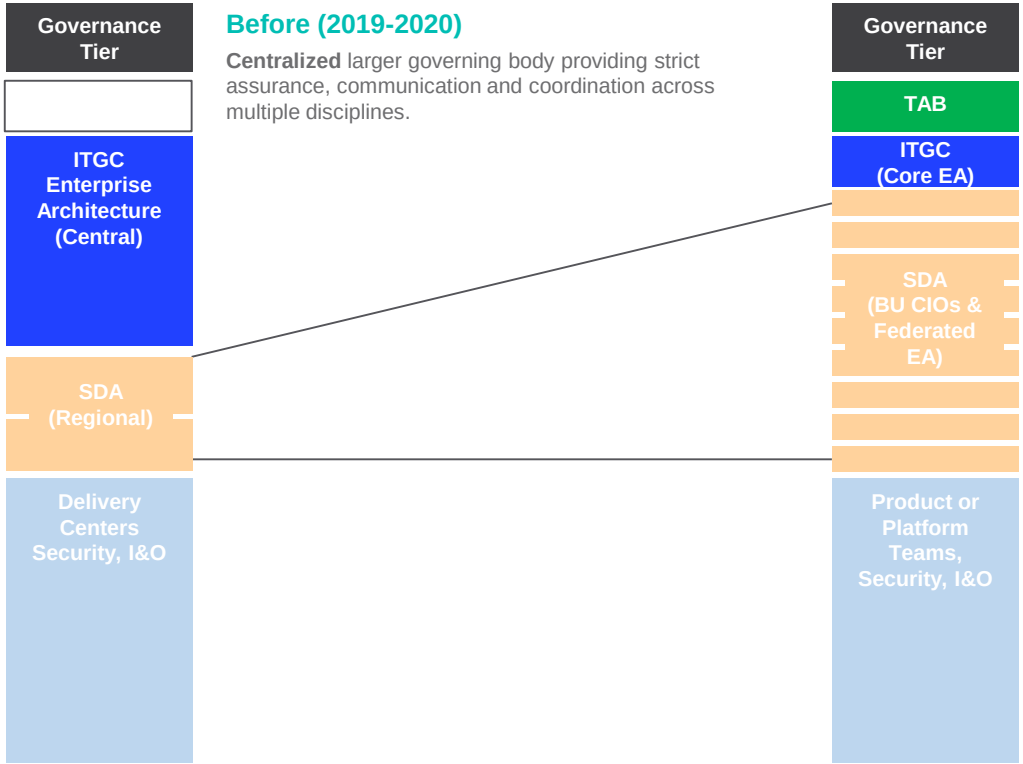
Mission = Monthly review and approval of high risk technological investments per ITAR outcome. Ensure solutions are compliant with Architecture principles, standards and best practices. Recommend and approve new technology direction where there is no current standard. Resolve conflicting Standards. Its about the "**Managing the Exceptions to the Standard**"

Solution Design Assurance (SDA)

Mission = As needed review and approval of solution designs (CSA, Logical & Physical). Ensure solutions are compliant with Architecture principles, standards and best practices. Works alongside product/platform teams per Agile methods. Its about "**The right solution design and Standardizing**"

We shifted Governance and decisions to Jurisdiction CIOs

Result is a Self Governance model with ITGC and TTF available for escalation as last resorts



Before (2019-2020)

Centralized larger governing body providing strict assurance, communication and coordination across multiple disciplines.

After (2021 -)

Decentralized control with lean global and focused local assurance.. Empowering CIOs and their teams to make decisions

- **Results**
  - Leaner Governing bodies
  - Fewer meetings (52 to 12 per yr)
  - Decisions made closer to the problem
  - Fewer layers of governance for >90% projects
  - New forum to address broader IT strategic decisions coordinated with Standards decisions

Governing bodies share a common Guiding Framework

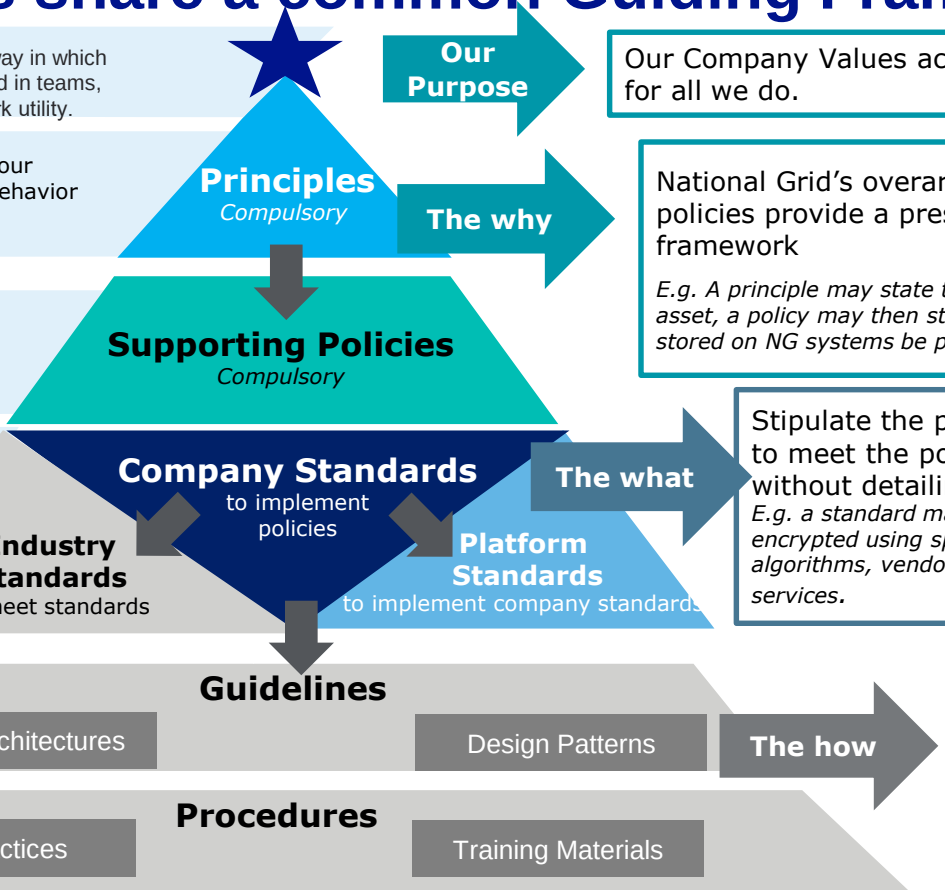
Company Values – Our Core Values define the way in which National Grid expects us to act both as individuals and in teams, to deliver our goal of being the world's premier network utility.

Principles – A stated position that translates our business / IT strategy in to a foundation for behavior when making decisions on policies, standards, architecture guidance and solutions

Supporting Policies –Define a set of requirements to guide decision making and architecture definition.

Standards – Define what must be implemented. Capability standards don't define products. Platform standards implement specific vendor standards

Guidelines & Procedures – Bring together numerous Technology Standards, Procedures and Guidelines.



Our Company Values act as the ***Guiding Star*** for all we do.

National Grid's overarching principles and policies provide a prescriptive decision making framework

E.g. A principle may state that we treat information as an asset, a policy may then state that all customer PII data stored on NG systems be protected.

Stipulate the products or approaches to meet the policy statements, but without detailing the specifics of how.
E.g. a standard may require that stored data is encrypted using specific encryption methods, algorithms, vendor products and platform services.

Provide detailed method & steps on how to satisfy standard requirements.

E.g. a procedure may detail the steps required to manage encryption keys.

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Example Activities or Use Cases

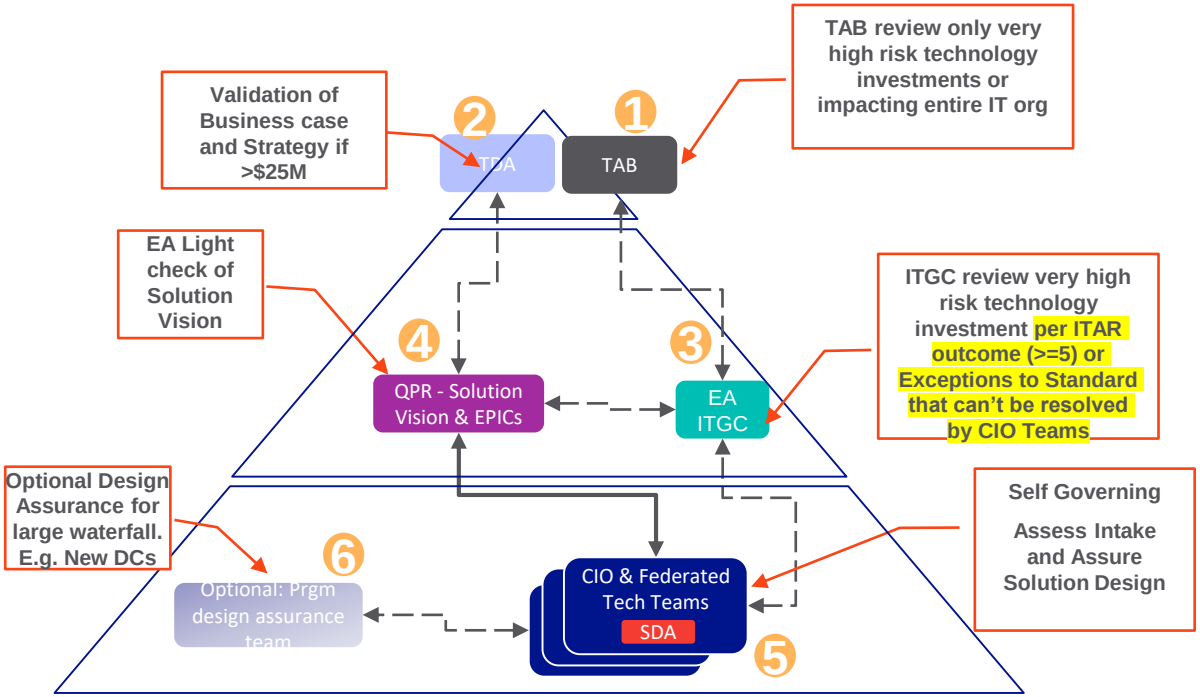
Who to go to for what and when

Activity & Deliverable	Security & I&O	Product or Platform Teams	SDA & Federated EA	ITGC & Core EA	TAB
Standards - Reference Architectures, Principles, Patterns & Practices	✓Create & Record	✓Create & Record	✓Create & Record	✓Reporting & NOD	
Technology Decisions – Reusable Detailed designs	✓Create & Record	✓Create & Record	✓Yes & Recorded	✓Reporting & NOD	
Technology Decisions – Tools & Automation	✓Create & Record	✓Create & Record	✓Yes & Recorded	✓Reporting & NOD	
Technology Decisions – Security Compliance	✓Create & Record	✓Assure compliance	✓Assure compliance		
BU or Regulatory – Electric Domain Models			✓Create & Record	✓Reporting & NOD	
BU or Regulatory – Regulatory requirement	✓Create & Record		✓Create & Record	✓Reporting & NOD	
Project Class - Run / Upgrade / Enhancement		✓Approval			
Project Class - Value Step / Grow / Strategic			✓Approval		
Project Class – Transform				✓Approval	✓Approval if High impact to IT Strategy
IT – Strategy					✓Confidential
IT - Guiding Principles					✓Manage
IT – Vendor partnership			✓Initiation		✓Approval if High impact to IT Strategy

(*) Standards = Reusable component, short list or best practice in Alfabet
(*) NOD = Notice Of Decision

This allows for decisions to be made closer to the work

Escalation only by exception



Purpose

Provide for a light touch design assurance and technical decision making, managed by exception, not rule.

1) TAB – Reviews technology decisions that impact entire IT organization. E.g. Data Platform strategy, new Data Centers, etc.
2) TDA = Transformation & Digital Adoption focus on Program assurance, Business case, ROI and Business Architecture alignment. (Emmer) >$25M only.
3) ITGC = IT Governance Council – Ran by Enterprise Architecture. Facilitate and Broker standards for large net new only
4) QPR – Quarterly Portfolio Review of demand portfolio.
5) SDA = Solution Design Assurance federated to CIO teams that ensure design is "fit for purpose"
6) Program Boards (optional) – Established to ensure designs meet needs of project and adhere to standards.

Impact on CIOs

Ensure Federated decisions are centrally recorded

Governance Tier	Governance Scope	Examples	Details
TTF	Global Governance & Standards (very architecturally significant)	Cloud Decision Tree, Strategic platforms, Principles, etc.	TTF – Review and approval of Very High Risk strategic investments that have major impact on the IT organization
ITGC & Core EA	Global Governance & Standards (very architecturally significant)	Cloud Decision Tree, Strategic platforms, Principles, etc.	• CIOs - Assign Architect (typically an SA) to run SDA. • Solution Architects (SA) partner with Domain Architects to run SDA. • SDA – "Self Assure" that design is "fit for purpose". • Domain Architects - Self Assess" Demand (ITAR) • Domain Architects – Own App Rat and fit for purpose against BCM for their domain. • Domain Architects - Ensure SDA decisions are centrally recorded with Architecture Management office (AMO) and update EnterpriseHub • Domain Architects – Ensure adherence to BU standards (e.g. Data requirements, etc.) • CIO/DA - Coordinating across multiple disciplines • CIO/DA – Bring projects to ITGC or TTF based on criteria
	Central Catalog of Reference Architectures & Components	IoT distributed computing reference solutions	
SDA & BU CIOs w/ Federated EA	BU Governance & Standards	Electric Data Domain models	
	Security/Regulatory Compliance	Gas business Regulatory requirements	
Product or Platform Teams, Security, I&O or optional assurance	Security/Regulatory Compliance	Public facing API controls (MuleSoft)	
	Catalog of Reusable Detailed Designs	Global Multitenant systems and tools (e.g. Billing)	
	Implementation Architecture Solution Design review	Serverless, Microservices, Event-Driven, etc.	
	Tools & Automation	DevOps / Database / Language	

Technology Advisory Board (TAB) – Overview (Guardrails)

Terms of Reference

Technology Task Force (TTF)

1. Purpose: Ensure High Risk decisions align to IT guiding principles and Strategy

1. Review and approve high risk tech investments that have broad impact to the entire IT org
2. Ways of working, keen focus on principles and polices that impact entire IT org
3. Major vendor / strategic decisions (e.g. WiPro for Data Center hosting or new CNI Partner)
4. Has authority to stop a project or program if risk deemed unacceptable

2. Authority

1. Global Technology Standard (TS)
2. Global Solution Design (SD)
3. Project/Investment Approve or Stop
4. Global IT Principles & Policies

Outcomes

1. Adopt / Approve
2. Conditionally Approve
3. Cancel / Reject
4. Defer back to ITGC (should be rare)

3. Line of Reporting and / or Escalation

Full authority, reporting to ITLT with authority to halt a project or program if risk is unacceptable.

4. Inputs

- Technology assessment request
- Solution Vision document
- EnterpriseHub Standards & Roadmaps
- IT guiding principles

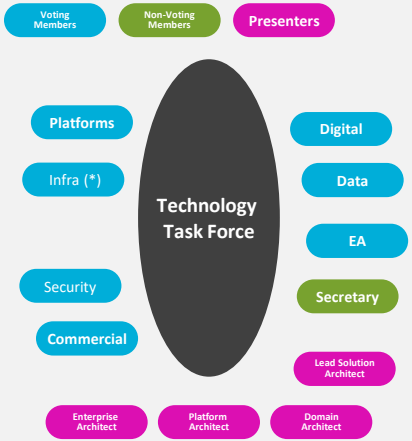
Outputs

- Review Outcomes
- Actions / recommendations
- Publish Notice of Decisions
- Minutes
- Decisions in EnterpriseHub by architects

5. Meeting Frequency Duration & Logistics

Weekly Meeting – 1 hour, 2 or 3 agenda slots available
Mode of Endorsement: Vote

6. Attendees



Role	Member	Delegate
Chair (*)	Shannon Soland	Rotating
Platforms	Narayan Devireddy	
Infrastructure	Shannon Soland	
Security	Simon Jenner	
Data	Dan Robertson	
Digital	Nick Maiello	
Ent. Arch	Keith Vargas	
Secretary	TBD	

7. Roles & Responsibilities

Voting Members	1. Review / respond to proposals for alignment to guiding principles 2. Update stakeholders with findings 3. Publish Notice of decisions
Presenters	1. Escalate proposals into TTF where there is a high level risk per advice from Enterprise Architecture or ITLT 2. Respond to TTF proposals with recommendation of Adopt or Rework Required 3. Engage Architect community to ensure directional alignment / update EA repositories

IT Governance Committee (ITGC) – Overview (Guardrails)

Terms of Reference

IT Governance Committee (ITGC)

1. Purpose: Ensure high risk solutions are Architecture sound

1. Review and approve rare exceptional technological investment risks per ITAR outcome
2. Ensure solutions are compliant with Architecture principles, standards and best practices.
3. Recommend and approve new technology direction where appropriate
4. Has authority to stop a project or program if risk deemed unacceptable

2. Authority

1. Global Technology Standard (TS)
2. Global Solution Design (SD)
3. Project/Investment Approve or Stop
4. Global IT Principles & Policies

Outcomes

1. Adopt / Approve
2. Conditionally Approve
3. Cancel / Reject
4. Defer back to SDA (should be rare)
5. Defer up to TTF (should be rare)

3. Line of Reporting and / or Escalation

Full authority, reporting to ITLT with authority to halt a project or program if risk is unacceptable.

4. Inputs

- Technology assessment request
- Solution Vision document
- EnterpriseHub Standards & Roadmaps
- IT guiding principles

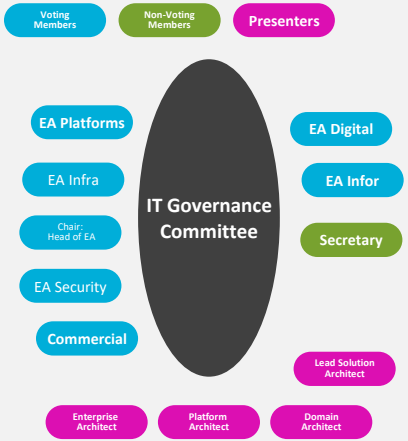
Outputs

- Review Outcomes
- Actions / recommendations
- Publish Notice of Decisions
- Minutes
- Design decisions in EnterpriseHub

5. Meeting Frequency Duration & Logistics

Monthly Meeting – 2 hour, 2 agenda slots available
Mode of Endorsement: Vote

6. Attendees



Role	Member	Delegate
Chair	Keith Vargas	
Platforms	Anoop Khurana	
Infrastructure	(Keith Vargas)	
Security	Abhilash Ravindran	
Information	Bryan Connolly	
Digital	Richard Wiles	
Secretary	Sarah Thurling	Logan Drumm
Commercial	Mark Bradley	
Honourable Guest	Lisa Pratico	

7. Roles & Responsibilities

Voting Members	1. Review / respond to proposals for strategic technology and platform direction. 2. Review Recommend SDA /adoption of proposals 3. Review Solution Visions (Current/Transition/Future) 4. Seek EA input from Architecture Working Groups or partners
Presenters	1. Escalate proposals into ITGC where there is a high level risk per ITAR 2. Respond to ITGC proposals with recommendation of Adopt or Rework Required 3. Engage EA at both ITGC and SDA levels to ensure directional alignment / update EA repositories

Details - ITGC

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ITGC is the last resort

Self Governance is the primary assurance mechanism

Today → Effective July 1st

	Traditional	Intermediate	Progressive
Role of ITGC	The ITGC is the primary governance tool	The ITGC Carries the bulk of the governance load	The ITGC is used as the enforcer of last resort, within the context of the broader governance ecosystem
ITGC Project Involvement	The ITGC views projects during the concept and design phases	Triage mechanisms are used as a reaction to the portfolio evolution – whether at the project level or aggregating to the programs or portfolio level.	The threat of enforcement is used more than the act of enforcement itself
	The ITGC is not involves in late stage reviews	The ITGC reviews projects at later stages to ensure accountability	The enterprise ITGC governs the architecture, NOT PROJECTS, unless escalation requires it.
EA's Level of influence	Central EA group has minimal control over solution architects	Solution Architects are supported but have to compensate for organization limits	EA effectively uses the community of practice and federates ownership and use of standards.
Reference Architecture (BCM/TCM)	Standards are poorly socialized and supported by rest of the org	Reference architectures are used-Albeit inconsistently to guide solution designs	Reference architectures play a crucial role in socializing standards and are actively managed.
Solution Architects Level of influence	Solution architects fulfill requests with minimal influence	Solution Architects only have influence on solutions when partners have no preference	Very high - Solution architects successfully challenge and push partners on solution design.

Credit to Lisa Pratico for original content

(*) Standards = Reusable component, approved application, short list or best practice in Alfabet

What goes to ITGC?

If 5 or more are "High" then Solution Vison must go to ITGC for approval

	Risk Questions	Answer	Rating	Answer	Rating	
1	**Does solution impact CNI**	**Yes**	**High**	**No**	**Low**	
2	**Does Solution impact multiple systems/business units**	**Yes**	**High**	**No**	**Low**	
3	Does Solution using a new/unknown Supplier/vendor to NG	Yes	High	No	Low	
4	**Does Solution using new technology to National Grid**	**Yes**	**High**	**No**	**Low**	
5	**Does solution impact external users (our customers)**	**Yes**	**High**	**No**	**Low**	
6	Does solution require extensive or complex integration (e.g. AMI)?	Yes	High	No	Low	
7	Does solution have extensive security requirements / impact	Yes	High	No	Low	
8	**Does Solution have a high dependencies to other project(s) – e.g. Large Program?**	Yes	High	No	Low	
					Score	

ITGC – Enterprise Architecture

- **Only** evaluate Very High Risk, large unknown net new technology investments **based on CIO ITAR outcome**
- Above to be **automated** in EnterpriseHub or Microsoft Forms (tbd)

Example Scenarios (Thanks to Pete Lawrence)

- A legacy business application (on-prem) being replaced by a new application which is Azure hosted (0)
- A new digital application/prototype being productionised for live use (1)
- A new data service e.g. Azure AI & ML being stood up for a business unit's data science team to use (2 or 3)
- A maintenance project to update VMware version on a shared platform which services multiple business units (0)
- The replacement of a major platform such as Ellipse EAM with Maximo (e.g. > £10m investment) (5)

ITGC – Supporting Policies (Draft in Process)

Guidance for how ITGC Makes determination. Will be captured in EnterpriseHub

Global IT Principles

Policies - Security Policies & Standards.

Policies - Solutions Development

1. Digital – “Grid Stack First” delivery approach
2. Cloud First Where Possible – Leverage cloud where possible versus on-premise data centers. Use of EA approved of cloud offerings (IaaS, PaaS, SaaS, etc.) will likely offer a commercial and strategic advantage. Embrace a Cloud First mindset to help follow core EA Principles.
3. CI/CD DevOps Where Possible – Especially for Agile projects
4. Integration - Stay In one Cloud – Use Native integration tooling
5. Integration - Cloud to Cloud – Use Mulesoft CloudHub
6. Integration - Into a Cloud – Use Mulesoft

ITGC – Supporting Policies (Draft in Process)

Guidance for how ITGC Makes determination. Will be captured in EnterpriseHub

Policies - Data

1. Data is an asset – it has a purpose, cost-value and lifecycle
2. Data is managed and secure – all data is subject to ownership, governance and protection from unauthorised access throughout its full lifecycle (from planning and collection through to retention and disposal)
3. Data is fit for purpose – data should be of the quality required for its intended uses
4. Data is standardised – in terms of its definition, format, content and categorisation providing the ability to link differing forms of related data together
5. Data has a single authoritative source – for all data there shall be a single and identified authoritative (master) source
6. Data is accessible – we should all have the appropriate access to the data we need to carry out our roles
7. Data is published – any data we publish should be defined, appropriate, quality assured and verifiable.

ITGC – Supporting Policies (Draft in Process)

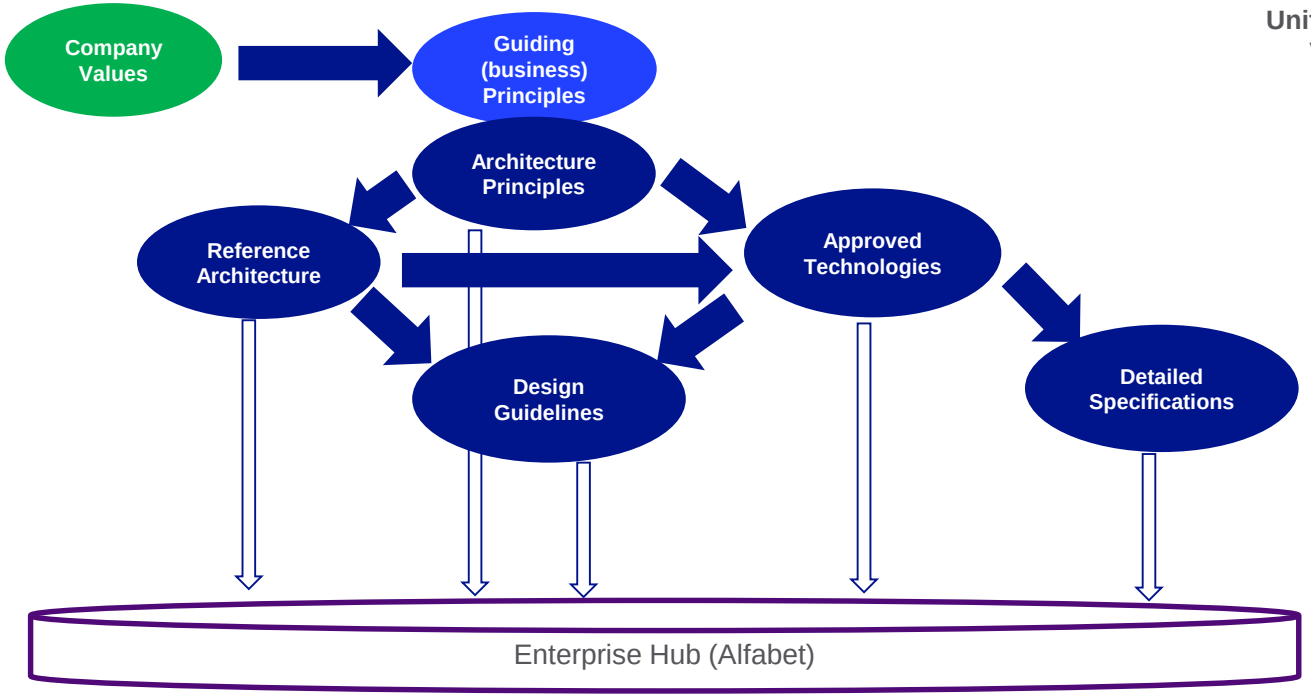
Guidance for how ITGC Makes determination. Will be captured in EnterpriseHub

Policies - I&O

1. Cloud First Where Possible – Leverage cloud where possible versus on-premise data centers. Use of EA approved of cloud offerings (IaaS, PaaS, SaaS, etc.) will likely offer a commercial and strategic advantage. Embrace a Cloud First mindset to help follow core EA Principles.
2. Automation of Infrastructure as Code (IAC) – Embrace where possible to ensure consistency, faster provisioning and accuracy. To help meet Business Management System (BMS) Control requirements
3. Software Defined – Leverage Software defined capabilities over hardware (e.g. networks) overseen by a National Grid Network Operations Center (NOC) will help us to more effectively build and dynamically adjust our infrastructure as needed.
4. Elastic Scale – Allow for automated refactoring to support future growth, performance needs and changing business priorities, M&A, etc. Design for Scale, Performance, Capacity and End to End Monitoring (network & application)
5. Composable Enterprise & Democratized Platforms – Infrastructure enables distributed platforms connected via an API Ecosystem. We embrace a hybrid cloud or multi cloud enterprise.
6. Agnostic – Chose agnostic implementations as a priority where possible.
7. Proximity to end user – The Physical Location of Preference is within proximity to the primary customer/user. The less physical distance data moves across zones or regions the better. Edge computing devices can be used for caching, data manipulation, etc.
8. Service Management - ??

Types of Standards

Federated but centrally managed



Uniformity of Vision

Uniformity of Execution

- **Guiding principles** -guide decisions on project issues & other standards
- **Approved Technologies** leverage existing technology investments and fulfill the guiding principles
- **Details specifications** provide essential details supporting the use of approved technologies
- **Design guidelines** promote best practices and uniformity inf the usage of approved technologies and reference architectures
- **Reference Architecture** – contains sets of standards, providing complete, proven solutions based on one ore more approved technologies.

(*) Standards = Reusable component, short list or best practice in Alfabet

Details - TTF

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Decision Making Key Criteria

Considerations for how TTF makes determination

	Key Considerations
1	Is there a critical mass of use cases behind a proposal?
2	Is this a significant enterprise standard differentiation?
3	Is this a ring fenced solution or a use case exception?
4	Is the business trying to make technology decisions without involving IT
5	One size does not fit all. We need to be open to other use cases where appropriate
6	What is the risk to our business if we do this?
7	Are we strict our flexible in our interpretations of 3rd party regulations (e.g. OFGEM, NERC, FERC)
8	TCO
9	
10	

Guiding IT Principles Summary

Guidance for how TTF Makes determination

	IT Principle
1	Projects will be justified with business cases including total cost of ownership and business benefit
2	IT will build for today's needs as well as innovate for the future
3	End user experience will be at the forefront of IT designs
4	Leverage out-of-box, over proprietary solutions – adopt and fully exploit Platform Solutions
5	Re-use existing platforms before buying new or building unless a strategic advantage can be gained

Guiding IT Principles Summary

Guidance for how TTF Makes determination

	IT Principle
6	Use open standards over proprietary solutions
7	Be conscious of vendor lock-in
8	Leverage cloud technologies where possible versus on premise data centers
9	Design for operations keeping security, scalability, resilience and disaster recovery at front of mind
10	Information is an asset which is fundamental to the efficient and effective delivery of IT services
11	Data must be securely maintained, accessible and easy to integrate

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Tier Governance – Example decisions

Centrally recorded and tracked in EnterpriseHub

Governance Tier	Governance Scope	Examples	Details
TAB	IT and Corporate Principles (very IT organization significant)	Strategic vendor partnership, IT Strategy, Organizational strategy	• TTF – Review and approval of Very High Risk strategic investments that have major impact on the IT organization
ITGC & Core EA	Global Governance & Standards (very architecturally significant)	Cloud Decision Tree, Strategic platforms, Principles, etc.	• ITGC – Review and approve High Risk Technology investments that do not meet existing standards. • Core EA – Manage catalog of standards, principles and principles
	Central Catalog of Reference Architectures & Components	IoT distributed computing reference solutions	
SDA & BU CIOs w/ Federated EA	BU Governance & Standards	Electric Data Domain models	• Domain Architects – "Self Assess" Demand (ITAR) • Domain Architects - App Rat and fit for purpose against BCM • SDA – "Self Assure" that design is "fit for purpose"
	Regulatory Compliance	Gas business Regulatory requirements	
Product or Platform Teams, Security, I&O or optional assurance	Security Compliance	Public facing API controls (MuleSoft)	• Ensure you follow National Grid Standards and patterns • Contribute to the creation of standards, etc. • Follow Industry best practices & Build it right
	Catalog of Reusable Detailed Designs	Global Multitenant systems and tools (e.g. Billing)	
	Implementation Architecture Solution Design review	Serverless, Microservices, Event-Driven, etc.	
	Tools & Automation	DevOps / Database / Language	

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