

Understanding IT Systems Over The Long Term

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Specialist Group**

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Challenges in Understanding IT Systems – over 20+ years

1. Increasing Technical Complexity And Coverage

- HW, SW, cabling, network, storage, security systems, operations support systems, IoT, cloud/hybrid cloud, user devices

2. Constant Change

- Additions and retirements of data centres, HW, SW, instances, etc.
- People – turnover, sourcing
- Organisational and sourcing changes
- Acquisitions, divestitures, supplier failure
- External forces, e.g., green technology, privacy, regulation, cloud, remote work

3. Limited Transparency

- Decision makers often don't trust data, advice or empower
- Infrastructure information is hard to obtain, maintain and often not “owned”

The Telecommunications Industry Association

The USA Telecommunications Industry Association (TIA) brings together communities of interest across -- Technology, Government Affairs, Standards, and Business Performance. Members include ICT manufacturers and suppliers, network operators and service providers, distributors and systems integrators.

TIA is accredited by the American National Standards Institute (ANSI). TIA collaborates with the International Telecommunication Union (ITU), the International Organization for Standardization (ISO), and the International Electrotechnical Commission (IEC).

TIA operates nine engineering committees that develop guidelines for private radio equipment, cellular towers, VOIP equipment, structured cabling, satellites, telephone terminal equipment, accessibility, data centers, mobile device communications, vehicular telematics, smart device communications, and smart utility mesh networks. More than 1,000 individuals - representing network equipment manufacturers, service providers, government entities, and end users - currently serve on TIA's Engineering committees.

In 2020 the TR-60 ICT Life Cycle Management committee was formed to develop the framework focused on long term management of ICT infrastructure. In August 2022 the first standard to be approved for development was announced as TIA-5077.1 - Information management of ICT Infrastructure.

Personal Summary – David Cuthbertson



- Developing and implementing AssetGen software and Visio automation software to document and map complex enterprise, service provider and government IT environments. From low level physical components and connectivity to applications, cloud, data flows and business processes.
- Provide services for infrastructure documentation, auditing, baselining and Visio automation training. Often involving frameworks or standards such as ITIL, CoBit, NIST CSF, 27001, BICSI, TIA
- Trade Associations - Developing best practices and encouraging process maturity
 - BCS Service Management SG
 - BCS Configuration Management SG
 - BICSI UK Committee
 - TIA TR60.B Sub-Committee Chair
 - ITIL Service management and change
 - ITAM, service mapping, application development
 - Physical infrastructure design and operation
 - TR-60 Life Cycle Management

What Do You Have To Change To Prevent This?

1. Design
2. Implementation
3. Operations
4. Life cycle planning
5. Culture
6. Baseline fix
(cost/risk/time)



Which benefit would you choose?

1. Reduce planning time
2. Avoid accidents
3. Reduced cost of change
4. Easier to document and audit
5. Change impact clarity
6. Simpler to decommission
7. Easier knowledge transfer
8. Meet cyber security controls

Why An ICT Life Cycle Management Framework?

1. Ensure adequate resources, expertise, documentation, and knowledge transfer to improve productivity and efficiency in managing increasingly complex ICT infrastructure.
2. Enable fast, flexible, and secure implementation of new technologies to deliver maximum value and enable rapid digital transformation with reduced risk.
3. Enhance transparency, coordination, and decision making to eliminate costly duplication and inconsistencies across distributed and multi-site/organisational teams.
4. Establish clear, unambiguous management and control requirements for all internal and external stakeholders and third-party service providers.
5. Enable targeted planning and investment to support ICT infrastructure change that reduces risk, capital and operational expenditure.

How Is TR-60 Life Cycle Management Structured

Five process areas

Six practice areas

Release Schedule

Phase 1 TIA-5077.1

Phase 2 TIA-5077.2 / 5077.3

Phase 3 TIA-5076.1 / 5078.1 / 5079.1 / 5080.1

TR-60.B Sub-Committee

Chair David Cuthbertson

Vice Chair Gary Patton

TR-60.TSB						
Practice Areas		Process Areas				
		A	B	C	D	E
		Planning	Information Management	Design	Implementation	Operations
		TIA-5076	TIA-5077	TIA-5078	TIA-5079	TIA-5080
60.1	Technology	TIA-5076.1	TIA-5077.1	TIA-5078.1	TIA-5079.1	TIA-5080.1
60.2	Governance	TIA-5076.2	TIA-5077.2	TIA-5078.2	TIA-5079.2	TIA-5080.2
60.3	Security	TIA-5076.3	TIA-5077.3	TIA-5078.3	TIA-5079.3	TIA-5080.3
60.4	Logistics	TIA-5076.4	TIA-5077.4	TIA-5078.4	TIA-5079.4	TIA-5080.4
60.5	Procurement	TIA-5076.5	TIA-5077.5	TIA-5078.5	TIA-5079.5	TIA-5080.5
60.6	Human Resources	TIA-5076.6	TIA-5077.6	TIA-5078.6	TIA-5079.6	TIA-5080.6

TIA-5075

TIA-5077.1 Information Management Of Technology

- All technical infrastructure involved in using or supporting data communications
 - Buildings, rooms, OSP, IT, IoT, security, cabling, etc.
 - Passive, active and virtual components (servers, networks, storage, user, etc)
 - Not directly in scope are data, applications, data processing, services, etc.
- Information set guidelines for life cycle planning, projects, operations, implementation
- Common language, terms, data, formats, symbology, structure
- Naming, labelling, dependencies, ownership, formats, metadata
- Processes around information ownership, use, roles, access, classification
- Auditable – self audit and external checks

Daily Challenges To Solve

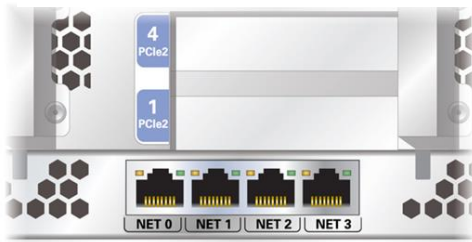
1. Name that port

1 or 01 or 001?

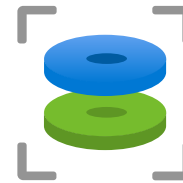
2/1 2\1 2/01 SL2/1 Port 2/1 Gig 2/1 Fe2/1 Slot 2/09

Mgmt MGT Con Console ILO Net Mgmt

NIC 1 Eth A Net 0 hba0 bge1 12F1 primary



2. Guess the symbol



Disk
Snapshot



Data Box
Edge



Simple
Notification
Service



AWS IoT
Greengrass

3. Find the latest version

Which host / laptop / VM / dropbox / USB stick

File share / drive folder

Sharepoint or CMS location

Embedded in document / page

Email

A Few Current Information Sets To Consider...

Requirements

Conceptual	Approach and sequencing
Assessment of current state	Proposals Roles and responsibilities

Design

High level design (HLD)	Solutions design	Approval / signoff	Resilience
Low level design (LLD)	Capacity	Contractual	

Implementation

Team / Role specific view	Roll back/recovery	Connection paths
Work instructions	Sequencing	Location awareness
		Contractual

Operations

Fault resolution	Failover	Centralised control	Recovery options
Locations	Service dependencies	Functional dependencies	Monitoring

Risk

Change impact	Environment management	Risk profiling	Resilience
DR/Recovery planning	Security zoning	Data encryption	Regulatory

Objectives

- Easier
- Simpler
- Consistent
- Faster
- Relevant
- Controllable

Mapping Project Processes To Information Sets

Hardware Installation

Requirements

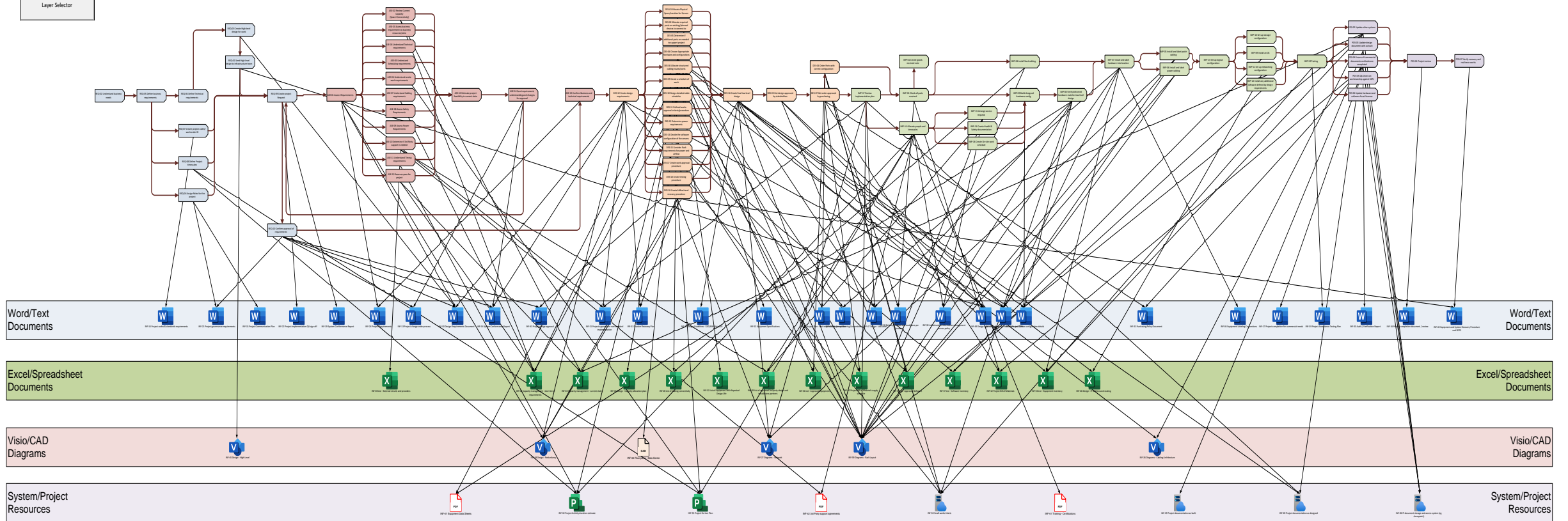
Assess

Design

Implement

Post-Implementation Tasks

Layer Selector



Run Date: 14 July 20

What Does This All Mean To Enterprise Architects

- Develop EA standards and processes for communication
- Every design / solution will evolve and be replaced
 - Changing technology
 - Changing business needs
 - External regulations and marketplace needs
 - Retain and pass on knowledge gained during discovery and analysis
- Should be easier for EA to understand underlying infrastructure and constraints for risks, dependencies, business use and migration options
- Consider participating or volunteering the EA perspective on life cycle management during public consultation.

Further Reading And Contacts

TIA Website www.TIAOnline.org

Membership, committee participation, events, news, press releases

TR-60 <https://tiaonline.org/committee/tr-60-ict-lifecycle-management/>

Brochures, case studies and other materials being developed

My details David Cuthbertson – on linkedin

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Infrastructure mapping software with Visio automation

Data centres, networks, applications, systems, data flows, etc.